Visual Impact Assessment

Santa Cruz Route 1 HOV

Tier I Corridor Analysis of
High Occupancy Vehicle (HOV) Lanes and Transportation System Management (TSM) Alternatives
(05 SCR-1-PM 7.24-16.13)
and

Tier II Build Project Analysis
41st Avenue to Soquel Avenue/Drive
Auxiliary Lanes and Chanticleer Avenue Pedestrian Overcrossing
(05 SCR-1-PM 13.5-14.9)
EA 0C7300

Prepared by the

State of California Department of Transportation

July 2013

U.S. Department of Transportation

Visual Impact Assessment

TIER I - CORRIDOR ANALYSIS OF
HIGH OCCUPANCY VEHICLE (HOV) LANES
AND TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVES
AND
TIER II - BUILD PROJECT ANALYSIS OF
41ST AVENUE TO SOQUEL AVENUE/DRIVE AUXILIARY LANES AND
CHANTICLEER AVENUE PEDESTRIAN OVERCROSSING

San Andreas-Larkin Valley Road Interchange to Morrissey Boulevard Interchange in Santa Cruz County

05-SCR-1- PM R7.24/16.13 (KP R11.64/25.96)
EA 05-0C7300

July 2013

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State Route 1 HOV Lane Widening Project (From Morrissey Boulevard to San Andreas Road) VISUAL IMPACT ASSESSMENT

Errata

June 10, 2015

This Errata sheet revises the Visual Impact Assessment as described below.

1. **Section 3.2.1.** This Errata sheet revises the Visual Impact Assessment's description of the coastal zone. Within the Tier I project limits, the segment of Route 1 between the southern project limit near the San Andreas Road/Larkin Valley Road interchange and east of the Bay Avenue - Porter Street interchange lies within the coastal zone. The rest of Route 1 within the Tier I project limits is located outside of the coastal zone. In addition, the Tier II Auxiliary Lane Alternative is located outside of coastal zone jurisdiction.

2. **Project Description.** The project description text provided in Section 1.3 of the report is hereby changed to replace the existing text of Section 1.3 with the following text; the figures in Section 1.3 are unchanged.

1.3. PROJECT DESCRIPTION

Purpose

The purpose of the proposed Tier I project on Route 1 within the project limits is to achieve the following:

- Reduce congestion.
- Promote the use of alternative transportation modes as means to increase transportation system capacity.
- Encourage carpooling and ridesharing.

The purpose of the Tier II project is to:

- Reduce congestion.
- Improve safety.
- Promote the use of alternative transportation modes as means to increase transportation system capacity.

The main distinction between the Tier I and Tier II project purposes is the Tier II project also addresses a congestion-related safety need within its limits but will not promote carpooling in the Route 1 corridor.

The Tier I and Tier II projects are intended to address specific deficiencies and needs on Route 1, as described in the following subsection.

Need

The Tier I and Tier II projects address the following needs resulting from deficiencies on Route 1 within the project limits:

- Several bottlenecks along Route 1 in the southbound and northbound directions cause recurrent congestion during peak hours.
- Travel time delays due to congestion are experienced by commuters, commerce, and emergency vehicles.
- "Cut-through" traffic, or traffic on local streets, occurs and is increasing because drivers seek to avoid congestion on the highway.
- Limited opportunities exist for pedestrians and bicyclists to safely get across Route 1 within the project corridor.

Within the Tier I project limits, in addition to the common needs identified above there is a need to address the following corridor-wide deficiencies:

- Insufficient incentives to increase transit service in the Route 1 corridor because congestion threatens reliability and cost-effective transit service delivery.
- Inadequate facilities to support carpool and rideshare vehicles over single-occupant vehicles, reducing travel time savings and reliability.

The Tier II project, in addition to the common needs identified above, also addresses the following need:

- Improve operational safety to address accident rates in excess of the statewide average.

Description of Alternatives

This section describes the proposed project improvements and the project alternatives developed to meet the purpose and need, while avoiding or minimizing environmental impacts. The alternatives are the Tier I Corridor HOV Lane Alternative, the Tier I Corridor TSM Alternative, and the Tier II Auxiliary Lane Alternative.

The proposed Tier I and Tier II project locations are in Santa Cruz County, California, on Route 1.The Tier I eastern project limit is just south of the village of Aptos, approximately 0.4 mile south of the San Andreas-Larkin Valley Road interchange; the Tier I project then traverses the villages of Soquel, Live Oak and unincorporated Santa Cruz County. The western Tier I project limit is in the City of Santa Cruz, approximately 0.4 mile north of the Morrissey Boulevard interchange, for a total length of 8.9 miles. The Tier II project limits, which lie within the Tier I corridor, begin at 41st Avenue on the east and extend a distance of 1.4 miles westward to Soquel Avenue.

Within the Tier I and Tier II project limits, Route 1 is a four-lane divided freeway with 12-foot lanes. In the southbound direction the existing inside paved shoulder width varies from approximately 4 feet to 18 feet and in the northbound direction the existing inside paved shoulder width varies from 7 feet to 18 feet. In the southbound direction in the project corridor, the outside shoulder width varies from 8 feet to 12 feet. In the northbound direction in the project corridor, the outside shoulder width varies from 6 feet to 8 feet.

The purpose of the Tier I project is to reduce congestion, promote the use of alternative transportation modes as means to increase transportation system capacity, and encourage carpooling and ridesharing. The purpose of the Tier II project is to reduce congestion, improve safety, and promote the use of alternative transportation modes as means to increase transportation system capacity.

Alternatives

This section describes the Tier I Corridor Alternatives and the Tier II Auxiliary Lane Alternative that were analyzed in this document. The Project Development Team studied various design alternatives and options. In an effort to reduce and avoid impacts, the Project Development Team also considered preliminary environmental information to better understand the impacts of those alternatives. The views of stakeholders were elicited through public information meetings and meetings with local agency staff and elected officials. From this preliminary analysis and public outreach, a longer list of alternatives and options was narrowed to include the alternatives described below.

The Tier I Corridor HOV Lane and TSM Alternatives were originally conceived as construction-level study alternatives, under the assumption that funding would be available in the near future. The Project Development Team recognized that funding sources to construct either of those alternatives would be limited in the short term and that implementation of the Tier I project would occur over a multi-year period. To make a decision on the types of transportation improvements that would occur within the corridor in the future, Tier I project implementation alternatives were identified. The team decided to study the HOV Lane and TSM Alternatives in a Tier I or Master Plan environmental document. The Tier I/II DEIR/EA will allow for the identification of a preferred corridor alternative for the 8.9-mile-long project corridor and facilitate the programming of funds. At the same time, the team also recognized that there was sufficient funding to implement a construction-level Tier II project within the corridor that would have more immediate congestion-relief benefits. Accordingly, a Tier II Auxiliary Lane and Pedestrian/Bicycle Overcrossing Alternative is also defined and analyzed in the Tier I/II DEIR/EA.

The Tier I corridor analysis includes three alternatives: a Tier I Corridor HOV Lane Alternative, a Tier I Corridor TSM Alternative, and a Tier I No Build Alternative. As funding becomes available, the high-priority improvements in the corridor would become

subsequent incremental (Tier II) construction-level projects and would be subject to separate environmental reviews.

The Tier II corridor analysis considers an Auxiliary Lane Alternative and Pedestrian/Bicycle Overcrossing, and a No Build Alternative. The Tier II project is located between 41st Avenue and Soquel Avenue/Drive. It is anticipated that construction of the Tier II project could begin in 2016.

Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives

The Tier I HOV Lane and TSM Alternatives share many features, such as: the addition of auxiliary lanes, new pedestrian/bicycle overcrossings over Route 1, and Transportation Operations System elements. These common design features are described below.

Auxiliary Lanes

Auxiliary lanes are designed to reduce conflicts between traffic entering and exiting the highway by connecting the on-ramp of one interchange to the off-ramp of the next; they are not designed to serve through traffic. Auxiliary lanes would be constructed to improve merging operations at the locations listed below:

- Freedom Boulevard and Rio Del Mar Boulevard – northbound and southbound
- Rio Del Mar Boulevard and State Park Drive – northbound and southbound
- State Park Drive and Park Avenue – both directions in the TSM Alternative; southbound only in the HOV Lane Alternative
- Park Avenue and Bay Avenue/Porter Street – northbound and southbound
- 41st Avenue and Soquel Avenue/Drive – northbound and southbound

New Pedestrian/Bicycle Overcrossings

Both Tier I alternatives would construct new pedestrian/bicycle overcrossings of Route 1 at the following locations:

- Mar Vista Drive – The crossing would start on the north side of Route 1 and parallel the highway eastward for approximately 600 feet, doubling back westward as it climbs before crossing the highway and McGregor Drive at a right angle and then descending by switchbacks to and along Mar Vista Drive for approximately 550 feet; the final design will be determined as part of the Tier II design/environmental analysis of this facility.
- Chanticleer Avenue – The crossing would start at the Chanticleer Avenue cul-de-sac on the north side of Route 1 and run parallel the highway for approximately 400 feet to the west and then cross Route 1 and Soquel Avenue (frontage road) on a curved alignment, terminating just west of Chanticleer Avenue on the south side of the highway and Soquel Avenue (frontage road).

- Trevethan Avenue – The crossing would start on the north side of Route 1 at Trevethan Avenue and parallel the highway approximately 600 feet before crossing on an angle and continuing along the banks of the western tributary to Arana Gulch to terminate close to Harbor High School; multiple configurations are possible, with the final design to be determined as part of the subsequent design/environmental analysis of this facility.

Other Common Features of the Tier I Corridor Alternatives

The Tier I Corridor Alternatives would include reconstruction of the Santa Cruz Branch Rail Line bridges over Route 1 and the State Park Drive, Capitola Avenue, 41st Avenue, and Soquel Avenue overcrossings. The Santa Cruz Branch Line railroad underpass structures are proposed to be modified or replaced to accommodate highway widening to match the ultimate six-through-lane concept, including shoulder and sidewalk facilities to accommodate pedestrians and bicycles. These modifications will lower the highway profile to provide standard clearances. In addition the Aptos Creek Bridge would be widened.

Both build alternatives would include Transportation Operations System elements such as changeable message signs, closed-circuit television, microwave detection systems, and vehicle detection systems. In addition, ramp metering and HOV on-ramp bypass lanes with highway patrol enforcement areas would be constructed on the Route 1 ramps within the Tier I project limits; however, only the HOV Lane Alternative would include HOV lanes on the mainline.

Table 1-4 summarizes the major features of the Tier I Corridor Alternatives.

Tier I Corridor HOV Lane Alternative

The Tier I Corridor HOV Lane Alternative includes the following main components, which are discussed in detail below and are shown in Figure 1-3:

- Highway mainline to include northbound and southbound HOV lanes throughout the project limits;
- Auxiliary lanes;
- Highway interchange reconfigurations and improvements such as ramp metering, on-ramp HOV bypass lanes and California Highway Patrol enforcement areas, and stormwater drainage/treatment facilities;
- Construction of three pedestrian/bicycle overcrossings;
- Reconstruction of two Santa Cruz Branch Rail Line overcrossings in Aptos;
- Widening of the Aptos Creek Bridge;
- Replacement of the Capitola Avenue overcrossing;
- Retaining walls;
- Soundwalls; and

- Traffic signal coordination and other transportation operation system improvements.

The Tier I Corridor HOV Lane Alternative would expand the existing four-lane highway to a six through-lane facility by adding HOV lanes in both the northbound and southbound directions. HOV lanes would be constructed entirely within the existing median where possible. In those areas where the median is not wide enough to accommodate additional lanes, widening would occur outside of the existing freeway footprint. The southernmost 1.5 miles of the freeway can accommodate an HOV lane inside the existing median. From approximately Freedom Boulevard to Soquel Drive, the existing median is not wide enough to accommodate an HOV lane, so the space needed for the additional lanes would be achieved through a combination of median conversion within existing right-of-way and acquisition of property adjacent to the freeway.

Table 1-4: Major Project Features
Tier I Project Alternatives

Project Features	HOV Lane Alternative	TSM Alternative	No Build Alternative
Highway Mainline Changes			
HOV lanes	X		
Lower highway profile at Santa Cruz Branch Line bridge crossings[1]	X	X	
Auxiliary Lane Improvements			
Northbound and southbound between Freedom Boulevard and Rio Del Mar Boulevard	X	X	
Northbound and southbound between Rio Del Mar Boulevard and State Park Drive	X	X	
Northbound between State Park Drive and Park Avenue		X	
Southbound between State Park Drive and Park Avenue	X	X	
Northbound and southbound between Park Avenue and Bay Avenue/Porter Street	X	X	
Northbound and southbound from 41st Avenue to Soquel Avenue/Drive	X	X	
Highway Interchange Improvements			
Reconfigure all nine interchanges within project limits	X		
Reconstruct State Park Drive, 41st Avenue, and Soquel overcrossings		X	
Ramp metering	X	X	
On-ramp HOV bypass lanes	X	X	
On-ramp California Highway Patrol enforcement areas	X	X	
Stormwater drainage and treatment facilities	X	X	
New Pedestrian/Bicycle Overcrossings			
Mar Vista Drive Crossing	X	X	
Chanticleer Avenue Crossing	X	X	
Trevethan Avenue Crossing	X	X	
Santa Cruz Branch Line Bridges Replacement	X	X	
Aptos Creek Bridge Widening	X	X	
Capitola Avenue Overcrossing Replacement	X	X	
Retaining Walls	X	X	
Soundwalls	X	X	
Traffic Signal Coordination	X	X	X
Transportation Operations System	X	X	X
Transit-Supportive Improvements	X		
1 Existing highway profile does not meet vertical clearance standards for railroad bridge crossings.			

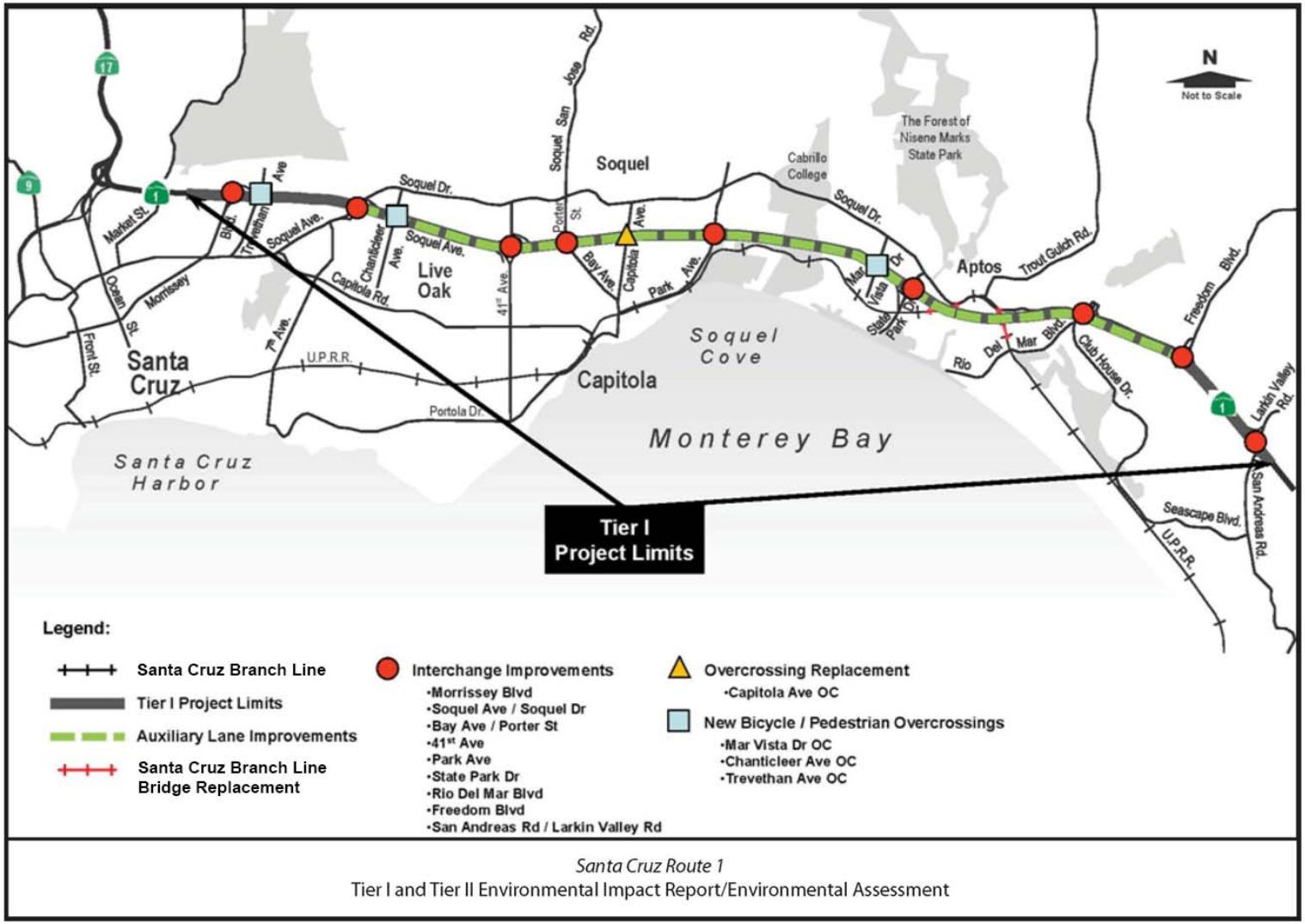


Figure 1-3: Tier I Corridor HOV Lane Alternative – Project Features

The Tier I Corridor HOV Lane Alternative would expand the existing four-lane highway to a six through-lane facility by adding HOV lanes in both the northbound and southbound directions. HOV lanes would be constructed entirely within the existing median where possible. In those areas where the median is not wide enough to accommodate additional lanes, widening would occur outside of the existing freeway footprint. The southernmost 1.5 miles of the freeway can accommodate an HOV lane inside the existing median. From approximately Freedom Boulevard to Soquel Drive, the existing median is not wide enough to accommodate an HOV lane, so the space needed for the additional lanes would be achieved through a combination of median conversion within existing right-of-way and acquisition of property adjacent to the freeway.

A mandatory standard median width (22 feet) set by Caltrans in its Highway Design Manual is proposed through most of the project corridor, north of Freedom Boulevard. The mandatory standard median width comprises two 10-foot-wide inside shoulders and a 2-foot-wide barrier. Where meeting the mandatory median width standard would result in acquiring property on the non-highway side of existing frontage roads, inside shoulder widths of 5 feet are proposed to reduce property requirements and impacts. Five feet is a nonstandard inside shoulder width for a Caltrans facility. This exception to shoulder-width design standards has received conceptual review in meetings between Caltrans and the project sponsor. All projects requiring design exceptions must ultimately be approved by Caltrans.

The Tier I Corridor HOV Lane Alternative would modify or reconstruct all nine interchanges within the project corridor to improve merging operations and ramp geometry by increasing the length of lanes for acceleration and deceleration, adding HOV bypass lanes and mixed-flow lanes to on-ramps, and improving sight distances. The Bay Avenue/Porter Street and 41st Avenue interchanges would be modified to operate as one interchange with frontage roads connecting the two interchanges. Where feasible, design deficiencies on existing ramps would be corrected to meet current design standards. Ramp metering and HOV bypass lanes would be provided on all Route 1 on-ramps. This alternative would include auxiliary lanes between all interchange ramps (with the exception of a northbound auxiliary lane between State Park Drive and Park Avenue) and Transportation Operations System elements, such as changeable message signs, microwave detection systems, and vehicle detection systems. Bridge structures and the Capitola Avenue overcrossing would be modified or replaced to accommodate the HOV lanes. New and widened highway crossing structures would include shoulder and sidewalk facilities to accommodate pedestrians and bicycles. The HOV Lane Alternative would include three new pedestrian/bicycle overcrossings of Route 1. The two existing Santa Cruz Branch Line structures over Route 1 in Aptos would be replaced with longer bridges at the same elevation, and the highway profile would be lowered to achieve standard vertical clearance under the bridges to make room for the HOV and auxiliary lanes. In addition, this design configuration would reduce

environmental impacts. The existing Route 1 bridge over Aptos Creek would be widened on the outside to accommodate the HOV lanes in each direction. The existing Capitola Avenue overcrossing would be replaced with a longer structure.

Retaining walls would be constructed to minimize property acquisitions and reduce environmental impacts. At locations where frontage roads are adjacent to Route 1, concrete barriers would be constructed to separate the highway and frontage road.

Changes to Highway Mainline with the Tier I Corridor HOV Lane Alternative

- Route 1 would be expanded to allow for two standard-width (12-foot) mixed-flow lanes, one standard-width (12-foot) HOV lane, and standard-width outside (10-foot) shoulders in each direction.
- The proposed lanes would be constructed within the existing 45-foot median. In locations where the existing median width is less than 45 feet, widening would occur both in the median and at the outside, generally within the existing Route 1 right-of-way.
- Where auxiliary lanes are proposed, widening by approximately 12 feet outside of the existing highway footprint would occur.
- A mandatory standard median width of 22 feet is proposed through most of the corridor.
- The highway centerline would be shifted northward in the vicinity of the Santa Cruz Branch Line crossings in Aptos to reduce impacts to wetlands. The bridge over Aptos Creek would be widened to allow for four new lanes: two HOV, two auxiliary, and pedestrian/bicycle facilities.
- Route 1 would be lowered to obtain vertical clearance at the Santa Cruz Branch Line crossings in Aptos. A mandatory standard median width of 22 feet is proposed to minimize impact to the railroad bridge.
- At three locations, median and inside shoulder widths would be nonstandard to reduce impacts to adjacent streets. The three locations are: McGregor Drive, Cabrillo College Drive, and Kennedy Drive. At these three constrained locations, the inside shoulder in the constrained direction would be a nonstandard 5 feet, and the median would be a nonstandard 17 feet.

Auxiliary Lane Improvements with the Tier I Corridor HOV Lane Alternative

The auxiliary lane improvements are discussed above in Section 1.5 Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives.

Interchange Improvements with the Tier I Corridor HOV Lane Alternative

All nine interchanges within the project corridor would be modified under the Tier I Corridor HOV Lane Alternative, including overcrossing and undercrossing widening or replacement. These modifications would improve merging operations and ramp geometrics, and accessibility and

safety for pedestrians and bicyclists. Major interchange improvements would include the following:

- Reconfiguration of intersections, including replacement or widening of highway overcrossings and undercrossings.
- Intersections of freeway ramps with local roads would be modified to shorten the pedestrian and bike crossing distances. Additionally, free right turns would be eliminated where feasible and traffic signals installed to improve traffic flow and slow vehicle traffic speeds through the bike and pedestrian crossing areas.
- Local roadways would be widened at the interchanges to accommodate the anticipated travel demand.
- Drainage and stormwater runoff treatment facilities would be provided.

Interchange improvements and design reconfigurations proposed for each interchange are listed in Table 1-5.

Table 1-5: Interchange Improvements and Reconfigurations
Tier I Corridor HOV Lane Alternative

Route 1 Interchange Location	Project Plan Sheet No.	Tier I Corridor HOV Lane Alternative Features
San Andreas/ Larkin Valley Roads Interchange	HOV-20	The existing northbound cloverleaf off-ramp free right-turn onto Larkin Valley Road would be eliminated in favor of a signalized 90-degree intersection.
		A signalized intersection would be provided at the San Andreas Road ramps and the free right-turns would be eliminated.
		The existing on-ramps would be widened to accommodate HOV bypass lanes.
		The southbound Route 1 bridge over San Andreas/Larkin Valley Road would be widened into the median to accommodate the HOV lanes.
		San Andreas/Larkin Valley Roads would be widened within the Tier I project limits to add turn lanes.
		New sidewalks would be added along San Andreas/Larkin Valley Roads within the Tier I project limits.
Freedom Boulevard Interchange	HOV-18	The existing ramp termini at Freedom Boulevard would be modified to provide less-skewed intersections with Freedom Boulevard. These intersections would be signalized, and free right-turns would be eliminated.
		The southbound off-ramp would be widened to two exit lanes.
		The existing on-ramps would be widened to accommodate HOV bypass lanes.
		Freedom Boulevard would be widened within the Tier I project limits to add turn lanes.
		The Freedom Boulevard/Bonita Drive intersection would be enlarged to add turn lanes and achieve acceptable level of service.
		The Freedom Boulevard bridge would be replaced with a wider structure that would accommodate a new turn lane on Freedom Boulevard and the new HOV lanes on Route 1.
		New sidewalks would be added along Freedom Boulevard within the Tier I project limits.
Rio Del Mar Boulevard Interchange	HOV-16	The northbound on-ramp would be realigned to form the north leg of a four-way intersection with Rio Del Mar Boulevard and the northbound off-ramp. This intersection would be signalized, and free right turns would be eliminated

Table 1-5: Interchange Improvements and Reconfigurations
Tier I Corridor HOV Lane Alternative

Route 1 Interchange Location	Project Plan Sheet No.	Tier I Corridor HOV Lane Alternative Features
		The northbound off-ramp would be widened to two exit lanes.
		The southbound ramps would be widened, the intersection with Rio Del Mar Boulevard signalized, and free right-turns eliminated.
		The existing on-ramps would be widened to accommodate HOV bypass lanes.
		Soquel Drive would be shifted northward to accommodate the roadway widening along the northbound off-ramp.
		Rio Del Mar Boulevard would be widened within the Tier I project limits to add turn lanes and a through lane in each direction.
		The Rio Del Mar Boulevard bridge over Route 1 would be replaced with a longer, wider bridge to accommodate a new turn lane and a through lane in each direction on Rio Del Mar Boulevard and the new HOV lanes on Route 1.
		Sidewalk would be added along eastbound Rio Del Mar Boulevard within the Tier I project limits; the sidewalk on westbound Rio Del Mar Boulevard would be retained.
State Park Drive Interchange	HOV-13	The existing northbound cloverleaf on-ramp free-right turn would be changed to a signalized right turn.
		The existing northbound off-ramp terminus would be modified to form, together with the realigned northbound on-ramp terminus, the south leg of a signalized intersection with State Park Drive.
		The northbound and southbound off-ramps would be widened to two exit lanes.
		The existing on-ramps would be widened to accommodate HOV bypass lanes.
		State Park Drive would be widened within the Tier I project limits to add turn lanes and a through lane in each direction.
		The State Park Drive bridge over Route 1 would be replaced with a longer, wider bridge to accommodate a new through-lane in each direction on State Park Drive and the new HOV lanes on Route 1.
		Sidewalk would be added along eastbound State Park Drive within the Tier I project limits; the sidewalk along westbound State Park Drive would be retained.
Park Avenue Interchange	HOV-10	The existing diamond interchange ramp design would be retained and ramps would be widened.
		The northbound and southbound off-ramps would be widened to two exit lanes.
		The existing on-ramps would be widened to accommodate HOV bypass lanes.
		Park Avenue would be widened within the Tier I project limits to add turn lanes.
		The two Route 1 bridges over Park Avenue would be replaced with one, wider structure to accommodate the new HOV lanes on Route 1.
		Sidewalk would be added within the Tier I project limits along westbound Park Avenue; the sidewalk along eastbound Park Avenue would be retained.
Bay Avenue/ Porter Street and 41st Avenue Interchanges	HOV-7	Improvements at the Bay Avenue/Porter Street and 41st Avenue interchanges would be designed so that these two interchanges would work as a single interchange connected by a collector/frontage road running between the interchanges.
		The freeway ramps would be reconstructed to form less-skewed intersections with Bay Avenue/Porter Street.
		The existing southbound Route 1 off-ramp to Bay Avenue/Porter Street would be eliminated. Southbound traffic bound for Bay Avenue/Porter Street would exit at the 41st Avenue two-lane off-ramp and continue on a new southbound collector/frontage road to Bay Avenue/Porter Street.

Table 1-5: Interchange Improvements and Reconfigurations
Tier I Corridor HOV Lane Alternative

Route 1 Interchange Location	Project Plan Sheet No.	Tier I Corridor HOV Lane Alternative Features
		The existing two-lane on-ramp from Porter Street to northbound Route 1 would be modified to become a northbound collector/frontage road serving traffic bound for 41st Avenue or northbound Route 1.
		Northbound traffic exiting Route 1 would either bear right to intersect with Porter Street and continue north, or stay left and continue on a new structure over Porter Street, join the northbound collector/frontage road, and end at a new signalized intersection at 41st Avenue.
		At 41st Avenue, southbound on- and off-ramps would be eliminated and replaced with a diagonal off-ramp and a collector/frontage road serving traffic bound for Bay Avenue/Porter Street or southbound Route 1. The new ramp and collector/frontage road would form a signalized intersection with 41st Avenue.
		At 41st Avenue, the northbound on-ramps would be realigned.
		New on-ramps would include HOV bypass lanes.
		41st Avenue would be widened within the Tier I project limits to add turn lanes and eastbound though lanes over Route 1.
		Bay Avenue/Porter Street would be widened to add right-turn lanes at the on-ramps.
		A new bridge over Soquel Creek and Soquel Wharf Road would be constructed for the new southbound collector/frontage road from 41st Avenue to Bay Avenue/Porter Street.
		The 41st Avenue bridge over Route 1 would be replaced with a longer, wider bridge to accommodate the new eastbound through lane and turn lanes on 41st Avenue, and the new HOV lanes on Route 1. Northbound and southbound Class I bike paths would be constructed between 41st Avenue and Bay Avenue/Porter Street on either side of the new collector/frontage roads, respectively.
Soquel Avenue/ Drive Interchange	HOV-3	The northbound off-ramp would be realigned to a signalized 90-degree intersection with Soquel Drive. The existing access to Commercial Way would be eliminated.
		The westbound Soquel Drive on-ramp to northbound Route 1 would be modified to eliminate the free right-turn access.
		The existing northbound loop on-ramp from eastbound Soquel Avenue would be realigned and its free-right terminus would become a signalized 90-degree intersection.
		A new, wider southbound diagonal off-ramp that adds turn lanes at its terminus and a new loop on-ramp would form the north leg of a signalized intersection at Soquel Avenue.
		The existing southbound hook on-ramp would be widened to add an HOV bypass lane and realigned to be made standard.
		The northbound and southbound off-ramps would be widened to two exit lanes.
		All new on-ramps would include HOV bypass lanes.
		Soquel Avenue within the Tier I project limits would be widened to add an eastbound through lane and turn lanes.
		Salisbury Lane would be shifted eastward to form an intersection with the realigned northbound off-ramp and loop on-ramp.

Table 1-5: Interchange Improvements and Reconfigurations
Tier I Corridor HOV Lane Alternative

Route 1 Interchange Location	Project Plan Sheet No.	Tier I Corridor HOV Lane Alternative Features
		The Soquel Drive bridge over Route 1 would be replaced with a longer, wider bridge to add an eastbound through lane and a turn lane to Soquel Drive and accommodate the new HOV lanes on Route 1.
		The culvert at Arana Gulch would be extended underneath the widened Route 1 and new southbound off-ramp.
		Sidewalk would be added along eastbound Soquel Drive within the Tier I (and Tier II) project limits; the sidewalk along westbound Soquel Drive would be retained.
Morrissey Boulevard Interchange	HOV-1	The southbound exit would be realigned to terminate at a new signalized intersection with Morrissey Boulevard.
		The existing southbound on-ramp would be eliminated and replaced with a new, wider diagonal ramp with a signalized terminus.
		The existing southbound off- and on-ramp at Elk Street would be eliminated.
		The existing northbound loop on-ramp would be eliminated, as would access to Rooney Street from this northbound loop.
		The northbound off-ramp would be widened to two exit lanes.
		New on-ramps would include HOV bypass lanes.
		Morrissey Boulevard is being replaced with a wider bridge to add an eastbound through lane and turn lanes, and realigned to form a straight line between its intersections with Fairmont Avenue and Rooney Street.
		The Morrissey Boulevard bridge is being replaced with a longer, wider bridge to accommodate a new eastbound through lane and turn lanes on Morrissey Boulevard and new HOV lanes on Route 1.
		Sidewalk would be added along eastbound Morrissey Boulevard within the Tier I project limits; the sidewalk along westbound Morrissey Boulevard would be retained.
Transit-Related Facilities	NA	Both on-ramps and both off-ramps at the reconfigured Park Avenue interchange include options for bus pads and bus shelters.
		Ramps and collectors at the Bay Avenue/Porter Street and 41st Avenue interchanges include options for bus pads and shelters.

Transit Supportive Planning and Design

The Tier I Corridor HOV Lane Alternative would not preclude the development of the following features from being added in the future to facilitate freeway-oriented transit services and operations:

- The reconfigured Park Avenue and Bay Avenue/Porter Street/41st Avenue interchanges would allow for future bus pads and bus stop shelters to be constructed as part of a separate project.
- Future park-and-ride lots are under consideration by RTC at the Larkin Valley Road/San Andreas Road and 41st Avenue interchanges, to be coordinated with the bus facilities as part of a future project.

The aforementioned features are not part of the proposed project and would be subject to future environmental clearance. The proposed Tier I project is simply taking into consideration potential future transit projects as a collaborative planning effort.

New Pedestrian/Bicycle Overcrossings

The proposed pedestrian/bicycle overcrossings are discussed above in Section 1.5 Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives.

Tier I Corridor TSM Alternative

The Tier I Corridor TSM Alternative was formulated to provide Route 1 improvements that would partially address the purpose and need, and could be achieved at lower cost and with fewer impacts than the Tier I Corridor HOV Lane Alternative. TSM strategies typically consist of improvements that can benefit the operations of existing facilities without increasing the number of through lanes.

As discussed in Section 1.5 Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives, the Tier I Corridor TSM Alternative proposes to add auxiliary lanes, ramp metering and HOV on-ramp bypass lanes; improve existing nonstandard geometric elements at various ramps; and incorporate other TSM elements, such as changeable message signs, closed circuit television, microwave detection systems, and vehicle detection systems.). In short, the TSM Alternative shares many of the Tier I Corridor HOV Lane Alternative features, except HOV lanes would not be constructed along the mainline and the Soquel Drive interchange would be the only interchange reconfigured.

Auxiliary Lanes

The majority of auxiliary lane improvements are discussed above in Section 1.5 Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives. In addition, the TSM Alternative would have both a southbound and northbound auxiliary lane between State Park Drive and Park Avenue — improvements that are not included in the HOV Lane Alternative.

Interchange Improvements

Improvements to interchanges proposed under the Tier I Corridor TSM Alternative include the following:

- The Soquel Avenue northbound off-ramp from Route 1 would be realigned and widened from one to two exit lanes for a distance of approximately 1,300 feet, widening to four lanes at its intersection with Soquel Drive. The northbound off-ramp/Commercial Way connection would be eliminated, and Commercial Way would become a cul-de-sac north of the realigned ramp. The intersection of the northbound off-ramp with Soquel Drive would be enlarged to achieve an acceptable level of service for the anticipated traffic volume.

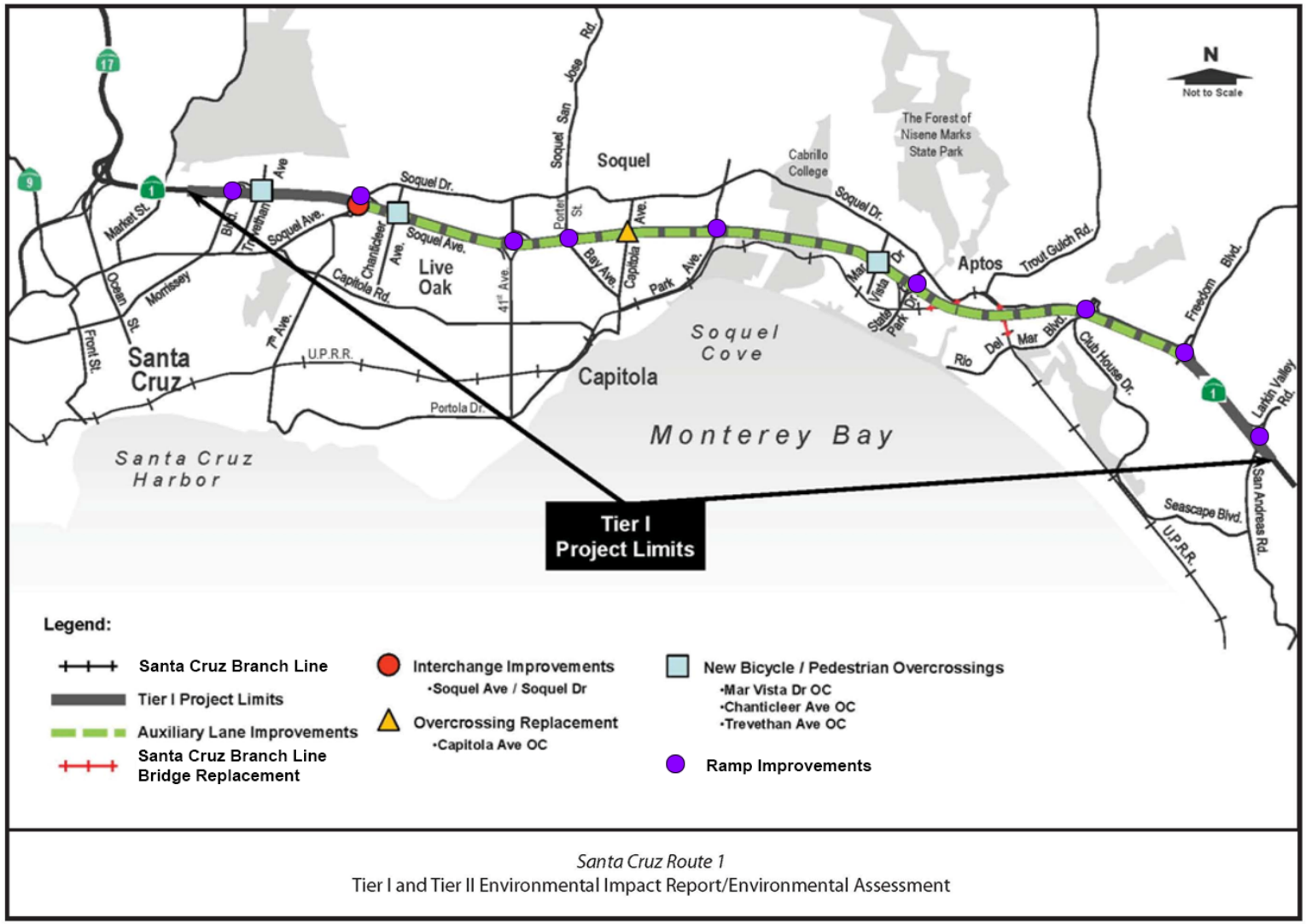
- Improve existing nonstandard geometric elements at various ramps.
- Provide HOV bypass lanes on all except northbound Morrissey Boulevard on-ramps.
- Add California Highway Patrol enforcement areas at on-ramps with HOV bypass lanes.

New Pedestrian/Bicycle Overcrossings

The proposed pedestrian/bicycle overcrossings are discussed above in Section 1.5 Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives.

Other Improvements

The details of the other improvements are included above in Section 1.5 Common Design Features of the Tier I Corridor HOV Lane and TSM Alternatives.



Santa Cruz Route 1
Tier I and Tier II Environmental Impact Report/Environmental Assessment

Figure 1-4: Tier I Corridor TSM Alternative – Project Features

Tier II Auxiliary Lane Alternative

The Tier II Auxiliary Lane Alternative would construct northbound and southbound auxiliary lanes on Route 1 from 41st Avenue to Soquel Drive and make other improvements, as discussed below. Figure 1-5 shows features of the Auxiliary Lane Alternative. To construct the Auxiliary Lane Alternative, right-of-way would be acquired along Soquel Avenue west of Chanticleer Avenue and at the Chanticleer Avenue cul-de-sac north of Route 1 to accommodate the bicycle/pedestrian overcrossing.

Auxiliary Lanes

The Tier II Auxiliary Lane Alternative proposes to widen Route 1 by adding an auxiliary lane in both the northbound and southbound directions between the 41st Avenue and Soquel Avenue/Drive interchanges. The total roadway widening would be approximately 1.4 miles in length. Southbound, the auxiliary lane would begin at the existing Soquel Avenue on-ramp and end at the existing off-ramp to 41st Avenue. Northbound, the auxiliary lane would begin just south of the 41st Avenue overcrossing, at the existing loop on-ramp from northbound 41st Avenue. North of the overcrossing, the on-ramp from 41st Avenue to northbound Route 1 would merge with the new auxiliary lane, approximately 1,000 feet downstream from the loop ramp.

The new auxiliary lanes would be 12 feet wide. In the southbound direction, the width needed for the new lane would be added in the median, and the median barrier would be shifted approximately 5 feet toward the northbound side of the freeway to make room for the new lane and a standard 10-foot-wide shoulder. Where the new southbound lane meets the existing ramps, outside shoulder widening would occur to achieve standard 10-foot-wide shoulders. In the northbound direction, the Tier II project proposes to pave a 10-foot-wide median shoulder and widen to the outside to add the 12-foot-wide auxiliary lane and a new 10–foot-wide shoulder.

As part of the widening in the northbound direction, the Tier II project proposes to repair an existing pavement failure in the outside lane and shoulder by improving the pavement section, installing a retaining wall and, if necessary, replacing the underlying County-owned sanitary sewer line crossing Route 1. A new concrete median battier would also be constructed.

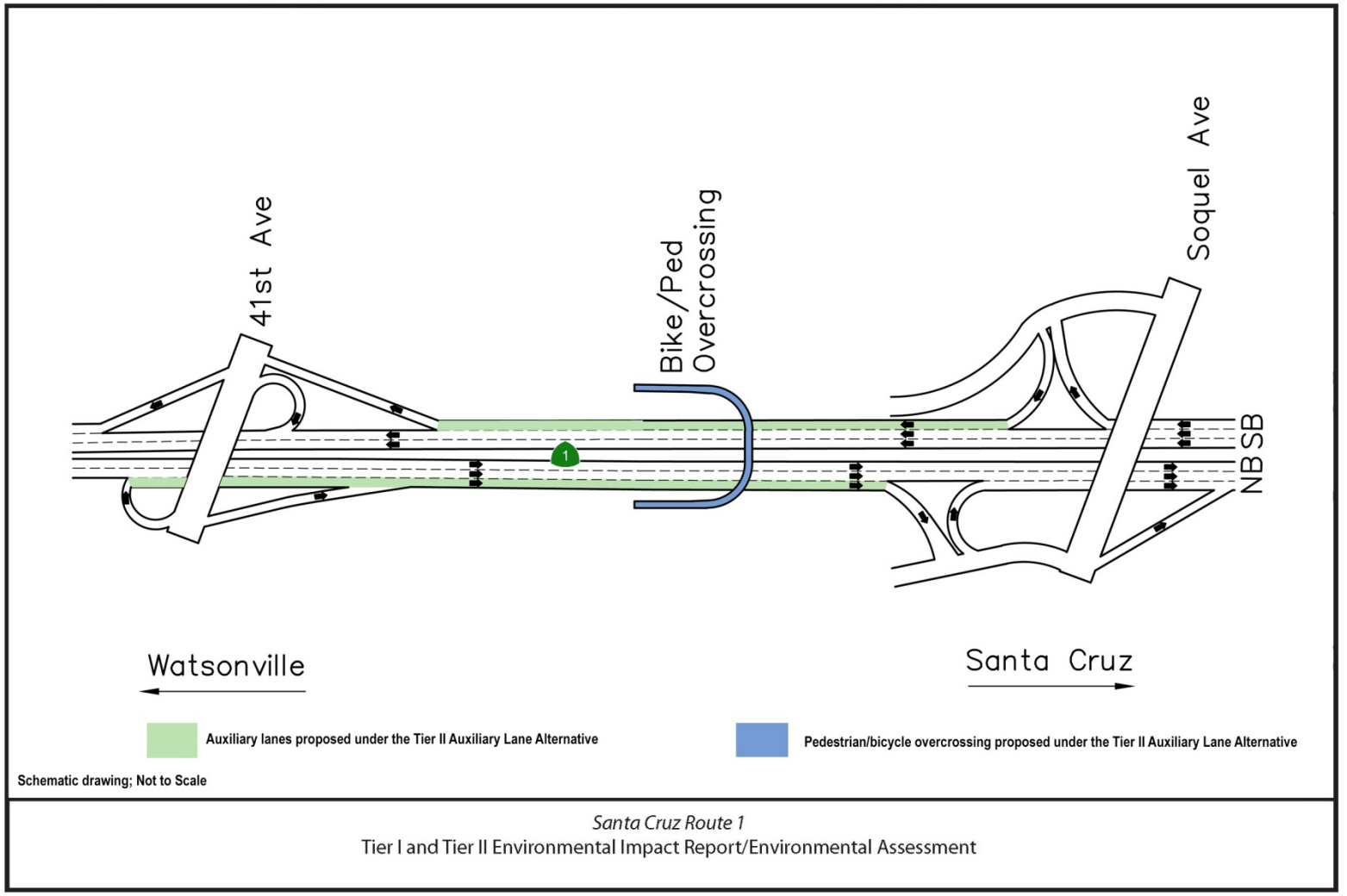


Figure 1-5: Tier II Auxiliary Lane Alternative – Project Features

Pedestrian/Bicycle Overcrossing

A new horseshoe-shaped pedestrian overcrossing is proposed over Route 1 at Chanticleer Avenue.[1] The overcrossing would vary in width from 14 feet along the ramps to 16 feet around the curves. Ramps from Chanticleer Avenue up to the overcrossing would be at approximately a 5 percent grade. Up to where the overcrossing exceeds approximately 10 feet in height, the ramp would be built on
retained fill; beyond that point, the bridge would rest on columns along the north right-of-way of Route 1, in the Route 1 median, behind the curb between Route 1 and Soquel Avenue, and along the south side of Soquel Avenue. The design of the ramps and bridge would include architectural texture or other aesthetic treatment. (See Section 2.16 for a visual simulation of the proposed Chanticleer Avenue pedestrian/bicycle overcrossing.)

In addition, a new 360-foot-long by 6-foot-wide sidewalk would be constructed along the south side of Soquel Avenue, starting at Chanticleer Avenue. The sidewalk would be separated from the street by a 4-foot-wide strip.

Retaining Walls

Retaining walls would be constructed as part of the roadway widening, with four separate walls: three on the north side of Route 1 and one on the south side. One of the retaining walls would start after the 41st Avenue on-ramp and extend approximately 150 feet; two other retaining walls on the northbound side would be 375 and 408 feet. On the southbound side, a 350-foot-long wall would be constructed along the highway mainline and Soquel Avenue, over the Rodeo Gulch culvert.

Three of the walls would be located to allow widening for an additional mainline lane on Route 1 in each direction in the future. The wall proposed along the northbound on-ramp at 41st Avenue would have to be demolished and replaced if the highway were to be widened in the future. Two of the walls would span Rodeo Creek Gulch, where there is an existing 9-foot arch concrete culvert, and one would be constructed within a narrow jurisdictional wetland area on the northbound side of Route 1, adjacent to a 39-inch culvert crossing.

No Build Alternative

The No Build Alternative offers a basis for comparing the effects of the Tier I Corridor Alternatives and the Tier II Auxiliary Lane Alternative with doing none of the proposed improvements. The No Build Alternative assumes there would be no major construction on Route 1 through the Tier I project limits other than currently planned and programmed improvements and continued routine maintenance. The following planned and programmed

[1] The overcrossing at Chanticleer is included in both the Tier I and Tier II Projects. The Tier I program of improvements encompasses the current Tier II Auxiliary Lane Project, which has been identified as the first phase of the overall program of improvements.

improvements included in the No Build Alternative are contained in the 2010 Regional Transportation Plan:

- Construction of auxiliary lanes between the Soquel Drive and Morrissey Boulevard interchanges for the Soquel to Morrissey Auxiliary Lanes Project; construction completed in December 2013.
- Replacement of the La Fonda Avenue overcrossing of Route 1, included as part of the Soquel to Morrissey Auxiliary Lanes project; construction completed in 2013.
- Reconstruction of bridges and addition of a merge lane in each direction between Highway 17 and the Morrissey/La Fonda area for the Highway 1/17 Merge Lanes Project; construction completed in 2008.
- Installation of median barrier on Route 1 from Freedom Boulevard to Rio Del Mar Boulevard.

Improvements of roadways and roadsides on Rio Del Mar Boulevard from Esplanade to Route 1, which includes the addition of bike lanes, transit turnouts, left-turn pockets, merge lanes, and intersection improvements. Roadwork includes major rehabilitation and ongoing maintenance. If the No Build Alternative is selected, it is highly likely that other improvements could be expected in the future.

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Acronyms and Abbreviations

ADA	Americans with Disabilities Act
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CHP	California Highway Patrol
CSS	Context-Sensitive Solutions
dbh	diameter breast height
FHWA	Federal Highway Administration
HOV	High-Occupancy Vehicle
LOS	Level of Service
mph	miles per hour
NEPA	National Environmental Policy Act
ROW	right-of-way
SCCRTC	Santa Cruz County Regional Transportation Commission
SER	Standard Environmental Reference
TSM	Transportation System Management
UPRR	Union Pacific Railroad
U.S.C.	United States Code

Summary

The Santa Cruz County Regional Transportation Commission (SCCRTC) has proposed corridor improvements to State Route 1 (Route 1) through portions of Santa Cruz County from approximately the San Andreas-Larkin Valley Road interchange to the south to the Morrissey Boulevard interchange to the north, covering a distance of approximately 8.5 miles. In addition to a No Build Alternative, two Tier I-level improvement alternatives –a High-Occupancy Vehicle (HOV) Lane Alternative and a Transportation System Management (TSM) Alternative – are proposed. A 1-mile Tier II auxiliary lane project is also proposed within this corridor, and it is located near the northern end between the 41st Avenue and Soquel Avenue interchanges. The project is designed to reduce congestion, improve safety, and encourage carpooling and use of alternative transportation modes as to increase transportation system capacity.

Project Setting: The existing visual environment can be divided into four landscape units – Upland, Aptos, Soquel-Capitola, and Santa Cruz-Arana Gulch Landscape Units. Within the project area, Route 1 crosses the county in an east-west direction, and the highway sits on a bench within the general southern slope of the landscape. The landforms are characterized by rolling hills above partially urbanized lowlands. Ridgelines, in general, are located approximately 0.5 miles or more from the roadway. These traverse the area in a north-south direction, running parallel the drainageways and perpendicular to the highway corridor. Numerous creeks and drainageways cross the corridor from north to south. The drainageways have a large visual presence where they cross due to the number of skyline trees (primarily eucalyptus species) that are located within them. Most interchanges and corridor locations have associated landscaping plantings. Storefronts, signs, and parking can be seen from areas of the highway, particularly when associated with one of the frontage roads. In general, the current corridor has a moderately high visual quality, with site-specific locations ranging from high to moderate.

Methodology: This report was prepared following the guidelines established by the Federal Highway Administration's (FHWA) publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981). The existing visual quality is analyzed based on three criteria: vividness, intactness, and unity. For this report, key viewpoints were identified based on the four landscape units identified in the corridor.

Each of the communities, including those unincorporated communities governed by the County, that the project corridor passes through has established requirements and regulations regarding development within their boundaries. However, because the project is within the

California Department of Transportation's (Caltrans) right-of-way (ROW), these requirements do not apply to the highway corridor, but they do provide insight into the sensitivity of the various communities to the visual environment. One key provision in all of the communities is the preservation of large "heritage trees" within their boundaries.

Tier I Key Findings: The proposed improvements would have a substantial impact on the visual quality of the corridor. In general, the highway would appear larger or wider in the landscape with the inclusion of additional lanes. Under both alternatives, lengthy new sound walls and retaining walls along the corridor would limit views into or out of the corridor. Sound walls are associated with locations where residential neighborhoods are found along the corridor, while retaining walls are associated with drainageway crossings and areas where slopes approach the highway.

The removal of vegetation within the corridor would negatively affect views for the travelers on the highway, as well as community members adjacent to the corridor even if mitigation measures are employed. Most notably, the removal of vegetation at the creek crossing locations would entail removal of numerous skyline eucalyptus trees and some of these trees may qualify as heritage trees given their size. In addition, the removal of vegetation along the roadway and within interchanges would negatively impact the visual environment of the corridor. However, the depth of the stands of the trees within some of the drainages suggests that trees outside of the construction area would provide similar visual elements as the trees removed. Regarding roadside plantings, there would not be adequate space in most instances for new plantings (especially trees) given the setback requirements established by Caltrans, while other locations would have reduced landscape areas.

The project would result in a substantial increase in the scale of the highway because of increased pavement and hard surfaces, including walls, and a substantial loss of existing vegetation and landscaping. These changes would likely be perceived as an increase in the urbanized character of the corridor. In many locations, the opportunity for replanting would be limited or not possible given the increased paved surfaces. Because replanting opportunities are limited, the project minimization measures would rely to a greater extent on architectural treatments and solutions to minimize the adverse aesthetic effects.

The project would result in an inherent urbanization along much of the highway corridor. In spite of this increased urban character, the project components would not be unexpected in the highway corridor. Incorporation of minimization measure, such as community-based design (Context-Sensitive Solutions or CSS), architectural treatments, landscaping, and other measures would help reduce the project impacts to some degree and could help maintain a

moderate degree of visual quality along the highway corridor. However, the loss of vegetation and the reduced area for replanting would remain a substantial effect of the Tier I project alternatives.

Tier II Key Findings: Changes to the visual environment from the Tier II project alternative would occur between the 41st Avenue interchange and the Soquel Avenue interchange, within the Soquel-Capitola Landscape Unit. The highway would be widened with an auxiliary lane in each direction, making this portion of Route 1 a total of six lanes. Several retaining walls would be included in the project, as would a bicycle/pedestrian overcrossing (bridge) at approximately Chanticleer Avenue. From the standpoint of appearance, the bridge structure would appear similar to other bridges in the corridor, although not as wide. The access ramps would be long structures providing access to the bridge for pedestrians, bicycles, and wheelchairs. These structures have a similar appearance to the other highway bridges, with columns and girders, as well as fencing along the ramp and overcrossing.

For the Tier II project alternative, approximately 9.3 acres of existing landscape would be removed. The removal of existing vegetation from areas along the corridor is required to construct the bridge, retaining walls, stormwater facilities, and to widen the highway. This would have a marked effect on the views both within the corridor and into the corridor. It is not anticipated that all of the ROW would need to be cleared. For areas disturbed by construction activities, approximately 3 acres are available for replanting under this alternative. Of this area, approximately 1 acre would be available for trees, given Caltrans setback requirements. See Figure 11 for areas of vegetation removal and areas available for potential replanting.

While the Tier II project has a much smaller footprint than either of the Tier I projects, the effect of the Tier II project on the visual environment would be to create a more urbanized appearance from the existing condition, as has been established by the previous Route 1/ Route 17 Merge Lanes Project and the Route 1 Auxiliary Lanes Project between Soquel Avenue and Morrissey Boulevard. The potential effect from the proposed Tier II project elements is anticipated to, on average for the project corridor, be a moderately high change to the visual environment. Roadside vegetation would be lost along the northbound lanes, within the 41st Avenue Interchange, and along the existing southbound on- and off-ramps. Although some replanting would occur in each location, it would be less than the existing vegetation and would have few trees within the planting due to limitation established in Caltrans' plant setback requirements. The effects of the Tier II project on the visual environment are anticipated to be moderately substantial.

1. Project Description and Alternatives

1.1. PURPOSE OF REPORT

The purpose of this report is to describe the anticipated changes to the visual environment associated with the proposed State Route 1 (Route 1) Tier I High-Occupancy Vehicle (HOV) Lanes and Tier II Auxiliary Lanes between Morrissey Boulevard and San Andreas-Larkin Valley Roads within Santa Cruz County. The corridor includes portions of the cities of Santa Cruz and Capitola, as well as the unincorporated communities of Aptos and Soquel. In addition to documenting any anticipated changes to the visual environment, this study proposed measures to minimize or avoid any adverse impacts associated with the project on the adjacent communities.

The Project Regional Location Map and Project Vicinity Map can be seen in Figures 1 and 2, respectively.

1.2. PROJECT HISTORY

The California Department of Transportation (Caltrans), in cooperation with the Federal Highway Administration (FHWA) and the Santa Cruz County Regional Transportation Commission (SCCRTC), proposes to improve State Route 1 (Route 1) in Santa Cruz County for a distance of approximately 8.9 miles, from approximately 0.4-mile south of the San Andreas-Larkin Valley Road Interchange through the Morrissey Boulevard Interchange.

Route 1 is the primary route connecting communities in Santa Cruz County and is the only continuous commuter route linking Watsonville, Capitola, Aptos, Cabrillo College, Santa Cruz and the University of California at Santa Cruz. Approximately one quarter of commuters using Route 1 continue on State Route 17 to jobs in Santa Clara County. Route 1 also is the southern terminus for State Routes 9 and 17, which bring heavy tourist traffic to coastal destinations in Santa Cruz and Monterey Counties. Route 1 between San Andreas Road and the Route 1/State Route 17 interchange is a four-lane divided freeway with a median varying in width from 8.2 to 62.6 feet. Within the project limits there are nine interchanges, two overcrossings, and two Santa Cruz Branch Rail Line overpass bridge structures.

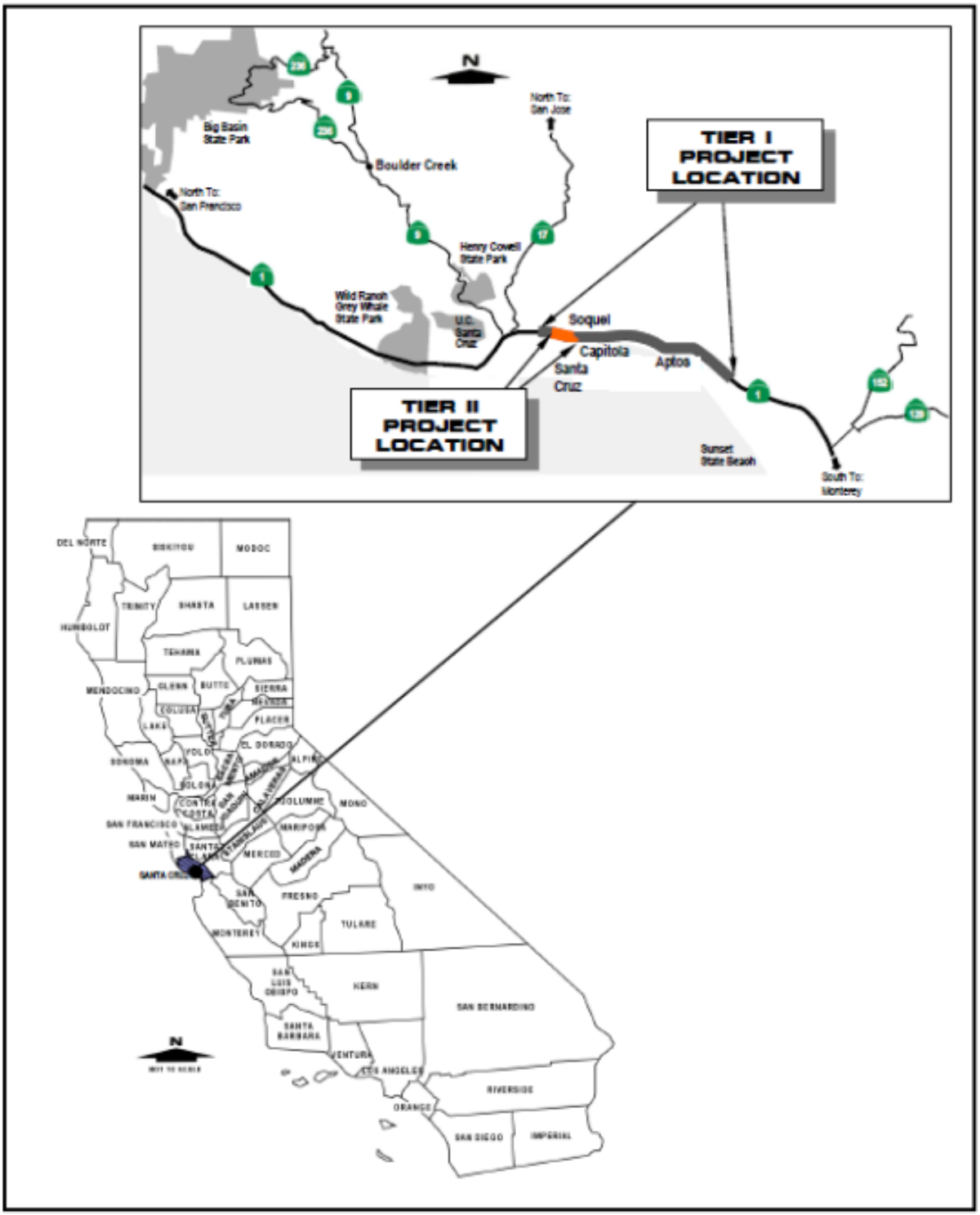


Figure 1: Project Regional Location Map

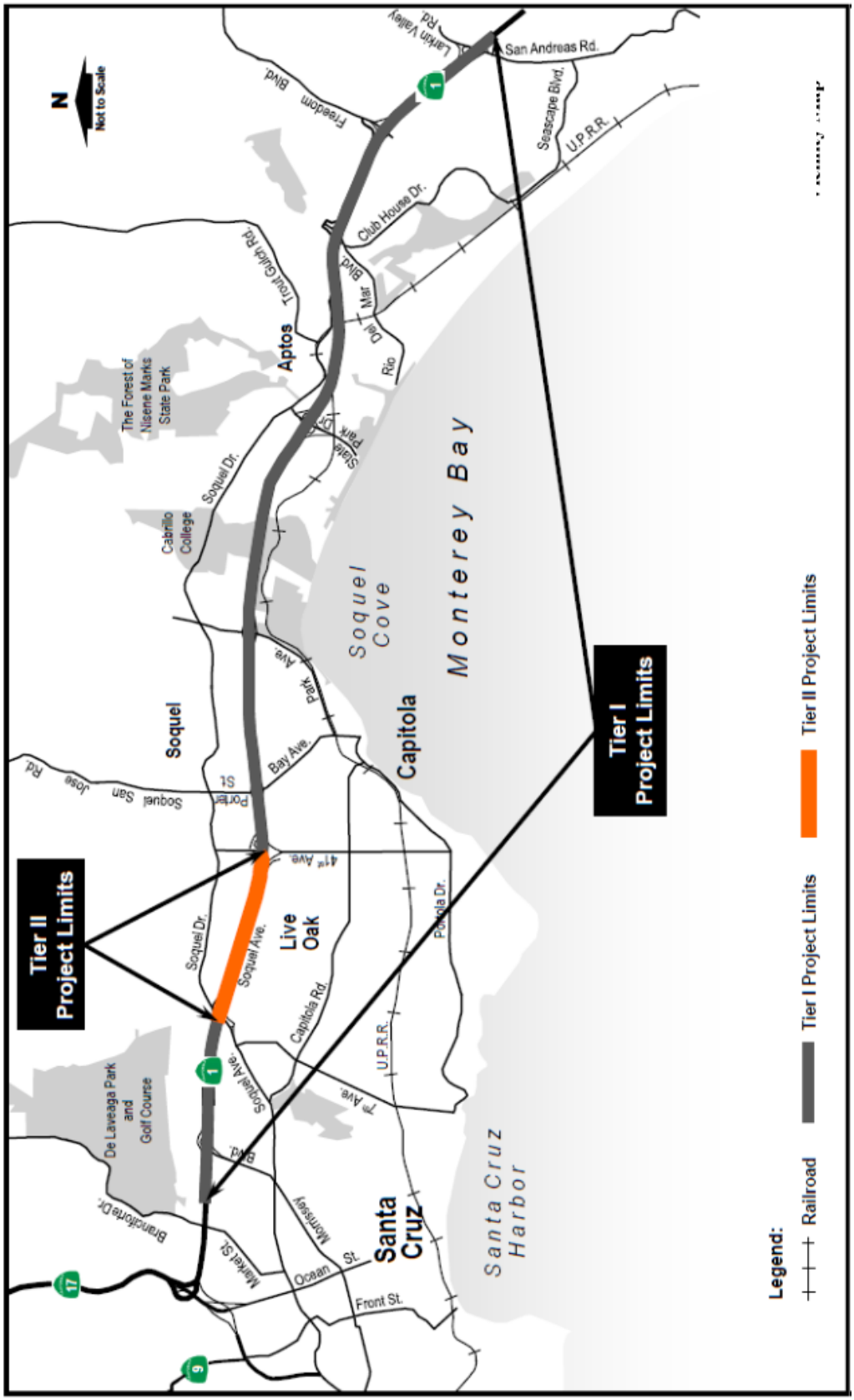


Figure 2: Project Vicinity Map

The population of Santa Cruz County has doubled in the last 30 years to approximately 270,000. During this time, operational improvements have been made to the route within the Project limits, but no capacity enhancements, and this segment of Route 1 has become heavily congested during morning and evening commute times. Heavy congestion is now experienced on weekdays on Route 1 for 3.5 hours in the morning from 6:30 a.m. to 10:00 a.m. and for 4.5 hours in the evening from 2:00 p.m. to 6:30 p.m. Traffic projections for the No-Build scenario in design year 2035 show that from 6:00 a.m. to 12:00 noon the corridor would operate at Level of Service (LOS) F in the northbound direction. From 2:00 p.m. to 8:00 p.m., the corridor would operate at LOS F in both directions. The average northbound travel time in the AM peak hour would be as high as 59 minutes, up from 23 minutes under existing conditions. Travel time for the southbound direction during the PM peak hour would average 61 minutes, up from 27 minutes under existing conditions. In the peak commute direction in 2035 No Build, the average travel speed would drop from 44 miles per hour (mph) to 18 mph in the AM and from 39 mph to 15 mph in the PM (Traffic Operations Report, April 2012, Wilbur Smith Associates).

This project uses a "tiered" approach to its environmental documentation. Tiering is a staged approach that addresses broad programs and issues related to the entire corridor in the Tier I analysis. As specific projects within the corridor are ready for implementation, impacts of that action are evaluated in subsequent Tier II studies. The tiered process supports decision making on issues that are ripe for decision and provides a means to preserve those decisions. The Tier I portion of the project documentation provides fact-based analyses that supports informed decision making on the 8.9-mile corridor and discloses issues associated with the selection of a Tier I Corridor alternative. Identification of a Tier I Corridor alternative will not result directly in construction; however, it will provide the basis for decision makers to select a program of transportation improvements within the corridor.

The Tier II portion of the environmental documentation examines a project-level Auxiliary Lane Alternative and a No Build Alternative. The Tier II corridor segment is within the project limits of the Tier I corridor and would represent the first implementation phase of transportation improvements for the 8.9-mile corridor. As mentioned above, all subsequent Tier II corridor projects will be subject to separate environmental review.

1.3. PROJECT DESCRIPTION

The purpose of the proposed project is to achieve the following within the Tier I and Tier II project limits:

- Reduce congestion.

- Encourage carpooling and use of alternative transportation modes as a means to increase transportation system capacity.

The need for the project is summarized by these deficiencies on Route 1 within the project limits:

- Several bottlenecks along Route 1 in the southbound and northbound directions cause recurrent congestion during peak hours;
- Travel time delays due to congestion and related accidents;
- "Cut-through" traffic, or traffic on local streets, occurs and is increasing because drivers seek to avoid congestion on the highway;
- Limited opportunities for pedestrians and bicyclists to safely get across Route 1 within the project limits;
- Insufficient support facilities and incentives to increase transit service that operates in the Route 1 corridor because congestion threatens reliability and cost-effective transit service delivery; and
- Inadequate facilities to support carpooler and rideshare vehicles over single-occupancy vehicles; therefore, incentives, such as travel time savings, and reliability are difficult to achieve.

1.3.1. Tier I Alternatives

The three Tier I alternatives currently under consideration are the HOV Lane Alternative, the Transportation System Management (TSM) Alternative, and the No Build Alternative.

Common Design Features of the Build Alternatives

The HOV Lane Alternative shares three primary sets of features with the TSM Alternative: new auxiliary lanes, new pedestrian/bicycle overcrossings of Route 1, and Transportation Operations System electronic equipment. These common design features are highlighted here but the auxiliary lanes are discussed in detail within the separate description of each alternative, since specifics vary.

Auxiliary Lanes

Auxiliary lanes would be constructed in the following locations under either the HOV Lane or TSM Alternative:

- Freedom Boulevard and Rio Del Mar Boulevard – northbound and southbound.

- Rio Del Mar Boulevard and State Park Drive – northbound and southbound.
- State Park Drive and Park Avenue – both directions in the TSM Alternative; southbound only in the HOV Lane Alternative.
- Park Avenue and Bay Avenue/Porter Street – northbound and southbound.
- 41st Avenue and Soquel Avenue/Soquel Drive – northbound and southbound.

New Bicycle/Pedestrian Overcrossings

Both build alternatives include construction of new bicycle/pedestrian overcrossings of Route 1 at Mar Vista Drive, Chanticleer Avenue and Trevethan Avenue, as described under the HOV Lane Alternative.

Other Common Features of the Build Alternatives

Both the HOV Lane and TSM Alternatives include installation of ramp metering and construction of HOV by-pass lanes on the Route 1 on-ramps within the project limits. Under the TSM Alternative, however, no new HOV lanes would be incorporated into the freeway mainline. California Highway Patrol (CHP) enforcement areas would be included with the new HOV bypass lanes.

Both build alternatives would include reconstruction of the Santa Cruz Branch Rail Line bridges over Route 1 and the State Park Drive, Capitola Avenue, 41st Avenue and Soquel Avenue overcrossings. Also, under both alternatives, the Aptos Creek and Soquel Creek bridges would be widened.

Both the HOV Lane and TSM Alternatives also would include Transportation Operations System equipment, described in detail within each alternative description.

1.3.2. HOV Lane Alternative

The HOV Lane Alternative would widen the existing four-lane highway to a six-lane facility by adding an HOV lane next to the median in both the northbound and southbound directions. Along the southern portion of the project, the existing median generally is wide enough to add the new HOV lanes within the existing right-of-way (ROW). A mandatory standard median width (22 feet) would be used through most of the corridor, north of Freedom Boulevard. Where existing frontage roads would be impacted, non-standard inside shoulder widths of 5 feet are proposed to reduce ROW requirements and impacts. Such non-standard design features will require design exceptions when they are part of Tier II project. In some locations, widening would extend outside the existing state ROW.

The HOV Lane Alternative would modify or reconstruct all nine interchanges within the project limits to improve merging operations and ramp geometrics, lengthen acceleration and deceleration lanes, and improve sight distances. The Bay Avenue/Porter Street and 41st Avenue interchanges would be modified to operate as one interchange with a frontage road connecting the two interchanges. Where feasible, design deficiencies on existing ramps would be corrected to meet current design standards. Ramp metering and HOV by-pass lanes would be provided on all Route 1 on-ramps. The HOV Lane Alternative would include auxiliary lanes between interchange ramps and Transportation Operations System electronic equipment, such as changeable message signs, closed-circuit television, microwave detection systems and vehicle detection systems as also described under the TSM Alternative—with the exception that an auxiliary lane would not be constructed northbound between State Park Drive and Park Avenue.

Bridge structures and the Capitola Avenue Overcrossing would be modified or replaced to accommodate the new HOV lanes. New and widened highway crossing structures would include shoulder and sidewalk facilities to accommodate pedestrians and bicycles. The HOV Lane Alternative would include three new pedestrian/bicycle overcrossings of Route 1. The existing Santa Cruz Branch Rail Line structures would be replaced, not relocated or raised, to minimize environmental impacts. The Route 1 bridge over Aptos Creek would be widened on the outside to accommodate the new HOV lanes.

Retaining walls would be constructed to minimize ROW acquisition and reduce or avoid environmental impacts. At locations where frontage roads are adjacent to Route 1, concrete barriers would be constructed to separate the two facilities and minimize ROW acquisition. The project also would include demolition and disposal, excavation, borrow and fill, ROW acquisition, and temporary easements. Plans for the HOV Lane Alternative can be seen in Figure 44, Appendix A.

Mainline Improvements with the HOV Lane Alternative

- Route 1 would be widened to allow for two standard width (12 feet) mixed-flow lanes, one standard width (12 feet) HOV lane and standard outside (10 feet) shoulders.
- The proposed widening would be constructed into the median where the existing median width is over 45 feet. Where the existing median width is less than 45 feet, the required widening would be both into the median and at the outside shoulder, but generally within the existing Route 1 ROW.

- Where auxiliary lanes are proposed, widening to the outside would be increased by approximately 12 feet.
- A mandatory standard median width of 22 feet is proposed through most of the corridor.
- The highway centerline would be shifted northward in the vicinity of the Santa Cruz Branch Rail Line crossings to reduce impacts to wetlands. The bridge over Aptos Creek would be widened.
- Route 1 would be lowered to obtain vertical clearance at the Santa Cruz Branch Rail Line crossings in Aptos. A mandatory standard median width of 22 feet is proposed to minimize impacts to the Santa Cruz Branch Rail Line.
- Median and inside shoulder width would be non-standard to reduce impacts to these adjacent streets: McGregor Drive, Cabrillo College Drive, Kennedy Drive and Soquel Avenue. At these four constrained locations, the inside shoulder would be a non-standard 5 feet and the median a non-standard 17 feet.

Auxiliary Lane Improvements with the HOV Lane Alternative

Auxiliary lanes are designed to reduce conflicts between traffic entering and exiting the highway by connecting from the on-ramp of one interchange to the off-ramp of the next; they are not designed to serve through traffic. Auxiliary lanes would be added at the following locations:

- Northbound and southbound between Freedom Boulevard and Rio Del Mar Boulevard
- Northbound and southbound between Rio Del Mar Boulevard and State Park Drive
- Southbound between State Park Drive and Park Avenue
- Northbound and southbound from Park Avenue to Bay Avenue/Porter Street, and
- Northbound and southbound from 41st Avenue to Soquel Drive/Soquel Avenue

Interchange Improvements with the HOV Lane Alternative

All interchanges within the project limits would be modified to improve merging operations and ramp geometrics, and to improve accessibility and safety for pedestrians and bicyclists.

Interchange improvements would generally include the following:

- Ramp metering and HOV by-pass lanes would be provided on all on-ramps.

- Ramps would be widened and their geometrics improved where feasible.
- CHP enforcement areas would be provided at all on-ramps except Park Avenue, southbound.
- Intersections of freeway ramps with local roads would be modified to provide less-skewed intersections with crosswalks for pedestrians and bicycles; free right-turns would be eliminated where feasible and traffic signals installed.
- Local roadways would be widened at the interchanges to serve anticipated travel demand.
- Retaining walls would be constructed to minimize impacts to local roadways, development, wetlands, and waterways.
- Drainage facilities would be provided for adequate drainage and treatment of storm water runoff.
- Other specific improvements are identified by interchange area.

Changes at San Andreas/Larkin Valley Roads Interchange

- The existing northbound cloverleaf off-ramp free right-turn onto Larkin Valley Road would be eliminated in favor of a signalized 90-degree intersection.
- A signalized intersection would be provided at the San Andreas Road ramps and the free right-turns eliminated.
- The existing on-ramps would be widened to accommodate HOV bypass lanes.
- The southbound Route 1 bridge over San Andreas/Larkin Valley Road would be widened into the median to accommodate the HOV lanes.
- San Andreas/Larkin Valley Roads would be widened within the project limits to add turn lanes.
- New sidewalks would be added along San Andreas/Larkin Valley Roads within the project limits.

Changes at Freedom Boulevard Interchange

- The existing ramp termini at Freedom Boulevard would be modified to provide less-skewed intersections with Freedom Boulevard. These intersections would be signalized, and free right-turns eliminated.
- The southbound off-ramp would be widened to two exit lanes.

- The existing on-ramps would be widened to accommodate HOV bypass lanes.
- Freedom Boulevard would be widened within the project limits to add turn lanes.
- The Freedom Boulevard/Bonita Drive intersection would be enlarged to add turn lanes and achieve acceptable level of service.
- The Freedom Boulevard bridge would be replaced with a wider structure that would accommodate a new turn lane on Freedom Boulevard and the new HOV lane on Route 1.
- New sidewalks would be added along Freedom Boulevard within the project limits.

Changes at Rio Del Mar Boulevard Interchange

- The northbound on-ramp would be realigned to form the north leg of a four-way intersection with Rio Del Mar Boulevard and the northbound off-ramp. This intersection would be signalized, and free right turns eliminated.
- The northbound off-ramp would be widened to two exit lanes.
- The southbound ramps would be widened, the intersection with Rio Del Mar Boulevard signalized, and free right-turns eliminated.
- The existing on-ramps would be widened to accommodate HOV bypass lanes.
- Soquel Drive would be shifted northward to accommodate the roadway widening along the northbound off-ramp.
- Rio Del Mar Boulevard would be widened within the project limits to add turn lanes and a through lane in each direction.
- The Rio Del Mar Boulevard bridge over Route 1 would be replaced with a longer, wider bridge to accommodate a new turn lane and a through lane in each direction on Rio Del Mar and the new HOV lane on Route 1.
- Sidewalk would be added along eastbound Rio Del Mar Boulevard within the project limits; the sidewalk on westbound Rio Del Mar Boulevard will be retained.

Changes at State Park Drive Interchange

- The existing northbound cloverleaf on-ramp free-right would be changed to a signalized right turn.

- The existing northbound off-ramp terminus would be modified to form, together with the realigned northbound on-ramp terminus, the south leg of a signalized intersection with State Park Drive.
- The northbound and southbound off-ramps would be widened to two exit lanes.
- The existing on-ramps would be widened to accommodate HOV bypass lanes.
- State Park Drive would be widened within the project limits to add turn lanes and a through lane in each direction.
- The State Park Drive bridge over Route 1 would be replaced with a longer, wider bridge to accommodate a new through lane in each direction on State Park Drive, and the new HOV lane on Route 1.
- Sidewalk would be added along eastbound State Park Drive within the project limits; the sidewalk along westbound State Park Drive will be retained.

Changes at Park Avenue Interchange

- The existing diamond interchange ramp design would be retained and ramps would be widened.
- The northbound and southbound off-ramps would be widened to two exit lanes.
- The existing on-ramps would be widened to accommodate HOV bypass lanes.
- Park Avenue would be widened within the project limits to add turn lanes.
- The two Route 1 bridges over Park Avenue would be replaced with one, wider structure to accommodate the new HOV lanes on Route 1.
- Sidewalk would be added within the project limits along westbound Park Avenue; the sidewalk along eastbound Park Avenue will be retained.

Changes at Bay Avenue/Porter Street and 41st Avenue Interchanges

- Improvements at the Bay Avenue/Porter Street and 41st Avenue interchanges are designed so that these two interchanges would work as a single interchange connected by a collector/frontage road running between the interchanges.
- The ramps at Bay Avenue/Porter Street would be reconstructed to form less-skewed intersections with Bay Avenue/Porter Street.
- The existing southbound Route 1 off-ramp to Bay Avenue/Porter Street would be eliminated. Southbound traffic bound for Bay Avenue/Porter Street would exit at 41st

Avenue two-lane ramp and continue on a new southbound collector/frontage road to Bay Avenue/Porter Street.

- The existing on-ramp from Porter Street to northbound Route 1 on a two-lane ramp would be modified to become a northbound collector/frontage road serving traffic bound for 41st Avenue or northbound Route 1.
- Northbound traffic exiting Route 1 would bear right to access Bay Avenue/Porter Street, or stay left and continue on a new structure over Bay Avenue/Porter Street, join the northbound collector/frontage road, and end at a new signalized intersection at 41st Avenue.
- At 41st Avenue, southbound on- and off-ramps would be eliminated and replaced with a diagonal off-ramp and a collector/frontage road serving traffic bound for Bay Avenue/Porter Street or southbound Route 1. The new ramp and collector/frontage road would form a signalized intersection with 41st Avenue.
- At 41st Avenue, the northbound on-ramps would include a realigned loop and realigned diagonal.
- New on-ramps would include HOV bypass lanes.
- 41st Avenue would be widened within the project limits to add turn lanes and eastbound though lanes over Route 1.
- Bay Avenue/Porter Street would be widened to add right-turn lanes at the on-ramps.
- A new bridge over Soquel Creek and Soquel Wharf Road would be constructed for the new southbound collector/frontage road from 41st Avenue to Bay Avenue/Porter Street.
- The 41st Avenue bridge over Route 1 would be replaced with a longer, wider bridge to accommodate the new eastbound through lane and turn lanes on 41st Avenue, and the new HOV lanes on Route 1.
- Class I bike paths would be constructed between 41st Avenue and Bay Avenue/Porter Street adjacent to the new collector/frontage roads.

Changes at Soquel Drive/Soquel Avenue Interchange

- The northbound off-ramp would be realigned to a signalized 90-degree intersection with Soquel Drive. The existing access to Commercial Way would be eliminated.
- The westbound Soquel Drive on-ramp to northbound Route 1 would be modified to eliminate the free right-turn access.

- The existing northbound loop on-ramp from eastbound Soquel Avenue would be realigned and its free-right terminus would become a signalized 90-degree intersection.
- A new, wider southbound diagonal off-ramp that adds turn lanes at its terminus and a new loop on-ramp would form the north leg of a signalized intersection at Soquel Avenue.
- The existing southbound hook on-ramp would be widened to add an HOV bypass lane and realigned to be made standard.
- The northbound and southbound off-ramps would be widened to two exit lanes.
- New on-ramps would include HOV bypass lanes.
- Soquel Avenue within the project limits would be widened to add an eastbound though lane and turn lanes.
- Salisbury Lane would be shifted eastward to form an intersection with the realigned northbound off-ramp and loop on-ramp.
- The Soquel Drive/Soquel Avenue bridge over Route 1 would be replaced with a longer, wider bridge to add an eastbound through lane and a turn lane to Soquel Drive and accommodate the new HOV lane on Route 1.
- The culvert at Arana Gulch would be extended underneath the widened Route 1 and new southbound off-ramp.
- Sidewalk would be added along eastbound Soquel Drive/Soquel Avenue within the project limits; the sidewalk along westbound Soquel Drive/Soquel Avenue will be retained.

Changes at Morrissey Boulevard Interchange

- The southbound exit would be realigned to terminate at a new signalized intersection with Morrissey Boulevard.
- The existing southbound on-ramp would be eliminated and replaced with a new, wider diagonal ramp with a signalized terminus.
- The existing southbound exit and on-ramp at Elk Street would be eliminated.
- The existing northbound loop on-ramp would be eliminated, as would access to Rooney Street from this northbound loop.
- The northbound off-ramp would be widened to two exit lanes.

- New on-ramps would include HOV bypass lanes.
- Morrissey Boulevard within the project limits would be widened to add an eastbound through lane and turn lanes, and realigned to form a straight line between its intersections with Fairmont Avenue and Rooney Street.
- The Morrissey Boulevard bridge would be replaced with a longer, wider bridge to accommodate a new eastbound through lane and turn lanes on Morrissey Boulevard and new HOV lanes on Route 1.

Sidewalk would be added along eastbound Morrissey Boulevard within the project limits; the sidewalk along westbound Morrissey Boulevard will be retained.

Transit-Related Facilities

In addition to the mainline HOV through-lanes on the highway and HOV by-pass lanes on the ramps, the HOV Lane Alternative could include the following features to facilitate freeway-oriented transit services and operations:

- Both on-ramps and both off-ramps at the reconfigured Park Avenue interchange include options for bus pads and bus shelters.
- Ramps and collectors at the Bay Avenue/Porter Street and 41st Avenue interchange include options for bus pads and shelters.
- A future Park and Ride lot is under consideration at the 41st Avenue interchange, to be coordinated with the bus facilities.
- Feasibility for a Park and Ride lot in the Bay Avenue/Porter Street interchange area would be investigated.

These improvements would be considered as part of the detailed Tier II design/environmental analysis of those respective facilities in the future.

New Bicycle/Pedestrian Overcrossings

The HOV Lane Alternative would construct new bicycle/pedestrian overcrossings of Route 1 at the following locations:

- Mar Vista Drive – the crossing would start on the north side of Route 1 and parallel the highway eastward for about 600 feet, doubling back westward as it climbs before crossing the highway at a right angle and then descending by switchbacks to and along Mar Vista Drive for about 550 feet; multiple configurations are under consideration the final design will be determined as part of the Tier II design/environmental analysis of this facility.

- Chanticleer Avenue – the crossing would start at the Chanticleer cul-de-sac on the north side of Highway 1 and parallel the highway for about 400 feet to the west before crossing it on a curved alignment, returning to terminate just west of Chanticleer on the south side of the highway.
- Trevethan Avenue – the crossing would start on the north side of Route 1 at Trevethan Avenue and parallel the highway about 600 feet before crossing on an angle and continuing along the banks of the western tributary to Arana Gulch to terminate close to Harbor High School; multiple configurations are possible with the final design to be determined as part of the Tier II design/environmental analysis of this facility.

1.3.3. Transportation System Management Alternative

The TSM Alternative proposes to add ramp metering and construct HOV bypass lanes on existing interchange on-ramps, improve existing nonstandard geometric elements at various ramps, and add auxiliary lanes along the mainline between major interchange pairs within the project limits, as described below and summarized under Common Design Features of the Build Alternatives. It would not construct HOV lanes or any additional through lanes on the mainline.

The Common Design Features of the Build Alternatives section describes other features included in the TSM Alternative. Plans for the TSM Alternative can be seen in Figure 45 in Appendix B.

Auxiliary Lanes

Auxiliary lanes are designed to reduce conflicts between traffic entering and exiting the highway by connecting from the on-ramp of one interchange to the off-ramp of the next; they are not designed to serve through traffic. Auxiliary lanes to be constructed on Route 1 with the TSM Alternative consist of the following:

- Northbound and southbound between Freedom Boulevard and Rio Del Mar Boulevard.
- Northbound and southbound between Rio Del Mar Boulevard and State Park Drive.
- Northbound and southbound between State Park Drive and Park Avenue.
- Northbound and southbound between Park Avenue and Bay Avenue/Porter Street.
- Northbound and southbound from 41st Avenue to Soquel Drive/Soquel.

New Bicycle/Pedestrian Overcrossings

The TSM Alternative would construct new bicycle/pedestrian overcrossings of Route 1 at Mar Vista Drive, Chanticleer Avenue and Trevethan Avenue as described under the HOV Lane Alternative.

Other Improvements

- At Freedom Boulevard, the southbound off-ramp would be widened to two exit lanes.
- At State Park Drive, the northbound and southbound off-ramps would be widened to two exit lanes.
- At Park Avenue, the northbound and southbound off-ramps would be widened to two exit lanes.
- Like the HOV Lane Alternative, the TSM Alternative would widen the Soquel Avenue northbound and southbound off-ramps to provide two exit lanes, but the southbound ramp would not be realigned and the northbound ramp realignment would not be as significant as in the HOV Lane Alternative. Also as in the HOV Lane Alternative, the realigned northbound off-ramp would eliminate access to Commercial Way.

1.3.4. No Build Alternative

The No Build Alternative offers a basis of comparison with the TSM and HOV Lane Alternatives in the future analysis year of 2035. It would not address the project purpose and need. It assumes no major construction on Route 1 through the project limits other than currently planned and programmed improvements and continued routine maintenance. Planned and programmed improvements included in the No Build Alternative are the following improvements contained in the 2010 Regional Transportation Plan:

- Installation of median barrier on Route 1 from Freedom Boulevard to Rio Del Mar Boulevard.
- Construction of auxiliary lanes between the Soquel Avenue-Soquel Drive and Morrissey Boulevard interchanges (EA 05-0F6500, completed May 2013).
- Replacement of the La Fonda Avenue overcrossing of Route 1, included as part of the Soquel-Morrissey Auxiliary Lanes project.

Also included in the No Build Alternative are a number of locally sponsored projects for improving the local arterial network and constructing or improving bicycle lanes.

1.3.5. Tier II Alternative

The Tier II project purpose matches that of the Santa Cruz County Route 1 HOV project, which is reducing congestion and encouraging use of alternative transportation modes as a means to increase system capacity, except that encouraging carpooling is not a part of the Tier II project purpose.

Plans and cross-sections for the Tier II Project Alternative can be seen in Figures 46 and 47 in Appendix C, respectively. Conceptual Layout Plans for the Chanticleer Pedestrian/Bicycle Overcrossing can be seen in Figure 48 of Appendix C.

Auxiliary Lanes

It is proposed to widen Route 1 by adding an auxiliary lane to both the northbound and southbound sides between the 41st Avenue and Soquel Drive interchanges. The total roadway widening would be approximately 1.2 miles in length. Southbound, the auxiliary lane would begin at the existing Soquel Drive on-ramp, and end at the existing off-ramp at 41st Avenue. Northbound, the auxiliary lane would begin just south of the 41st Avenue overcrossing, at the existing loop on-ramp to northbound 41st Avenue. West of the overcrossing, the on-ramp from southbound 41st Avenue to northbound Route 1 would merge with the new auxiliary lane, approximately 1,000 feet downstream from its beginning at the bottom of the loop ramp.

As part of the widening in the northbound direction, the project proposes to repair the pavement failure in the outside lane and shoulder by improving the pavement section, installing a retaining wall, and if necessary, replacing the underlying county-owned sanitary sewer.

Pedestrian Features

A new horseshoe-shaped pedestrian overcrossing at Chanticleer Avenue is proposed, and approximately 400 ft of sidewalk would be constructed along the south side of Soquel Avenue, starting at Chanticleer Avenue. See Figure 44 in Appendix C for preliminary plans for the pedestrian bridge.

Retaining Walls

Retaining walls would be constructed as part of the roadway widening, with a total of four separate walls: three on the northbound side of the highway and one on the southbound side. Three of the walls would be located to allow widening for a future lane on the highway, in both directions. The wall proposed along the northbound on-ramp at 41st Avenue would require demolition in the event the highway was widened in the future. Two of the walls

would span Rodeo Creek Gulch, where there is an existing 9-foot arch concrete culvert, and one would be constructed within a narrow jurisdictional area on the northbound side of Route 1, adjacent to a 39-inch culvert crossing.

Right-of-Way

ROW would be acquired along Soquel Avenue west of Chanticleer Avenue and at the Chanticleer Avenue cul-de-sac north of the highway, along with temporary construction easements on both sides of Route 1 near the proposed overcrossing.

2. Assessment Method

The National Environmental Policy Act (NEPA) of 1969, and Council on Environmental Quality (CEQ) regulations to implement NEPA, both discuss visual impacts under the heading of aesthetics. These regulations identify aesthetics as one of the elements or factors in the human environment that must be considered in determining the effects of a project. Further, Title 23, United States Code (U.S.C.) 109(h) cites "aesthetic values" as a matter that must be fully considered in developing a project. In addition to the Federal guidelines and requirements, the State of California, through the California Environmental Quality Act (CEQA), establishes that it is the policy of the State to take actions to provide the people of the state "with…enjoyment of aesthetic, natural, scenic, and historic environmental qualities.[1] To address CEQA requirements, Caltrans has developed the Standard Environmental Reference (SER), which provides information on the approach Caltrans uses to identify visual and aesthetic issues that may result from transportation projects.

This visual assessment was prepared consistent with the methodologies established by FHWA's publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981). This methodology divides the views into landscape or character units that have distinct, but not necessarily homogenous, visual character. Typical views, called key viewpoints, are selected for each unit to represent the views to/from the project. The view of the motorist is also considered as a separate character unit.

Existing visual quality from the viewpoints is judged by three criteria: vividness, intactness, and unity. Descriptions for the three criteria are:

- Vividness: The memorability of the landscape components as they combine to form striking or distinctive patterns.
- Intactness: The integrity of visual order in the view and its freedom from visual encroachment.
- Unity: The visual coherence and composition of the landscape viewed to form a harmonious visual pattern.

These criteria provide a method for describing the form, line, color, and texture of the components found within a view. As in all things aesthetic, "beauty is in the eye of the beholder" and, therefore, there is a subjective component to this or any visual analysis

[1] California Public Resources Code Section 21001(b). 2003. http://ceres.ca.gov/topic/env_law/ceqa/stat2/index.html

evaluation. However, as outlined in the FHWA methods, the use of these descriptors allows a basis for understanding the evaluator's rationale behind a visual quality determination.

To address the requirements identified in the FHWA methodology, the following seven steps were performed to assess the visual impacts of the proposed project:

- Define the project setting and viewshed
- Identify the regulatory setting of the project area
- Identify key viewpoints for visual assessment
- Analyze existing visual resources and viewer response
- Depict the visual appearance of project alternatives
- Assess the visual impacts of the project alternatives
- Propose methods to minimize or avoid adverse visual impacts

It is important to note that visual character terms are descriptive and nonevaluative, meaning that they are based on defined attributes that are neither good nor bad by themselves. Changes in visual character cannot be described as having good or bad attributes until compared with viewer responses to the change.

2.1. PROJECT SITE VISITS AND INFORMATION GATHERING

Interpretation of existing visual character and land use was based on field visits conducted during summer and fall 2006, spring 2011, and winter 2012. Aerial photography provided base information for the existing roadways. In addition, research on the regulatory setting was conducted via online searches of the City, County, and Caltrans Web sites.

3. Visual Environment of the Project

3.1. PROJECT SETTING

A regional landscape defines those elements of the natural and built environment that together form a unique visual identity of a place or corridor. This regional landscape establishes the general visual environment of the project, but the specific visual environment upon which this assessment is focused is determined by defining the landscape units and project viewshed.

The regional landscape for Route 1 between San Andreas-Larkin Valley Roads and Morrissey Boulevard is characterized by a rolling landscape that has been partially urbanized and partially remaining in open space. The project area for the visual assessment for both the Tier I and Tier II projects can be seen in Figure 3. In general, the landform slopes down to the south and the highway is located on a bench, with a cut slope on the north side. Farther east in the corridor, the terrain becomes more rolling than the western section, so the cut slopes become more of a predominant feature in the landscape, particularly east of Freedom Boulevard.

The western portions of the corridor around Santa Cruz, Capitola, and Soquel generally show more development than the eastern portions of the corridor. Most of this development is suburban in nature, with homes on small lots, strip malls, and other commercial-style development. These are generally low one- to two-story structures. The open space is mostly associated with creeks that cross the corridor and are a vivid counterpoint to the built environment associated with the developments and road overcrossing structures.

The vegetation associated with the creeks is dominated by mature stands of eucalyptus. These trees create a large visual element in the landscape due to their size and density. In between these groves, plantings have been established along the highway. Along the frontage roads where there are narrow planting areas, the highway plantings are fairly minimal with vines and shrubs along the fence line. Interchanges have more extensive plantings that include trees, primarily coast redwoods and other evergreen species, shrubs, and groundcovers.

One additional visual characteristic associated with the corridor is the fog that routinely rolls in from the Pacific. This is particularly the case in and around the Aptos area where the highway is closer to the coast. When it is present, the fog is a powerful presence in the landscape, changing the quality of light and the way other visual elements are perceived.

3.2. REGULATORY SETTING

The regulatory setting describes any applicable State and local statutes, reports, and guidelines that may influence the visual environment of the community. These help to provide a window into a community's commitment and/or desire to influence their visual environment.

3.2.1. State of California

Coastal Zone: Portions of the corridor from just west of Soquel Creek through to San Andreas-Larkin Valley Roads at the eastern end fall within the Coastal Zone as defined by Santa Cruz County and the State of California. Therefore, the majority of the Tier I and all of the Tier II project area fall within this zone. Policy #30251 of the Coastal Act states that:

> *"The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas."*

Both at the policy and the implementation level, the Coastal Zone is definitely an indicator of increased sensitivity regarding protection of visual resources.

3.2.2. Caltrans

Because Caltrans policies address the entire corridor of the Route 1, the policies described below apply to both the Tier I and Tier II projects.

Scenic Routes: Route 1 is listed within the State Scenic Highways system as eligible for future listing, but it is not officially designated. The proposed project, with an increase in hard surfaces (i.e., walls and additional paving) and the blocking of outward-facing views, has the potential of jeopardizing an official Scenic Highway Designation.

Context-Sensitive Solutions: Context-Sensitive Solutions, or CSS, is a policy established by Caltrans as an "approach to plan, design, construct, maintain, and operate its transportation system." CSS is an approach to transportation projects that places preservation of historic, aesthetic, scenic, natural environment, and other community values on an equal basis with transportation safety, mobility, economics, and maintenance. The intended result of employing CSS design on projects is to create transportation projects that are in harmony

Figure 3: Aerial View of Project with Landscape Units

with a community's values and objectives by allowing community input into the design process.

Caltrans Landscape Guidelines: Caltrans has established a plant selection and setback guide for all new landscape plantings. In most instances, these are more limiting than previous requirements. The primary concern of the requirements is the safety of maintenance workers and travelers on the roadway. Under the revised guidelines, new plantings may be restricted in their locations, and it cannot be assumed that new plantings would be in-kind and in-place of the existing plantings. In addition, an increase in disease and insect vectors has limited the species that can be replanted in some locations of the state.

Another potential limitation to new landscaping is the new water quality requirements because of additional paving in the corridor. Some of the methods typically employed to improve the quality of the water running off of adjacent project pavement include detention ponds, which allow pollutants to settle out, and bioswales (i.e., grassed ditches), which use plantings along the swale to filter out the impurities. In both of these treatments, woody landscape plantings, including shrubs and groundcovers, are not allowed. In the case of the basin, this is because the basin must be cleaned out to remove sediment. In the case of the bioswale, the grass is needed to act as the filter. Therefore, the placement of these elements within a corridor can restrict landscape plantings at any one particular location.

3.2.3. Santa Cruz County

The portion of the project corridor between the cities of Santa Cruz and Capitola, as well as areas east of the Capitola city limits, falls within Santa Cruz County (including the communities of Soquel and Aptos). The information and policies described below address both the Tier I and Tier II project areas.

The county has developed many planning documents that direct development and preservation along the corridor. The corridor itself is a State Route not under the jurisdiction of the County; however, the following summarizes the community's policies and goals.

- **General Plan:** Santa Cruz County has a General Plan for areas under its jurisdiction. In addition, the County seeks to work with other agencies, such as the City of Santa Cruz, to prescribe appropriate development patterns and styles that are compatible with the community. In addition, the County's General Plan sets goals and policies for quality design and the use of native landscaping. Mobility improvements indicated in the General Plan for Route 1 include widening the highway for HOV lanes.

Pertinent to the areas along the project corridor, the General Plan provides policies and programs for, among other elements of the County, Conservation and Open Space (Chapter 5) and Community Design (Chapter 8). Relevant policies, goals, and programs identified in these chapters include:

Goal:	*Natural and Cultural Resource Protection (LCP):* To protect and restore the unique, rare, threatened, endangered, and other natural and cultural resources that warrant preservation because of their biological value, scarcity, scientific value, aesthetic quality, or cultural significance.
Goal:	*Community Design:* To preserve and enhance the quality of life in Santa Cruz County through the guidance of development activity to protect open space for its aesthetic, recreational, and environmental values; to foster high-quality residential areas as pleasant and socially constructive areas in which to live; and to enhance the quality of residential, commercial, and industrial development to achieve an aesthetic and functional community.
Objective 5.10a:	*Protection of Visual Resources:* To identify, protect, and restore the aesthetic values of visual resources, by designating visual resources in the General Plan and LCP Resource Mapping and defining areas with regional public importance for their beauty or rural agricultural character (Policy 5.10.1); protecting public vistas (Policy 5.10.3); preserving natural buffers (Policy 5.10.4) among others.
Policy 5.10.10:	Identifies the entire Route 1 within Santa Cruz County as a Scenic Road and that the vistas from the road "shall be afforded the highest level of protection." Landscaping requirements for scenic roads include the blending of contours of any grading with the adjacent natural terrain to achieve a smooth transition and natural appearance and the use of indigenous plant species appropriate for the area.

- **County Code:** In support of the County General Plan, the County Code addresses, among other elements, Historic Preservation, Significant Tree Protection, Coastal Zone Regulations, and Site, Architectural, and Landscape Design Review (Chapters 16.42, 16.34, 13.20, and 13.11, respectively). A brief summary of these codes follows:

Chapter 13.11, Site, Architectural, and Landscape Design Review: The ordinance establishes the criteria and methods for the design review of development within the areas under County jurisdiction. The purpose is to:

- Implement the General Plan by providing regulations to preserve and enhance the quality of life in Santa Cruz County, protect open space, and enhance the quality of development;
- Recognize the interdependence of land values and aesthetics, and to provide a method by which the County may implement this interdependence to the benefit of its citizens;
- Preserve and enhance the beauty and environmental amenities of the County;
- Promote and protect the safety, convenience, comfort, prosperity, and general welfare of the citizens of the County; and,
- Establish a design review function and to confer it to the Planning Commission, Zoning Administrator, and Planning Department staff.

Chapter 13.20, Coastal Zone Regulations: For areas within the County, the Coastal Zone extends from the beaches to Route 1. The purpose of the regulations is to further implementation of the California Coastal Act of 1976 and establishes a Coastal Zone approval process. Among the design criteria established are visual compatibility, minimum site disturbance, ridgeline development, landscaping, second-story developments, and front-yard setbacks. Additional design criteria are also established for rural scenic resources and beach viewsheds.

Chapter 16.34, Significant Trees: The ordinance regulates the removal of trees within the Coastal Zone. The ordinance establishes the type of trees to be protected, the circumstances under which they may be removed, and the procedures for removal permits. A significant tree (within the Urban or Rural Service Line) is defined as one with a 20-inch-diameter breast height, or dbh (as measured at 4.5 feet from the ground level) or greater; clump of five or more stems, each with a dbh of 12 inches or greater; or any group or 5 or more trees on one parcel each or which is greater than 12 inches dbh. Outside of the Urban or Rural Service Line, the numbers are 40 inches, 20 inches, and 20 inches, respectively.

Chapter 16.42, Historic Preservation: The purpose of the ordinance is to foster the protection, enhancement, perpetuation, and use of structures, districts, lands, and neighborhoods or historic, architectural, and engineering significance.

- **Aptos Village Plan** (February 2010): This plan establishes design and development requirements for the Aptos Village area. This does not cover any portion of the Route 1 corridor, but it does fall adjacent to the corridor.
- **Soquel Village Plan** (May 1990): Similar to the Aptos Plan, the Soquel Village Plan establishes design and development requirements and objectives for the village area. The plan does not overlap the Route 1 project corridor.

3.2.4. City of Capitola

A portion of the project falls within/adjacent to the incorporated area of Capitola; these include both the Tier I project area as well as a small portion of the Tier II Project area in the vicinity of the 41st Avenue Interchange. The City has developed many documents that provide an indication of the community's concerns with the visual environment, which are summarized below:

- **City of Capitola General Plan** (1989, with partial revisions dated 2004): The General Plan identifies the community's issues and goals for a variety of areas, including land uses, open space and parks, conservation, and circulation. A reoccurring theme is to maintain the existing high visual quality of the community.

  With regard to freeways in the community, the General Plan acknowledges that Route 1 is the only freeway within the community. The stated objective is to seek to enhance and maintain the capacity of Route 1 as the major regional route to and through Capitola. Two policies are outlined:

  Policy 4: Support regional agency's efforts to increase the capacity of Route 1 to accommodate forecast traffic. The policy also refers to the need for eight lanes on Route 1.

  Policy 5: Support the improvement of Route 1 interchanges within the city of Capitola to the extent that they serve the Capitola community.

- **Capitola Municipal Code:** The Municipal Code establishes the ordinance to support the goals and policies established in the General Plan. Among other elements, the code establishes protections for significant and heritage trees within the community.
- **Historical Context Statement for the City of Capitola** (2004): This report, by the City Historian and Director of the Capitola Museum, provides a framework for investigation of the city's historic resources. It also, by nature of its contents, provides the context for the design of elements and aesthetic treatments within the city for those looking to achieve CSS.

3.2.5. City of Santa Cruz

Portion of the proposed Tier I project area falls within the city of Santa Cruz. Although this State-owned route is not under the jurisdiction of the local planning authorities, the following planning policies and guidelines are indicators of the general level of community sensitivity regarding the aesthetic character of the region and of the project area.

- **Community Design Background Report** (November 2006)**:** This report was used to develop and support the changes to the City's General Plan 2025. The report discusses the City's context and identity, neighborhoods, development styles and patterns, community features (e.g., parks, open space, gateways, and nodes), and regulations and/or guidelines for future development.
- **City of Santa Cruz General Plan 2030** (Administrative Draft, February 2009): The draft version represents a comprehensive revision of the City's 1990-2005 General Plan. It, among other things, expresses the desires of the community regarding its physical, social, economic, cultural, and environmental character. It establishes what the community wants to reinforce or change and provides guidelines for change while preserving environmental resources, generating economic stability, and maintaining public services and facilities at adequate levels. The vision expressed in the plan states that *"Surrounded by greenbelt and the Pacific Ocean, Santa Cruz is a compact, vibrant city that preserves the diversity and quality of its natural and built environments, creates a satisfying quality of life for its diverse population and workers, and attracts visitors from around the world"* (page 12).

  Chapter 3 of the General Plan addresses Community Design and Chapter 5 discusses Mobility. Relevant goals, policies, and actions identified in these chapters include:

  Goal CD1: *A built environment in harmony with its natural setting.* Accomplish this by preserving natural features that visually define areas in the city and ensure that development is designed to be in harmony with natural topography and vegetation.

  Goal CD3: *High-quality design that reinforces the community's unique character*. Accomplish by among others things, developing and maintaining physical and visual linkages between key areas in the city.

  Goal CD4: *Attractive gateways, roadways, and landscaping*. Accomplish by making the city's major gateways defining, attractive, and welcoming, by among other elements, developing a citywide Gateway Plan that identifies and defines neighborhoods and relates to Area Plan

requirements; identify and establish design concepts that make visitor-serving corridors attractive and interesting through landscaping, banners, flags, art, and displays.

In addition, Goal CD4 also seeks to ensure that new development and ROW improvements enhance the visual quality of streetscape, including undergrounding utilities when major road improvements or reconstruction is proposed; and by developing guidelines that ensure soundwalls, retaining walls, or fences are visually interesting and well landscaped. Lastly, Goal CD4 makes provisions to ensure attractive, functional, and appropriate landscaping throughout the city by protecting existing significant vegetation and landscaping that provides scenic value along with wildlife habitat and forage, developing a street tree master plan, and implementing streetscape and other landscaping plans in the City's Area and Specific Plans.

Goal M2: *A safe, sustainable, efficient, adaptive, and accessible transportation system.* Methods to achieve this goal include providing leadership on sustainable regional mobility; encouraging diverse local and regional transit options; and supporting regional funding and implementation of key regional projects that can significantly benefit Santa Cruz and further the City's mobility policies.

Goal M3: A safe, efficient, and adaptive road system. Methods for achieving this goal include acknowledging and managing congestion; seeking ways to reduce vehicle trip demand and reduce the number of peak-hour vehicle trips; encouraging HOV travel; striving to maintain the established LOS D or better at signalized intersections; and accepting a lower LOS and higher congestion at major regional intersections if necessary improvements would be too costly or result in significant environmental impacts.

- **City of Santa Cruz Heritage Tree Ordinance:** The City of Santa Cruz has established a preservation of heritage trees and shrubs within the city. A heritage tree or shrub is defined in the ordinance as "*Any tree, grove of trees, shrubs or group of shrubs, growing on public of private property within the city limits of Santa Cruz which … have a trunk circumference of 44 inches (approximately 14-inch-diameter tree) measured at 54 inches above existing grade … or any tree, grove of trees, shrub, or grouping of shrubs which have historical significance…*"

3.2.6. Summary of Regulatory Environment for Tier I

These city and County efforts/regulations by the communities along the Route 1 Project Corridor indicate that a high value is placed on the aesthetics of the corridor and its place within the community. In addition, the preservation of trees appears particularly important to the communities. This increases the likelihood that residents and business owners in the area have a very high sensitivity to changes in the visual environment.

3.2.7. Summary of Regulatory Environment for Tier II

Most of the Tier II Project falls within the Soquel and Live Oak communities. The exception to this is the 41st Avenue interchange, portions of which are within the city of Capitola. Therefore, the regulatory setting for the project is limited to these agencies and the State of California. However, as in the wider Tier I corridor, the regulations and efforts at design guidelines indicate that the communities in the project area place a high value on aesthetics and the need for community-sensitive design.

3.3. LANDSCAPE UNITS FOR TIER I

Landscape units are defined as that portion of the regional landscape that can be thought of as containing a distinct visual character. Another way to look at a landscape unit would be to consider it an outdoor room. Frequently, a landscape unit would correspond to a place or district that is commonly known among the community.

For the Route 1 corridor from San Andreas-Larkin Valley Roads to Morrissey Boulevard, the study area can be divided into four landscape units. These areas are distinct, but not necessarily homogenous, in character. Figures illustrating the four landscape unites can be seen in Section 4 of this report (Figures 5 through 8). The four landscape units from the southern project limit to the northern project limit are:

3.3.1. Upland Landscape Unit

This landscape unit is at the southern end of the project from a point just east of the San Andreas-Larkin Valley Roads interchange to the western edge of the Rio Del Mar interchange. Here, the landscape is more rolling and hilly than in other parts of the corridor as Route 1 climbs up out of the coastal area. One of the dominant visual features within this unit is the cut slope between Freedom Boulevard and San Andreas-Larkin Valley Roads. This slope is sparsely covered with native shrubs and grasses.

3.3.2. Aptos Landscape Unit

The Aptos Landscape Unit is the largest of the four units and stretches from the western edge of the Rio Del Mar Boulevard interchange through Aptos and portions of Capitola to the Capitola Avenue overcrossing. The predominant visual element of this unit is the tree vegetation associated with the creeks that cross the corridor, including Aptos-Valencia Creeks, Ord Gulch, Borregas Creek, Pot Belly Creek, and Nobel Creek.

3.3.3. Soquel–Capitola Landscape Unit

The Soquel-Capitola Landscape Unit comprises an area of the corridor that is more developed than the previous two units. This unit begins at the Capitola Avenue overcrossing and stretches west to a point just east of the Soquel Avenue/Soquel Drive interchange. The unit is a mix of suburban development and vegetated creek crossings (Soquel Creek and Rodeo Gulch) dominated by skyline trees. The trees associated with the creeks provide a visual counterpoint to the man-made developments that are typical in this unit.

3.3.4. Santa Cruz–Arana Gulch Landscape Unit

This landscape unit is the most urbanized and residential of the four units. It stretches between the Soquel Avenue/Soquel Drive interchange to the end of the project at the Morrissey Boulevard overcrossing. While being very developed, portions of this unit are dominated by vegetation, especially the areas associated with Arana Gulch. This unit also contains Harbor High School, which backs up to Route 1 at the La Fonda Avenue overcrossing.

3.4. LANDSCAPE UNITS FOR TIER II

Most of the Tier II project falls within the Soquel-Capitola Landscape Unit, while a small portion, within the Soquel Avenue interchange area, falls in the Santa Cruz-Arana Gulch Landscape Unit.

3.5. PROJECT VIEWSHED

A viewshed is the area normally visible from an observer’s viewpoint and is limited by the screening/obstruction effects of any vegetation or structures. A viewshed can include views from within the project outward or from outside of the area into the project corridor. While viewpoints represent specific locations within the project area, a viewshed describes what is seen from that viewpoint, including the limits of what can be seen. When these individual points are strung together, the viewsheds create an overall project viewshed that can be used to describe the project area. The viewshed includes the locations of viewers within the

project area that are likely to be affected by visual changes brought about by the project features.

3.5.1. Tier I Viewshed

Anticipated views out from the corridor: In general, the views out of the corridor are limited to approximately 0.25-mile in open, flat, or slightly sloped terrain, or less depending on the density of vegetation along the corridor. The existing corridor is well vegetated along its edges as is most of the adjacent community. This limits views out from the corridor. In spot locations of the corridor, there are views to the distant hills and ridges north of, and perpendicular to, the corridor (beginning approximately 0.5 miles or more from the corridor). The locations for these would be quite specific to areas of reduced vegetation in or along the corridor, and so these views are somewhat limited.

Locations of the corridor that are generally associated with adjacent commercial areas, such as along Soquel Avenue west of 41st Avenue and along Soquel Drive on the eastern edge of the corridor, generally have less area for roadside planting and therefore less screening vegetation. In these areas, there are generally more views into the adjacent community than in residential areas of the corridor. On the eastern edge of the project corridor, between Rio Del Mar Avenue and San Andreas/Larkin Valley Road, the terrain becomes more rolling and the slopes are closer and in some instances parallel the corridor. In these locations, the ridgelines figure more prominently into the corridor views, where screening vegetation is not present.

Anticipated views into the corridor: For the Route 1 HOV Lane Project, views into the corridor are primarily associated with cross streets and along existing commercial areas due to the amount of vegetation present within the community and adjacent to Route 1. Within the Santa Cruz, Soquel, Aptos areas of the project, distant (beginning approximately 0.5 miles or more from the corridor) ridgelines tend to run in a north-south direction, perpendicular to the corridor rather than paralleling it, the homes along these ridges tend to not face towards the corridor. The bases of these slopes are in generalapproximately half a mile or more away from the Route 1 corridor and the ridgelines are even farther removed. Where homes are present on the ridgelines, views that could include the highway are obscured in many locations by vegetation, either associated with the residential development or with intervening development.

Beginning at Rio Del Mar, there are slopes that parallel the corridor with residences that back onto the right-of-way, such as along Monroe Avenue and Bonita Drive. Intervening vegetation blocks many of the views from these residences; however some views into the

corridor may be present. South of Freedom Boulevard, the existing roadway cuts through hills which create visible slopes adjacent to the highway; however no ridgelines are affected by the project. One home is present on the slope to the north of the highway along Soquel Drive. While vegetation blocks a portion of the views from the residence, there are some locations, such as on Soquel Drive at the intersection with the driveway, where the corridor can be viewed. There are several homes located near the top of the ridge at Moon Valley Ranch Road. While the views from these homes maybe partially obscured by vegetation, there are locations on the roadway with views where the highway corridor can be seen in the mid- to background.

Overall, views into the corridor are limited by the amount and size of vegetation present within the community. In spot locations, where either vegetation is limited or where a roadway on a ridgeline has views, the corridor may be a visual element. However, in many of these locations, the corridor if present becomes a background element to the view.

3.5.2. Tier II Viewshed

The viewshed of the Tier II project would be a subset of the viewshed for the Tier I projects, isolated to the area between the 41st Avenue and Soquel Avenue interchanges. In general, the terrain slopes from north to south at a slight but constant grade. No hillsides or ridgelines are found within the Tier II project area.

Anticipated views out from the corridor: The Tier II project area generally corresponds with the 41st Avenue commercial area and the commercial areas to the west along Soquel Avenue. Roadside plantings are limited in this area, particularly between Soquel Avenue and the Route 1 Corridor along the southbound lanes. Because the vegetation is more limited and the adjacent commercial areas are not as heavily vegetated as the residential areas, there are spotty views from the corridor out into the adjacent community.

Anticipated views into the corridor: Pedestrians on both the 41st Avenue and the Soquel Avenue Bridges have views into the corridor. For autos on these structures, views are partially obscured by the bridge railings. From some of the adjacent commercial areas, there are also views where intervening vegetation is thin or absent.

Approximately one-half of a mile north of the corridor south of the 41st Avenue-Soquel Drive Intersection (and behind Soquel High School), there is an open space/undeveloped hill fronted by large eucalyptus which would screen mid-ground views. Views may be present from the top of the hill into the project area. Due to the distance, the corridor would appear as

a mid- to background element, if present. Other ridgelines run in a north-south direction, perpendicular to the corridor. These are located approximately a mile to the north of the project corridor, and if views are present, the corridor would appear as a background element.

4. Existing Visual Resources

Visual quality, as used in FHWA's publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981) methodology, is based on the concepts of the science of aesthetics[2] and is analogous to the Bureau of Land Management's scenery quality rating and the U.S. Forest Service's variety classes. The methods outlined in the FHWA report describe many factors that can contribute to a landscape's visual quality, but these factors can ultimately be grouped under three headings: vividness, intactness, and unity, as defined in Section 2.

Description of the existing visual character/quality for the corridor is divided by the landscape units found within the corridor, as discussed in Section 3. The description of each landscape unit includes a figure that illustrates, through photographs, typical views within that landscape unit. Key viewpoints, used for creating simulated images of anticipated changes within each unit (Section 6 of this report) are identified with a star.

For the discussion of visual quality associated with each landscape unit described below, it is important to remember that these are general evaluations for the unit as a whole. Specific locations within the unit may have higher or lower visual quality than the average. In the discussion of key viewpoints in Section 6 of this report, visual quality is assessed for specific views, and these may differ from the average, or general, visual quality rating assigned below because that rating only considers a specific location within the landscape unit.

4.1. TIER I: EXISTING VISUAL CHARACTER AND QUALITY

4.1.1. Upland Landscape Unit

The landscape in the Upland Landscape Unit has more topographic relief than in any other portion of the corridor. The dominant visual feature from the highway in this unit is the large cut slope between Freedom Boulevard and San Andreas-Larkin Valley Roads. In general, development is set back from the highway or set into side canyons, so it is much less of a visual presence from the road. The one exception to this is on the north side of the highway between Freedom Boulevard and Rio Del Mar Boulevard where a frontage road (Soquel

[2] "Aesthetics is defined as the science or philosophy concerned with the quality or sensory experience … It is also viewed as a body of knowledge about those characteristics of objects that make them pleasing or displeasing to the senses, and those characteristics of human perception that affect sensation. The quality of being aesthetics is not the opposite of 'practicality' or 'reality,' but rather another aspect or way of experiencing the same real-world phenomena. Thus, blue skies, uncontaminated water, and uncluttered urban landscapes all have aesthetic value, because they imply health, pleasure, and security." USDOT, 1981. United States Department of Transportation, Federal Highway Administration, Office of Environmental Policy, *Visual Impact Assessment for Highway Projects*, U.S. Department of Transportation, Washington D.C. March., page 117.

Drive) parallels the highway. Here, there are many small restaurants and other shops. Other built elements noticeable from the highway include the two overcrossings at Rio Del Mar Boulevard and Freedom Boulevard. At the San Andreas Road-Larkin Valley Roads interchange, the highway is over the cross street, making the bridge visible to travelers on the local roads.

The vegetation within this unit is primarily native scrub plants, grasses, and forbs, except along the wetland areas along Bonita Drive where larger, screening trees can be seen. Highway plantings consisting of mostly vines are along the fence line that separates the highway from the Soquel Drive frontage road. These are generally older vine plantings, with some dead wood noticeable (see Figure 4 for typical views). These areas also generally correspond with adjacent commercial areas, where vegetation within the adjacent development is also sparse. In these areas, along the frontage road where roadside and community vegetation is sparse, there are views from the corridor into the adjacent community.

Beginning at Rio Del Mar, there are slopes that parallel the corridor with residences that back onto the right-of-way, particularly along Monroe Avenue and Bonita Drive. Intervening vegetation blocks many of the views from these residences; however some views into the corridor may be present. South of Freedom Boulevard, the existing roadway cuts through hills which create visible slopes adjacent to the highway; however no ridgelines are affected by the project. One home is present on the slope to the north of the highway along Soquel Drive. While vegetation blocks some views, other views into the corridor may be present. There are several homes located near the top of the ridge at Moon Valley Ranch Road. While the views from these homes may be partially obscured by vegetation, there are locations present on the roadway where the highway corridor can be seen in the background. In addition to there being views from these slopes into the corridor, these slopes and ridgelines are visible to the corridor due to their proximity.

The visual quality of this landscape unit is moderately high due to the open and undeveloped appearance of the unit. Unlike the other units, there are distant views to the surrounding hills to the north and east that enhance the vividness of the unit. The large cut slope lowers the visual quality somewhat because the slope has only minor vegetation and lacks both trees and a good cover of vegetation.

4.1.2. Aptos Landscape Unit

The existing vegetation, primarily associated with creek crossings, forms the dominant visual character of this landscape unit. Some of these areas appear heavily forested from the

perspective of the highway user, particularly around the Valencia Creek/Aptos Creek area. Mature stands of eucalyptus, along with some pine, cedar, and redwoods, are the typical tree species, with the skyline heights of the eucalyptus dominating many of the views. It is likely that some of these trees may qualify as heritage trees given their size and stature. No hillside or ridgelines are influenced by Route 1 within this landscape unit, but the distant ridgelines (beginning approximately 0.5-mile or more north of the corridor) can be seen from the corridor in areas where vegetation is sparse enough to allow them. These ridgelines generally run in a north to south direction paralleling the creeks but perpendicular to Route 1. Given the distance, the density of vegetation within the landscape unit, and the orientation of the slopes, direct views into the corridor from these ridgelines are likely to be obscured and if present, the corridor would appear as a background element within the view.

Portions of the unit have developments that are visible to the highway traveler from adjacent frontage roads, primarily along portions of Soquel Drive and McGregor Drive. These are commercial developments along Soquel Drive and residential homes along McGregor Drive.

The views into and out of the frontage road areas are partially obscured by the shrub and vine highway plantings along the ROW fence. In general, the western portions of this landscape unit are more densely developed than the eastern portions. Visible highway elements include overcrossings for the Union Pacific Railroad (UPRR), State Park Drive, Park Avenue, and Capitola Avenue. Typical views within the Aptos Landscape Unit can be seen in Figure 5.

This portion of the corridor has a high visual quality. Groves of mature trees and other vegetation dominate the corridor here and create a vivid visual experience for travelers. Specific areas, such as along the Soquel Drive frontage road, have a lower visual quality due to the imposition of structures creating opposing lines and forms in the landscape, such as buildings, signage, and parking lots. These are more visible than in other areas of the unit and do not appear integrated into the landscape, which lowers the unity and intactness. However, other sections, where the mature trees dominate the roadway, have a high visual quality.

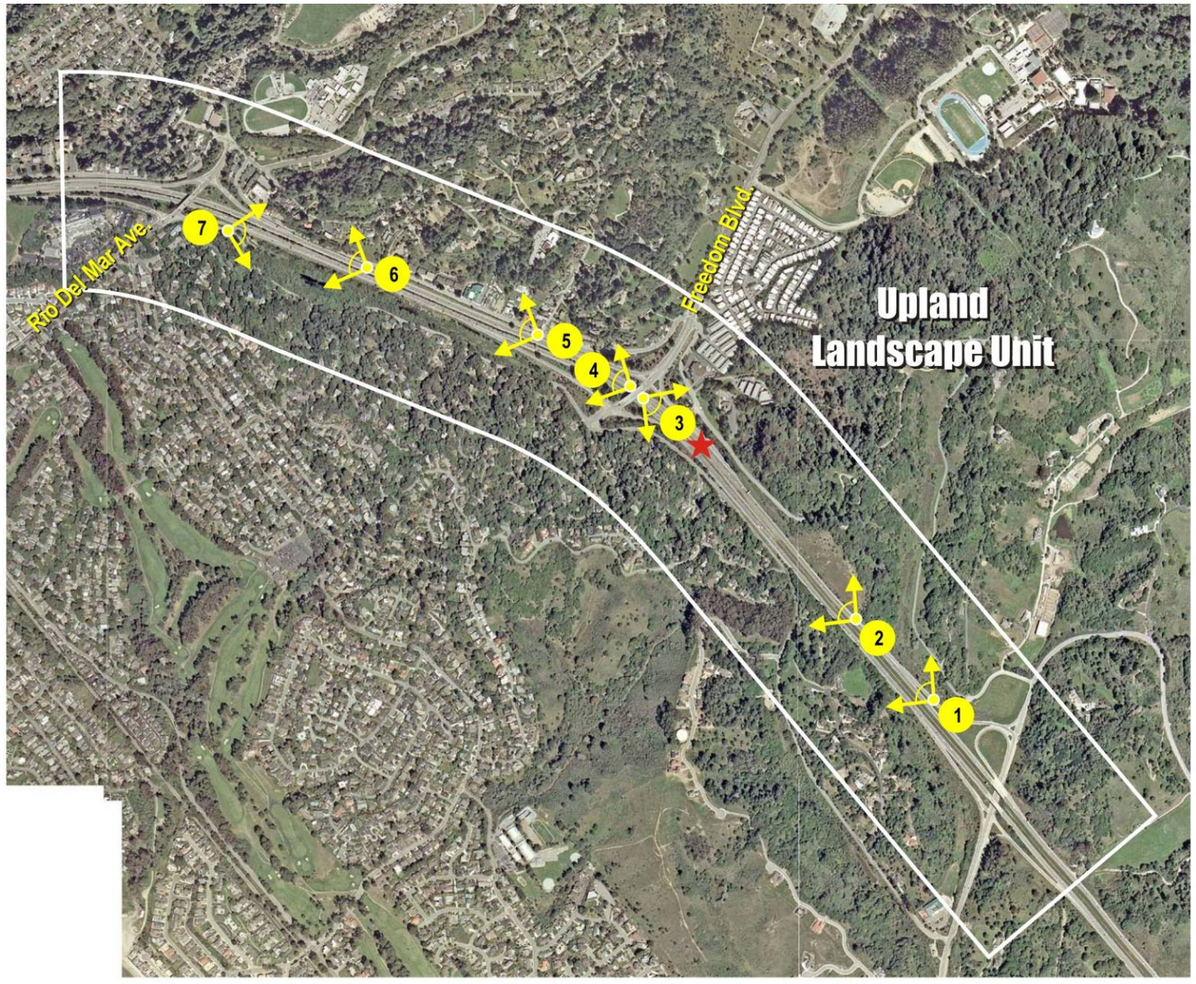


Figure 4: Upland Landscape Unit, Typical Views

Figure 5: Aptos Landscape Unit, Typical Views

4.1.3. Soquel-Capitola Landscape Unit

This landscape unit is characterized by a mix of suburban scale built forms alternating with vegetated creeks that cross the highway corridor. Soquel and Nobel creeks cross Route 1. The vegetation associated with these two creeks consists of large, skyline eucalyptus trees. Highway plantings are made up of older shrub plantings along the right-of-way fence in narrow areas with trees included along the northbound lanes where the right-of-way is larger. Additional highway plantings are within the interchanges, which continue the landscape character of the corridor.

No hillside or ridgelines are influenced by Route 1 within this landscape unit. In general, the terrain slopes from north to south at a slight but constant grade within the landscape unit. Distant hills (approximately 1 mile or more from the corridor to the north) can be seen from portions of the corridor where roadside and/or community vegetation is sparse. Approximately one-half of a mile north of the corridor south of the 41st Avenue-Soquel Drive Intersection (and behind Soquel High School), there is an open space/undeveloped hill fronted by large eucalyptus. While the hill is not visible from the project corridor, views may be present from the top of the hill into the project area; however the hill is fronted by large eucalyptus. Due to the distance, the corridor would appear as a mid- to background element, if present. Other ridgelines in the area run in a north-south direction, perpendicular to the corridor. These are located approximately a mile north of the project corridor, and if views are present, the corridor would appear as a background element.

Development is more prevalent in this unit than the previous two units. The development patterns are generally smaller suburban-scale one- and two-story structures that are primarily commercial in nature. 'Big Box' retail development is located at 41st Avenue, but these are partially screened by roadside vegetation (see Figure 6 for typical images within this unit).

There is a moderate visual quality in this landscape unit. The vegetation and mature eucalyptus trees associated with the creek crossings are quite vivid; however, the increased development lowers the unity and intactness of this portion of the corridor. Highway landscaping screens views to and from the highway to a small extent; however, the vegetative cover is thin in the areas where the frontage roads are located.

4.1.4. Santa Cruz-Arana Gulch Landscape Unit

Residential development is the dominant development type in this landscape unit. These homes are smaller, on small lots with views either across a frontage road to the highway or with the backyard backing onto the highway. Harbor High School backs onto the south side

of the corridor. School parking and access roads are located adjacent to the highway ROW, but views to and from the school facilities to the highway are screened by vegetation. The school generally sits lower in the landscape than the highway; from the highway perspective, views are to vegetated slopes/areas.

No hillside or ridgelines are influenced by Route 1 within this landscape unit. Ridgelines within this portion of the Santa Cruz area run in a north to south direction with the nearest ridgelines approximately 0.40-mile from the Route 1 corridor. Holes for the Delaveaga Golf Course are located on most of these ridgelines. The bases and lower slopes of the ridgelines are heavily vegetated, which likely obscures mid- to foreground views. Mid- to background views of the corridor may be present in particular locations, depending on the orientation of the ridge and the density/presence of intervening vegetation. From the corridor, these slopes/ridgelines are mostly obscured by vegetation along the roadway and within the community, especially along the creeks. The vegetation is made up of both older highway plantings and volunteer plants, creating denser screens.

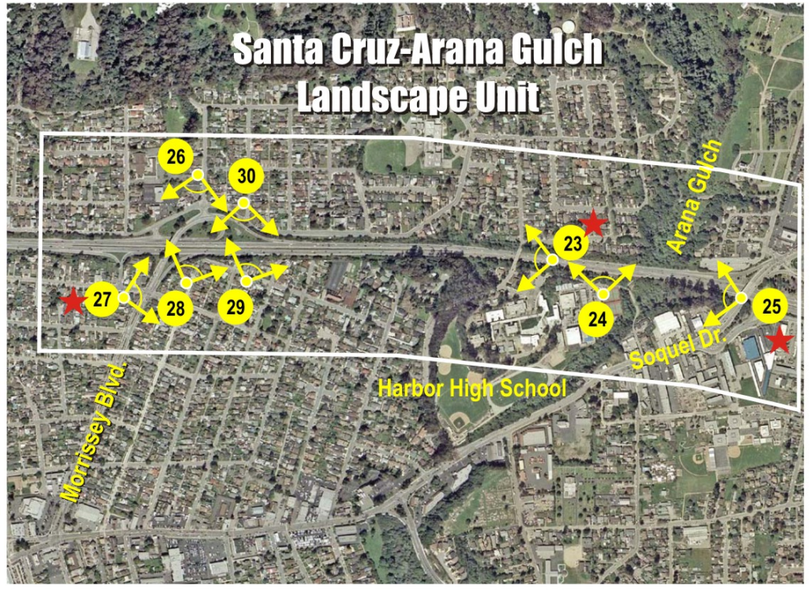
In the Arana Gulch area the landscape is characterized by the vegetation associated with a creek. This vegetation is heavily wooded with mature stands of Eucalyptus which visually dominate the roadway views. In some cases, these trees may qualify for heritage tree status given their size and stature as well as the size of the grove associated with the gulch. Near the Morrissey Boulevard overcrossing, some of the older vegetation has been removed due to a highway reconstruction project to the west although new plantings are now in place. Typical images for the Santa Cruz-Arana Gulch unit can be seen in Figure 7.

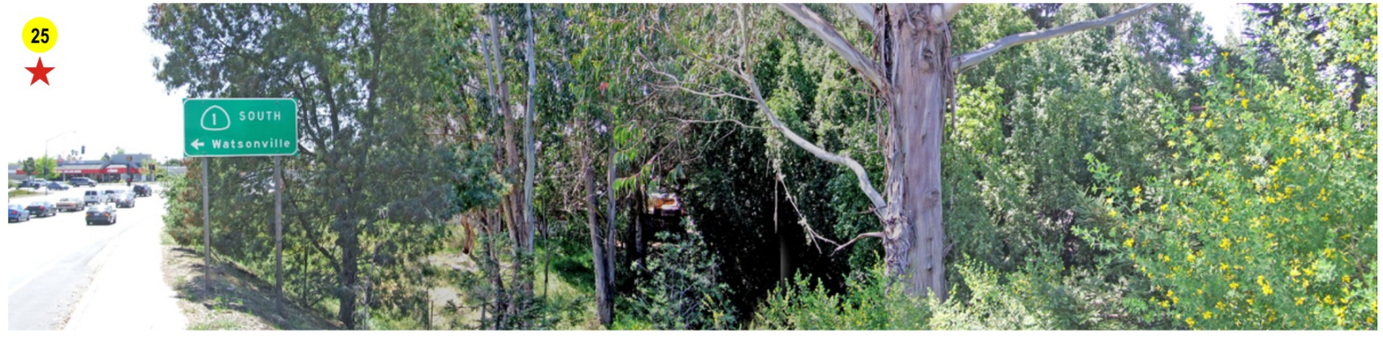
Existing visual quality for this unit is moderate to moderately high. The vegetation associated with Arana Gulch and the screening plantings along the highway create a relatively high unity and intactness to the highway corridor. The skyline Eucalyptus trees also add a high degree of vividness to the unit. Development of residential homes is low in density and height, which creates a moderate degree of intactness and unity.

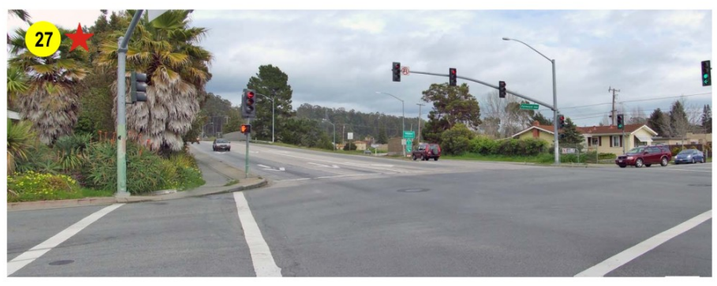
4.2. TIER II: EXISTING VISUAL CHARACTER AND QUALITY

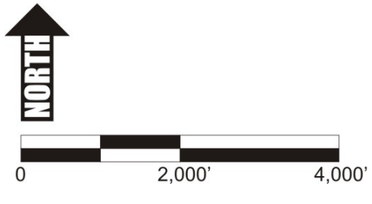
For the Tier II project area, the existing visual quality is the same as described under Tier I for the Soquel-Capitola unit. Typical views within the Tier II area for these units are included in Figure 6.

Figure 6: Soquel-Capitola Landscape Unit, Typical Views









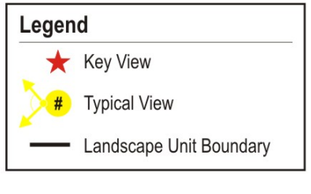


Figure 7: Santa Cruz-Arana Gulch Landscape Unit, Typical Views

4.3. PREDICTING VIEWER RESPONSE

Viewer response is based on two elements – viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes that result from the highway improvements.

4.3.1. Tier I Existing Viewer Sensitivity

Viewer sensitivity can be defined as the viewer's concern for scenic quality and his or her response to change in the visual environment that creates the view. Local values and goals may place greater significance on certain landscape components or locations that might appear unremarkable to an outside observer. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of visual goals. Designers can learn about these special resources and community aspirations for visual quality through citizen participation procedures, as well as from local publications and planning documents.

Each community along the corridor has established many regulations aimed at preserving the visual quality of their community. Common themes are the importance of preserving the existing vegetation and historic character of each community. Each community, including those unincorporated communities under the jurisdiction of the County, to some degree has an established ordinance protecting trees from removal. Riparian corridors are also protected in the County and each city through ordinances that recognize the importance of these corridors to the visual and aesthetic quality of the community.

The City of Santa Cruz has established design guidelines for several portions of the city, although none fall immediately adjacent to the corridor. The City of Capitola also has an Architectural Review Committee to help preserve the historic character of the community. In addition, the City recently drafted their Historic Context Statement for the City of Capitola to serve as a tool for preservation planning. These, and other efforts to preserve and protect important aesthetic elements within each community, illustrate a high sensitivity to changes in visual quality.

4.3.2. Tier I Viewer Exposure

Viewer exposure is typically assessed by considering the number of viewers exposed to the view, the type of viewer activity associated with the view, the duration of their view, the speed at which the viewer moves through the environment, and the position of the viewer. In general, people are active receptors of visual information and seek understanding from experiencing their surroundings; therefore, high viewer exposure heightens the importance of

early consideration of urban design, public art, and architecture and their roles in managing the visual resource effects of a project.

4.3.3. Tier II Viewer Sensitivity and Exposure

The Tier II project area is a subset of the overall Tier I project area, so the anticipated viewers' sensitivity and exposure overlaps with that described under the Tier I alternative for the Soquel-Capitola Landscape Unit. Additionally, there are no Santa Cruz County or City of Capitola regulations, specifically applicable to the Tier II project area.

4.4. TIER I EXISTING VIEWER GROUPS, EXPOSURE, AND AWARENESS

Viewers are grouped by how they may view the project area. They are by no means a uniform grouping of individuals, but rather groupings of persons who view the project from a certain standpoint. It is possible for any one individual to be in more than one group depending on time of day or location, such as a resident and a freeway traveler; however, the experience of each would be different (i.e. viewing the project while traveling on the freeway would be different for a resident than viewing it from the front porch of his or her house).

4.4.1. Freeway Travelers

There are approximately 80,000 highway travelers per day in the southern portion of the project corridor and 100,000 in the northern portion near Morrissey Boulevard. Many drivers commute daily from the Santa Cruz-Capitola-Aptos area to jobs in the San Jose area. During periods of free-flow travel, the project can be traversed in approximately 10 minutes.

Daily commuters may have an increased awareness of views from the road due to the amount of time they are exposed to the corridor each day, compared to tourists who may be seeing the road for the first time. With congested traffic, the length of time increases and drivers have a longer time to focus their attention on the highway elements. When traveling at posted speeds, these drivers tend to focus on long- to mid-range views straight ahead. Passengers tend to have more time and a wider range of views than drivers.

In summary, the responses from freeway viewers is anticipated to be varied, depending on who they are (commuters, tourists, locals, etc). But because the number of commuters and local residents outweighs those seeing the corridor for the first time (or even infrequently), it is anticipated that those within this viewer group would be moderately to highly sensitive to changes in the visual environment of the corridor. This level of sensitivity is also supported by the community's regulations and policies on aesthetic and vegetation preservation.

4.4.2. Community Residents

There are many residents that live adjacent to the highway, particularly in the northern portion of the corridor in Santa Cruz. Many of these homes either directly face or back onto the highway, giving the residents fore- to mid-ground views of the corridor. In other locations, the homes are set farther back and may have commercial properties between the homes and the highway. These homes have mid- to background views of the highway. Most views of the highway are at least partially obscured by existing highway plantings.

Residents can be expected to have a high concern about the project and its effect on views from their homes and neighborhoods. These views would be lengthy given the amount of time each resident spends at home. In addition, residents have a concern about the views from the highway into their communities as would be expected of communities where tourism plays an important role in the local economy. These views into the community from the highway would be expected to be of short duration, given the travel times on the highway. In summary, community residents are anticipated to be highly sensitive to changes in the visual environment, where views are from their homes into the project area or from the project area into their community.

4.4.3. Commercial Area Employees and Customers

Large sections of the Route 1 corridor are paralleled by frontage roads, which are in turn lined with commercial uses. These include stores, restaurants, auto dealerships, and even an increasingly rare drive-in cinema. Potentially, there are thousands of viewers per day with short-duration views into the highway corridor. These views would be fore- to mid-ground views, and they are partially obscured by the vine and shrub plantings along the ROW fence.

Since it can be expected that most employees spend their time working, any views out of windows in the business into the corridor would likely be short in duration for these viewers. However, because these viewers, much like the residential viewer, would see the view many times over, they would have a high sensitivity. Customers are also anticipated to have relatively short duration views, mostly on their travel from the car into the business and in their car entering or leaving the parking lot. Depending on how frequently they visit the business, they may also see the view many times over.

Within commercial areas, business owners frequently desire increasing the view of the business from roadway corridors such as Route 1. For them the removal of viewing obstructions, such as roadside vegetation is sometimes considered valuable to increasing the visibility of the business. Depending on the visual quality of the business, an open view may or may not be desirable of those traveling on the roadway.

Given these competing claims on the quality and quantity of the view, it is difficult to make a generalization for this viewer group. However, for the Route 1 corridor, there are some common denominators. It can be assumed that most of these individuals are from the local community, which has a high sensitivity to change (as determined by the community's regulations and policies on aesthetics and vegetation preservation), and these views would occur both while traveling to and from the business and out the windows of the business. Therefore, it is anticipated that these viewers would have a moderate to high awareness of the project and a high sensitivity to the change.

4.4.4. Local Street Users

Local street users, including drivers, bicyclists and pedestrians, have short to long duration views into the Route 1 corridor every day (depending on the rate for travel). These include views from bridges over the highway, as well as from adjacent local streets. In many instances, the local street users are also local residents that may be traveling to the corridor. Because the speed of travel of these viewer groups is much slower than that of the highway traveler, it can be expected that they would have a greater awareness of changes to the visual environment than the highway user. Views to the corridor move from back- and mid-ground views to foreground views as they near the highway corridor.

Much like the freeway traveler, the responses from local street viewers is anticipated to be varied, depending on who they are (residents, tourists, locals, etc) and their mode of transportation. But because the number of local residents is anticipated to outweigh those seeing the corridor for the first time (or even infrequently), it is anticipated that those within this viewer group would be moderately to highly sensitive to changes in the visual environment of the corridor. This level of sensitivity is also supported by the community's regulations and policies on aesthetic and vegetation preservation.

4.5. TIER II EXISTING VIEWER GROUPS, EXPOSURE, AND AWARENESS

The categories for the viewer groups, exposure, and awareness are the same for Tier II as those described under Tier I. From the standpoint of a percentage makeup of all viewers, the numbers may be slightly different between the two project areas, but in general, they would be still composed of the same viewer types. For example, it may be expected that the Tier II project area might have a higher percentage of viewers from the commercial group due to the proximity of businesses within the Tier II area compared to residential areas, so residents would be anticipated to be a smaller percentage of the overall viewership of the Tier II project area.

4.5.1. Freeway Travelers

The distance between the 41st Avenue interchange and the Soquel Avenue Interchange (the area of the Tier II project) can be traversed in less than 2 minutes under free flowing traffic conditions, which implies short-duration views for those traveling on the highway. Vegetation between the southbound lanes of Route 1 and the adjacent Soquel Avenue consists of a single row of large shrubs/small trees. In some instances the vegetation is quite sparse while in other areas it is dense to nearly the ground level. The existing vegetation along the northbound lanes of the freeway is thicker with redwood trees and tall shrubs. So views from the freeway to areas outside of the corridor are limited.

As with the Tier I freeway users, the responses from freeway travelers under Tier II are anticipated to be varied, depending on who they are (commuters, tourists, locals, etc). But because the number of commuters and local residents outweighs those seeing the corridor for the first time (or even infrequently), it is anticipated that those within this viewer group would be moderately to highly sensitive to changes in the visual environment of the corridor. This level of sensitivity is also supported by the community's regulations and policies on aesthetic and vegetation preservation.

4.5.2. Community Residents

There are very few residential properties along the Tier II project area, although a few exist. The majority of the land use adjacent to the highway and/or frontage road is commercial/business. Residents would likely experience the Tier II project area through one of the other viewer groups. One area of exception is along Mattison Lane north of Route 1, where several residences back onto the highway corridor. For these residents, they are anticipated to have long-duration views to the corridor that are partially screened by vegetation.

4.5.3. Commercial Area Employees and Customers

Through the Tier II project area, the majority of buildings adjacent to the highway and/or frontage road are commercial/business. These include stores, restaurants, auto dealerships, and even an increasingly rare drive-in cinema. Potentially, there are thousands of viewers per day with short-duration views into the highway corridor. These views would be fore- to mid-ground views, and they are partially obscured by the vine and shrub plantings along the right-of-way fence.

As described under Tier I for these viewers, there are a number of competing claims on the quality and quantity of the view for the commercial area viewer and it is difficult to make a

generalization for this viewer group. However, within the Tier II project area for the Route 1 corridor, there are some common denominators. It can be assumed that most of these individuals are from the local community, which has a high sensitivity to change (as determined by the community's regulations and policies on aesthetics and vegetation preservation), and these views would occur both while traveling to and from the business and out the windows of the business. Therefore, it is anticipated that these viewers would have a moderate to high awareness of the project and a high sensitivity to the change.

4.5.4. Local Street Users

Local street users within the Tier II project area, including drivers, bicyclists (there is an existing bike lane on Soquel Avenue through the project area) and pedestrians, have short to long duration, filtered views into the Route 1 corridor every day, depending on the rate of travel. Because the speed of travel of these viewer groups is much slower than that of the highway traveler, it can be expected that they would have a greater awareness of changes to the visual environment than the highway user. Views to the corridor vary from mid-ground views to foreground views depending on the proximity to the highway corridor.

Much like the freeway traveler, the responses from local street viewers under the Tier II project are anticipated to be varied, depending on who they are (residents, tourists, locals, etc.) and their mode of transportation. But because the number of local residents is anticipated to outweigh those seeing the corridor for the first time (or even infrequently), it is anticipated that those within this viewer group would be moderately to highly sensitive to changes in the visual environment of the corridor. This level of sensitivity is also supported by the community's regulations and policies on aesthetic and vegetation preservation.

5. Environmental Consequences

5.1. ASSESSING PROJECT IMPACTS

The visual impact of project alternatives is determined by assessing the visual resource change resulting from the project and predicting viewer response to that change. Visual resource change is the total change in visual character and visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the existing visual character of the landscape. The second step is to compare the visual quality of the existing resources with the projected visual quality after the project is constructed. Next, viewer response to the changes is the sum of viewer exposure and viewer sensitivity to the project, as described in Section 2. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

NEPA and CEQA require consideration of visual resource impacts of projects in preparation of environmental documents. The CEQA guidelines (1998) state that a project may have a significant impact on visual quality if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare, which would adversely affect day- or nighttime views in the area.

For projects that do not create a significant impact on existing visual character or quality, a more nuanced approach categorizes impact levels as low, moderately low, moderate, moderately high, and high based on the following descriptions:

- Low: Low negative change to existing visual resources and low viewer response to that change. May or may not require mitigation.
- Moderately Low: Low negative change to the visual resource with a moderate viewer response or moderate negative change to the resource with a low viewer response. Impact can be mitigated using conventional methods.

- Moderate: Moderate negative change to the visual resource with moderate viewer response. Impact can be mitigated within 5 years using conventional practices.
- Moderately High: Moderate negative change in the visual resource with high viewer response or high negative change with a moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required would generally take longer than 5 years to mitigate.
- High: High level of negative change in character or a high level of viewer response to the change such that extraordinary architectural design and landscape treatments may not mitigate impacts below a high level. An alternative project design may be required to avoid high negative impacts.

The following analysis first provides a description of any substantial impacts as defined by CEQA. Following this is an analysis of impacts associated with each alternative. Following this is an analysis of the key viewpoints identified within the corridor. This analysis of key viewpoints provides a simulation showing the anticipated visual environment, as well as a summary that quantifies the anticipated effect of the changes on the key viewpoint.

5.2. TIER I: HIGH-OCCUPANCY VEHICLE LANE ALTERNATIVE

Because the proposed project is within an existing highway environment, the elements proposed as part of the project would not be new visual elements in the corridor. Instead, the proposed project would represent either similar elements in the same locations or additional elements in new locations. The information below presents an overview of the anticipated changes to the visual environment by project element. This is followed by a summary of the anticipated changes by landscape unit.

- **Bridges:** Most existing bridges within the project area would be widened or replaced as part of the HOV Lane Alternative. Only the La Fonda Avenue overcrossing, which will be replaced by the Soquel Avenue to Morrissey Boulevard Auxiliary Lane Project now under construction, would not be touched by this alternative. The replacement bridges include those that cross over Route 1, which would be rebuilt longer than the existing to accommodate the widened highway, or those that carry Route 1 over local streets and Aptos Creek, which must be widened to accommodate the new HOV and auxiliary lanes. Because these are replacing existing structures, the replacements are not anticipated to alter the existing visual quality of the highway; however, the removal of vegetation in the areas of the existing bridges necessary to construct the bridges would create a long-term effect to the views along the highway.

New bicycle/pedestrian bridges and associated ramps (to accommodate Americans with Disabilities Act [ADA] requirements) would be constructed over the highway at Mar Vista Drive, Chanticleer Avenue, and between Park Way Court and Trevethan Drive. Both the ramps and bridges would be new elements to views along the highway because there are no pedestrian bridges currently existing, although it can be assumed that these bridges would be similar in appearance to the other bridges proposed by the project, just at a smaller scale. The final design of the bridges and associated ramps would have a large influence on the image created by these elements. The addition of these structures may add new views currently not part of the existing corridor viewscape. A conceptual layout plan for the Chanticleer Avenue bicycle/pedestrian bridge can be seen in Figure 48 in Appendix C.

- **Freeway Paving:** The HOV Lane Alternative would change the freeway cross section from four lanes to six. Both inside and outside shoulders would be widened to 10 feet, except for some locations where the inside shoulder would be 5 feet to lessen impacts to adjacent frontage roads. The overall effect would be to increase the paving within the corridor by more than one-third. Proposed typical cross sections along the project corridor can be seen in Appendix B.

  In addition to the widened pavement on the ramps, ramp metering lights and signage would be added to the ramp areas. The typical appearance of these can be seen in Figure 8.

Figure 8: Typical Ramp Metering

- **Local Streets:** Portions of the local streets at each interchange would be widened on either side of the new bridge crossing, adding bike lanes and sidewalk and, in some locations (Rio del Mar Boulevard, State Park Drive, Park Avenue, Bay Avenue/Porter Street, 41st Avenue, Soquel Drive/Avenue, and Morrissey Boulevard), new traffic lanes. This would create a more urban appearance to these roadways than the current narrower cross section. In addition, from the perspective of the local streets, views into the corridor would likely be blocked by new sound walls in some locations, particularly along the McGregor Drive frontage road and along some

stretches of the Soquel Drive frontage road, generally associated with areas of residences. Where bridges are replaced, the local street view would be altered by the removal of vegetation associated with the existing interchanges, but the bridge replacements would not by themselves greatly change from the current views.

- **Sound walls:** Of the elements associated with the project, sound walls are one of the most visible and can create more controversy than other project elements because they block views as well as sound. The HOV Lane Alternative includes 18 proposed sound walls with a total length of approximately 17,800 linear feet. The effect of these walls not only modifies the sound from the corridor but also the views to and from the corridor.
- **Retaining Walls:** In addition to the new sound walls, retaining walls would also be included as part of the HOV Lane alternative. These retaining walls would either face into the corridor and be visible to travelers along the highway, or they would face outward from the highway near the ROW line or edge of pavement and would face out into the community. Some of the walls facing the community may be partially or entirely screened by vegetation or structures outside of the ROW. There are approximately 33,000 lineal feet of retaining wall proposed with this alternative.

Figure 9: Typical Retaining Wall with Cable

For retaining walls not topped by ROW fencing, sound walls, or other barriers, a cable railing would be required per Caltrans' standards. This consists of posts with three strands of cable to prevent falls for maintenance staff because the corridor is a limited-access facility and the general public should not be walking in the corridor. An image of cable railing can be seen in Figure 9. This would be typical for the TSM and HOV Lane Alternatives, as well as the Tier II alternative.

In general, new walls – including retaining walls and sound walls – within the corridor would provide the opportunity for graffiti/tagging where there currently are no opportunities. To some extent, graffiti can be deterred through the use of heavy textures on the walls, screening vegetation, and anti-graffiti coatings/stains. The

possibility of this vandalism, along with possible minimization measures, should be considered in the design of these structures.

- **Lighting and Signage:** Some existing signage and light fixtures would be relocated to accommodate the proposed widening. In addition, new signage and lighting at the ramps could be expected to bring the highway up to current standards or to replace old fixtures with newer, more efficient ones.
- **Vegetation Removal:** The removal of existing vegetation from areas along the corridor to construct the bridges, sound walls, and retaining walls and to widen the highway and ramps would have a large effect on the views from within the corridor and into the corridor. It is likely that this would be the most notable effect from the project on the character and quality of the existing views. For the HOV Lane Alternative, approximately 109 acres would be disturbed by construction activities. Most noticeable would be the removal of the mature vegetation and skyline trees that currently exist along long portions of the corridor. A portion of these areas can be replanted, provided they are not converted to a paved surface. Approximately 36 acres would be available for planting; approximately 15 acres would be available for tree plantings within these areas, based on Caltrans setback requirements for trees. In addition to the 36 acres available for planting, another 14 acres would be covered in stormwater treatment facilities, some of which may be landscapable; however, for all replanted areas, it would be many years before the vegetation would reach the size of the existing vegetation removed by the project.

In addition to the changes discussed above by element, specific changes to the visual environment for each landscape unit are discussed below.

5.2.1. Upland Landscape Unit

Most of the changes to the freeway pavement section in the Upland Landscape Unit would occur within the median area of the highway where lanes would be added. The existing outside edge of pavement would remain in approximately the same location for most of this landscape unit, with only small areas of outside widening. Within the San Andreas-Larkin Valley Roads/Larkin Valley, Freedom Boulevard, and Rio Del Mar Boulevard interchanges, on- and off-ramps would be reconfigured and widened, with ramp metering elements added to the ramp areas. The southbound Route 1 bridge over San Andreas-Larkin Valley Roads would also be widened on the inside to accommodate the new lanes on the highway. On the cross streets within the interchanges, the San Andreas-Larkin Valley Roads/Larkin Valley Road configuration and lanes would be modified, but it would not be a wider section than currently exists. Freedom Boulevard would remain the same as existing, while Rio Del Mar

Boulevard would be widened to accommodate turn lanes. The Freedom Boulevard and Rio Del Mar Boulevard bridges would be replaced within this unit.

A concrete barrier would be constructed between Rio Del Mar Boulevard and Freedom Boulevard along the outside edge of the southbound lanes. The wetland and its associated vegetation along this stretch would remain to buffer the existing residences from the new and existing highway elements. Retaining walls would be constructed along Soquel Drive near the northbound off-ramp to Rio Del Mar Boulevard, as would a concrete roadside barrier along the outside edge of the northbound lanes. In addition, a potential sound wall may be required between the highway and Soquel Drive along the northbound lanes. New plantings of vines on this wall would be possible.

Because most of the widening would occur within the median through this landscape unit, the existing vegetation along the sides of the highway is expected to remain, the exceptions being the existing oleanders within the median, the interchange plantings around the Rio Del Mar Boulevard overcrossing replacement, and the existing plants between Soquel Drive and the northbound lanes. The existing views to the outside of the highway would remain the same as today. For travelers on the highway, the views would be of wider highway paving with sound walls located adjacent to the roadway in several locations.

Viewer sensitivity within the unit is likely to be moderately high, given that there are fewer residences and business that back on or face onto the corridor in this unit, as compared to other landscape units. In addition, this unit, being located at the southern limit of the project, has less traffic than in the more densely populated sections of the project near the City of Santa Cruz. The potential effect to the Upland Landscape Unit from the proposed project elements, described above, is anticipated to be on average a moderate change to the visual environment. The existing wider roadway section and the ability to widen to the center median, help to reduce the impact.

5.2.2. Aptos Landscape Unit

The roadway pavement section through the Aptos Landscape Unit would be widened to accommodate the HOV lanes. In the area of the existing railroad bridges, the road would be widened approximately 60 feet, nearly doubling the pavement section. This would bring the roadway section through this area up to current standards. Because of the widened section, the two railroad bridges, State Park Drive overcrossing, Park Avenue undercrossing, and Capitola Avenue overcrossing would need to be replaced. The existing highway bridge over Aptos/Valencia creeks would also be replaced. A bicycle/pedestrian bridge at Mar Vista

Drive is also included in this alternative. A highway median barrier would be required throughout most of this section where it does not currently exist.

Retaining walls would be located along portions of Soquel Drive in the area of the two railroad bridges in association with the State Park Drive ramps, Mar Vista Drive area, Park Avenue ramps, at the Nobel Creek crossing, and the new Capitola Avenue bridge. Walls in the vicinity of the railroad bridges, Mar Vista Drive, and at the northbound on-ramp at Park Avenue would face into the highway corridor and would be visible to highway travelers. The other walls would face outward from the corridor and would be visible to adjacent viewers.

On- and off-ramps in the unit would be widened as well. The new ramp configurations would include ramp metering elements.

Potential sound walls would be located along southbound Route 1 from approximately State Park Drive to Park Avenue, and along McGregor Drive. Along northbound Route 1, sound walls are proposed along the northbound on-ramp to Route 1 from State Park Drive; from approximately Mar Vista Drive to the northbound off-ramp at Park Avenue, with a gap at Ord Gulch; along the northbound on-ramp at Park Avenue; and from Nobel Creek to the Capitola Avenue overcrossing, with a gap at Rosedale Avenue.

The most notable change within the Aptos Landscape Unit would be the removal of vegetation along the highway. The largest change would occur at the creek crossings where the vegetation is close to the highway, as is found at the Aptos/Valencia creek crossing. Many large eucalyptus trees would be removed and the existing railroad bridges would be replaced by bridges with longer spans. Because of the vegetation removal, these bridges would be more visually prominent to highway travelers. Other plantings that would be removed because of this alternative include highway plantings associated with the interchanges at Park Avenue and State Park Drive, where the removal of existing bridges and the construction of the new structures would cause changes in the visual landscape.

Viewer sensitivity is likely to be high within the Aptos Landscape Unit. This is due in part to the communities present within the unit and their make-up of business and residences coupled with the existing vegetated nature of the corridor within this unit. The potential effect to the Aptos Landscape Unit from the proposed project elements, described above, is anticipated to be on average a high degree of change to the visual environment. Especially noticeable within this unit would be the removal of roadside vegetation and the addition of sound walls. The effect of the project on the highway corridor would be to make it appear as an urban highway.

5.2.3. Soquel-Capitola Landscape Unit

The interchange areas associated with the Bay Avenue/Porter Street and 41st Avenue interchanges would be reconfigured to include new ramp locations and connector roads between the two closely spaced interchanges. The net effect of these changes would be a large increase in paved surfaces and a reduction in the area available for landscaping between the two interchanges. The 41st Avenue Bridge over Route 1 would be replaced in this alternative. The highway bridge over Bay Avenue/Porter Street would be widened to accommodate the new roadway configuration. In addition, new overcrossings would be constructed on the northbound and southbound on-/off-ramp bridges over Soquel Creek/Soquel Wharf Drive/Robertson Street. A new bicycle/pedestrian bridge would cross the highway at approximately Chanticleer Avenue. Within the 41st Avenue interchange, the reconfiguration of ramps would remove the existing loop ramp in the southwest quadrant of the interchange. Newly configured ramps would include ramp metering equipment as part of their design.

Within this landscape unit, there would be many retaining walls. Most of these are associated with on- and off-ramps to Bay Avenue/Porter Street, along the southbound 41st Avenue on-ramp, along the northbound 41st Avenue off-ramp, and along the highway near the Capitola Avenue Bridge. There would also be additional walls along the mainline between the 41st Avenue and Soquel Drive interchange. The visibility of these walls would depend on the direction faced.

Anticipated sound walls in this unit are limited, due mostly to the commercial nature of the land uses adjacent to the corridor. One sound wall is proposed in the area of the northbound off-ramp at 41st Avenue.

Viewer sensitivity within the unit is likely to be moderately high, given that there are more commercial/business properties within the unit that face onto the highway and they, as previously described, may have less sensitivity to change and more interest in visibility than other user groups. However, given that the landscape unit is one of the commercial cores for the area, traffic on local roads and on Route 1 would likely be higher with a greater number of viewers. The potential effect to the Soquel-Capitola Landscape Unit from the proposed project elements, described above, is anticipated to be on average a high degree of change to the visual environment. This is due primarily to the removal of roadside vegetation and the addition of walls along the highway.

5.2.4. Santa Cruz-Arana Gulch Landscape

Most of the improvements to Route 1 within this landscape unit have occurred or would occur under other projects – the Soquel Drive to Morrissey Boulevard Auxiliary Lane Project and the Route 1/Route 17 Merge Lanes Project. Under the HOV Lane Alternative, three areas of improvements are proposed – reconfiguration of the Soquel Drive interchange, construction of a new bicycle/pedestrian bridge between Park Way Court and Trevethan Drive, and reconfiguration of the Morrissey Boulevard interchange.

The ramps associated with the Soquel Drive interchange would be reconfigured and ramp metering added. The largest change would be to the southbound off-ramp and westbound Soquel Drive to southbound Route 1 on-ramp in the area of the Arana Gulch. These ramps slice through the existing gulch area on the west side of the highway. The associated fill slopes would remove most of the mature vegetation within this quadrant of the interchange. The reconfiguration of the ramps within the other three quadrants of the interchange would also affect existing vegetation.

Minor vegetation removal would be anticipated at the site of the Trevethan Drive bicycle/pedestrian bridge. At the Morrissey Boulevard interchange, the landscape that was installed as part of the auxiliary lane project would be removed due to the reconfiguration of the interchange, including a new bridge crossing, realigned ramps, sound walls, and retaining walls.

Viewer sensitivity is likely to be high within the landscape unit. This is due in part to the communities present within the unit and their make-up of business and residences, the existing vegetated nature of the corridor within this unit, and the large traffic volumes found here. The potential effect to the Santa Cruz-Arana Gulch Landscape Unit from the proposed project elements, described above, is anticipated to be on average a high degree of change to the visual environment. Especially noticeable within this unit would be the removal of roadside vegetation, primarily within the Arana Gulch, and the addition of sound walls. The effect of the project on the highway corridor would be to make it appear as an urban highway.

5.3. TIER I: TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

General impacts associated with this alternative would result from the addition of auxiliary lanes (i.e., widened pavement sections for outside lanes), reconfigurations of existing ramps, and associated signage/ramp metering lights. The summary below describes the anticipated changes to the visual environment by each project element. Following that is a description by landscape unit of the anticipated effects to the visual environment.

- **Bridges:** Anticipated impacts from the proposed replaced or widened bridges would be similar to the description under the previous alternative; however, for the TSM Alternative, five fewer bridges would be touched by the project (Freedom Boulevard, Rio Del Mar Boulevard, Park Avenue, Bay Avenue/Porter Street, and Morrissey Boulevard would not be replaced or widened). The three new bicycle/pedestrian bridges and ramps are included in the TSM Alternative, and the associated impacts would be the same.
- **Freeway Paving:** Additional paving would be constructed in the corridor for the auxiliary lanes. Most of these travel from one on-ramp to the next off-ramp, such as between the northbound Freedom Boulevard on-ramp to the northbound Rio del Mar Boulevard off-ramp. The result of this increase in paving would be especially noticeable to the freeway travelers. User groups outside of the freeway would likely not notice the change due to the presence of existing and proposed sound walls and the presence of blocking vegetation associated with the creek crossings that is outside of the highway ROW that would remain. In addition to the new lanes, the addition of standard shoulders would also increase the paved surface within the corridor.

  Ramp meters, similar to that described in the HOV Lane Alternative, would be added to the ramp areas.
- **Local Streets:** Widening to the local streets would not occur under the TSM Alternative; however, the placement of sound walls or retaining walls in some locations would alter the existing visual character along some local streets, as described under the previous alternative.
- **Sound walls:** This alternative includes new sound walls or extensions of existing sound walls for a total of 13 recommended sound walls and a combined length of approximately 23,600 linear feet.
- **Retaining Walls:** In addition to the new sound walls, retaining walls would be included as part of the TSM Alternative. There are more than 16,000 lineal feet of retaining walls proposed for this alternative.
- **Vegetation Removal:** For the TSM Alternative, approximately 61 acres of existing landscape would be removed by the project. The removal of existing vegetation from areas along the corridor to construct the bridges, sound walls, and retaining walls, and to widen the highway and ramps would have a large effect on the views both within the corridor and into the corridor. These would be localized to the areas of construction, and it is anticipated that large areas of vegetation would remain within the corridor under this alternative. For areas disturbed by construction activities,

approximately 23 acres would be available for replanting under this alternative. Of this, approximately 10 acres would be available for trees, given Caltrans setback requirements; however, it would be many years before the vegetation would reach the size of the existing.

- **Lighting and Signage:** Some existing signage and light fixtures would be relocated to accommodate the proposed highway improvements. In addition, new signage, ramp metering, and lighting at the ramps could be expected to bring the highway up to current standards or to replace old fixtures with newer, more efficient ones.

Anticipated changes to the visual environment to each landscape unit under the TSM Alternative are discussed below.

5.3.1. Upland Landscape Unit

Auxiliary lanes would be constructed along the highway mainline from Freedom Boulevard to Rio del Mar Boulevard. On- and off-ramps at San Andreas/Larkin Valley Roads, Freedom Boulevard, and Rio del Mar Boulevard would be widened to accommodate a bypass lane, and ramp metering elements would be added. Sound walls would be located between the highway and Soquel Boulevard from Freedom Boulevard north to nearly Rio del Mar Boulevard. Retaining walls would be located between the southbound Rio del Mar Boulevard on-ramp and Bonita Drive.

Within this landscape unit, the anticipated post-project views would be consistent with existing views for many locations, particularly the areas south of Freedom Boulevard. The widened highway cross section would not be significantly wider than the existing to the highway traveler. Where concrete barrier, sound walls, and retaining walls are added along the highway, views in these locations for the traveling public would be restricted. Existing vegetation between Soquel Drive and the highway would be lost due to construction. The area is too narrow for trees and shrubs to be replanted, but vines would meet the Caltrans requirements. Along the southbound lanes, the existing wetland and its associated vegetation between the highway and Bonita Drive would remain to buffer the views from both the road and the existing residences to the highway elements.

As with the HOV Alternative, viewer sensitivity within the unit for the TSM Alternative is likely to be moderately high, given that there are fewer residences and business that back on or face onto the corridor in this unit, as compared to other landscape units. In addition the unit, being at the southern limit of the project, has less traffic than in the more densely populated sections of the project near the City of Santa Cruz. The potential effect to the

Upland Landscape Unit from the proposed project elements, described above, is anticipated to be on average a moderate change to the visual environment. The existing wider roadway section and the ability to widen to the center median, help to reduce the impacts.

5.3.2. Aptos Landscape Unit

This alternative includes auxiliary lanes and new standard shoulders throughout most of the Aptos Landscape Unit, creating a wider highway section. The southbound on-ramp at State Park Drive would be widened, as would portions of the other on- and off-ramps at State Park Drive and Park Avenue. Due to the wider highway section, the two existing railroad bridges in Aptos, the State Park Drive Bridge, and the Capitola Avenue Bridge over Route 1, would be replaced. The existing bridge over Aptos/Valencia Creek would also be replaced to accommodate the new auxiliary lanes. The highway profile would be lowered in the vicinity of the southernmost railroad overpass to ensure that the required vertical clearance for traffic on Route 1 is achieved. A new bicycle/pedestrian bridge and associated ramps are proposed at Mar Vista Drive.

Retaining walls would be located throughout this landscape unit, especially associated with the creek crossings of Valencia and Aptos creeks, Ord Gulch, Borregas Creek, Pot Belly Creek, and Nobel Creek. In these locations, the retaining walls would face outward from the highway corridor and would not be visible to the highway traveler. From the adjacent community's perspective, much of the existing wetland vegetation would be preserved, which would help to screen views into the highway corridor. In select locations, retaining walls would be visible to the highway traveler, most notably in the area of the two railroad bridges.

Sound walls are proposed with this alternative along southbound Route 1 from approximately State Park Drive to Park Avenue, and along McGregor Drive. Along northbound Route 1, sound walls are proposed along the northbound on-ramp to Route 1 from State Park Drive, along the northbound off-ramp at Park Avenue to approximately the Pot Belly Creek crossing, and from approximately the Nobel Creek Crossing to the Capitola Avenue Bridge. The remaining visual element associated with the improvements would be the addition of concrete highway barriers along both northbound and southbound lanes. The sound walls along McGregor Drive and Cabrillo College Drive frontage roads would block views for highway travelers and travelers on local streets. The vegetation between the two roadways and the highway would be removed.

Existing vegetation, particularly in the area of the railroad bridges, would be removed as part of the construction access requirements associated with the bridge and wall construction.

Currently, the vegetation around the railroad bridges is close to the highway and overhangs the roadway. Vegetation closest to the highway is expected to be removed, opening up the views from the highway; however, the vegetation farther back, associated with Aptos and Valencia creeks, would remain to buffer views from the surrounding community into the highway corridor. Replacement of the State Park Drive overcrossing and widening of the loop ramp in the southwest quadrant of the interchange would most likely require removal of the existing highway plantings within the loop ramp.

Viewer sensitivity is likely to be high within the Aptos Landscape Unit. This is due in part to the communities present within the unit and their make-up of business and residences coupled with the existing vegetated nature of the corridor within this unit. The potential effect to the Aptos Landscape Unit from the proposed project elements, described above, is anticipated to be on average a high degree of change to the visual environment. Especially noticeable within this unit would be the removal of roadside vegetation in the Aptos area.

5.3.3. Soquel-Capitola Landscape Unit

Auxiliary lanes would be constructed through much of this landscape unit, with only a stretch along Route 1 between Bay Avenue/Porter Street and 41st Avenue, where auxiliary lanes already exist, not included. The southbound on-ramp and northbound off-ramp at Bay Avenue/Porter Street, the two loop ramps at 41st Avenue, and the northbound off-ramp at Soquel Drive would also be widened. The 41st Avenue overcrossing would be replaced in this unit, and a new bicycle/pedestrian bridge would be located at approximately Chanticleer Avenue.

Many retaining walls would be constructed within the landscape unit, including within the stretch between the Capitola Avenue overcrossing and the Bay Avenue/Porter Street interchange, and along the southbound mainline between approximately the 41st Avenue interchange and the Soquel Avenue interchange. In addition, several retaining walls would be located in the 41st Avenue interchange along the northbound on-ramp. Visibility of these walls would depend on the direction the wall faces. Sound walls within the landscape unit would be limited, with a short length of wall proposed along the northbound 41st Avenue off-ramp.

The skyline trees associated with the creek crossings should be preserved under this alternative because the creeks are either being bridged or have a retaining wall proposed. Portions of the existing highway plantings between Soquel Avenue and the southbound highway lanes would be removed by the construction. As with other frontage road situations, the type of plantings that can be replanted in these areas would be limited to vines due to

space limitations. Replacement of the new 41st Avenue overcrossing and the inclusion of stormwater facilities within the new interchange configuration would require the removal of most of the existing vegetation in the interchange area.

Viewer sensitivity within the unit is likely to be moderately high, given that there are more commercial/business properties within the unit that face onto the highway and they, as previously described, may have less sensitivity to change and more interest in visibility than other user groups. However, given that the landscape unit is one of the commercial cores for the area, traffic on local roads and on Route 1 would likely be higher with a greater number of viewers. The potential effect to the Soquel-Capitola Landscape Unit from the proposed project elements, described above, is anticipated to be on average a moderately high change to the visual environment. This is due primarily to the removal of roadside vegetation and the addition of walls along the highway.

5.3.4. Santa Cruz-Arana Gulch Landscape

Most of the improvements to Route 1 within this landscape unit would occur due to other projects – the Soquel Drive to Morrissey Boulevard Auxiliary Lane Project and the Route 1/ Route 17 Merge Lanes Project. Under the TSM Alternative, three areas of improvements are proposed – the ramps associated with the Soquel Drive interchange would be widened with minor realignment to the curves for the northbound on- and off-ramps; a new bicycle/ pedestrian bridge would be constructed between Park Way Court and Trevethan Drive; and there would be minor widening to the existing southbound on-ramp at Morrissey.

Some of the existing vegetation in the Arana Gulch area, which is dominated by skyline eucalyptus trees, would be removed. All of the vegetation within the ROW associated with the gulch along the northbound lanes would be removed to make way for the new on-ramp configuration and an associated retaining wall. Along the southbound lanes, the impact would be much less, with only minor widening anticipated. Minor vegetation removal could be anticipated at the site of the Trevethan Drive bicycle/pedestrian bridge. At the Morrissey Boulevard southbound on-ramp, most of the existing vegetation has already been disturbed as part of the previous projects, so additional disturbance is not likely.

Viewer sensitivity is likely to be high within the landscape unit. This is due in part to the communities present within the unit and their make-up of businesses and residences, the existing vegetated nature of the corridor within this unit, and the large traffic volumes found here. The potential effect to the Santa Cruz-Arana Gulch Landscape Unit from the proposed project elements, described above, is anticipated to be on average a moderately high degree of change to the visual environment. Especially noticeable within this unit would be the

removal of roadside vegetation, although under this alternative the Arana Gulch forest would remain intact. The addition of sound walls in the corridor would also reduce views.

5.4. TIER II PROJECT ALTERNATIVE

General impacts associated with this alternative would be associated with the addition of auxiliary lanes (i.e., widened pavement sections), reconfigurations of existing ramps at 41st Avenue and Soquel Avenue, associated signage/ramp metering lights, and the addition of a bicycle/pedestrian bridge at Chanticleer Avenue. The summary below describes the anticipated changes to the visual environment by each project element. Following that is a description by landscape unit of the anticipated effects to the visual environment.

- **Bridges:** The existing bridge structures at 41st Avenue and Soquel Avenue would remain in their current condition. A new bicycle/pedestrian bridge and associated ramps would be constructed at Chanticleer Avenue. Currently, the corridor has no bicycle/pedestrian bridges. From the standpoint of appearance, the bridge structure would appear similar to other bridges in the corridor, only narrower. The access ramps would be long structures that would provide access to the bridge for bicycles, pedestrians, and wheelchairs. These structures would have a similar appearance to the bridge, with columns and girders with fencing along the ramps. A schematic design for the bridge can be seen in Appendix C.
- **Freeway Paving:** Additional paving would be constructed in the corridor for the auxiliary lanes between the 41st Avenue and Soquel Avenue interchanges. The result of this increase in paving would be especially noticeable to the freeway travelers. For the viewer groups outside of the freeway travelers, the widened paving would be less noticeable due to the existing vegetation that would remain after construction; however, because this vegetation would not be a complete screen, there would likely be additional views into the corridor from adjacent areas, such as along Soquel Avenue. Furthermore, there would be new views into the corridor created by the bicycle/pedestrian bridge.
- **Local Streets:** The new bicycle/pedestrian bridge would be very noticeable to travelers on Soquel Avenue. From the perspective of the traveler on Soquel Avenue, there currently are no bridge structures over this local road; therefore, the proposed structure would be a new addition to the appearance of the roadway. In addition, some of the existing vegetation between the highway and Soquel Avenue could be removed by construction of the bridge, which would also open up views into the highway corridor that are currently at least partially screened.

- **Sound walls:** One sound wall, with a length of 310 feet, may be proposed for the project to address a severe noise impact. This wall would be located along the right-of-way north of Route 1 behind a residence that backs to the corridor from Mattison Lane. The proposed wall would be 8 ft tall. However, as an alternative, acoustic treatments are currently being proposed to address the noise impacts in lieu of a sound wall..Should the acoustical treatments be selected, a sound wall would not be constructed.

- **Retaining Walls:** Retaining walls would be included as part of the Tier II project alternative. Approximately 1,200 lineal feet of retaining wall would be constructed. Along the northbound lanes, there are two retaining walls proposed to protect wetland areas, including at Rodeo Gulch. These walls would face out from the highway corridor into the adjacent community; however, due to the extent of vegetation adjacent to the ROW at Rodeo Gulch, it is anticipated that this wall would be at least partially screened from the adjacent community.

  A retaining wall is proposed between the highway and Soquel Avenue, approximately where the road crosses Rodeo Drive. This wall would be approximately 350 feet long and face onto Soquel Avenue. Due to the narrow area between the highway and Soquel Avenue, it is unlikely that enough vegetation could be planted to screen the wall, which would therefore be visible to travelers along Soquel Avenue. It is also anticipated that there would be views from Soquel Avenue into the highway corridor that do not currently exist at this location.

  An approximately 130-foot-long retaining wall is proposed along the northbound on-ramp from 41st Avenue. This wall would face onto the ramp and would be visible to travelers on the ramp.

- **Vegetation Removal:** For the Tier II project alternative, approximately 9.3 acres of existing landscape would be removed by the project (see Figure 10). The removal of existing vegetation from areas along the corridor is required to construct the bridge, retaining walls, stormwater facilities, and to widen the highway. This would have a large effect on the views both within the corridor and into the corridor. It is not anticipated that the ROW for the entire corridor would need to be cleared. It is expected that vegetation along portions of the mainline between Soquel Avenue and the highway and along the northbound lanes of the highway would remain, except where the retaining walls and bridge are constructed. For areas disturbed by construction activities, approximately 3 acres are available for replanting under this alternative. Of this area, approximately 1 acre would be available for trees, given

Caltrans setback requirements. It should be expected that it would be many years before the newly planted vegetation would reach the size of the existing.

- **Lighting and Signage:** Some existing signage and light fixtures would be relocated to accommodate the proposed widening. In addition, new signage, ramp metering, and lighting at the ramps could be expected to bring the highway up to current standards or to replace old fixtures with newer, more efficient ones.

Anticipated changes to the visual environment to each landscape unit in the Tier II project alternative are discussed below.

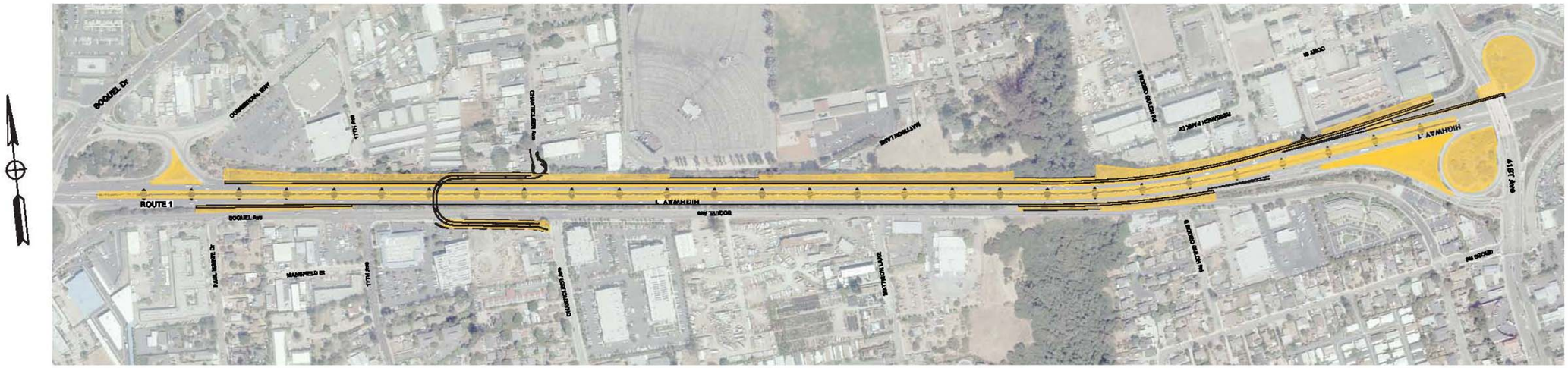
5.4.1. Soquel-Capitola Landscape Unit

Except for the northbound on-ramp from 41st Avenue, the 41st Avenue and Soquel Avenue interchanges would remain configured as they currently exist. The northbound on-ramp at 41st Avenue is proposed to be widened to the outside edge and would include a retaining wall along the ramp edge, but the ramp would be in the same location as the current ramp. New stormwater facilities (i.e., detention basins) would be constructed in two infield areas associated with the southbound off-ramp and within the loop of the northbound off-ramp. This would require the removal of most of the existing vegetation within the basins. New plantings can be included on the side of the basins, but the bottom of the basins would need to be a grasses and forbs cover due to the maintenance requirements for the basin.

New auxiliary lanes for the northbound and the southbound traffic would be constructed between the two interchanges, ending at the start of their respective ramps. Most of the proposed widening would occur along the outside edge of the northbound lanes and into the existing median area. Retaining walls in the Rodeo Gulch area would be constructed to protect the existing wetlands and to preserve the existing Soquel Avenue roadway.

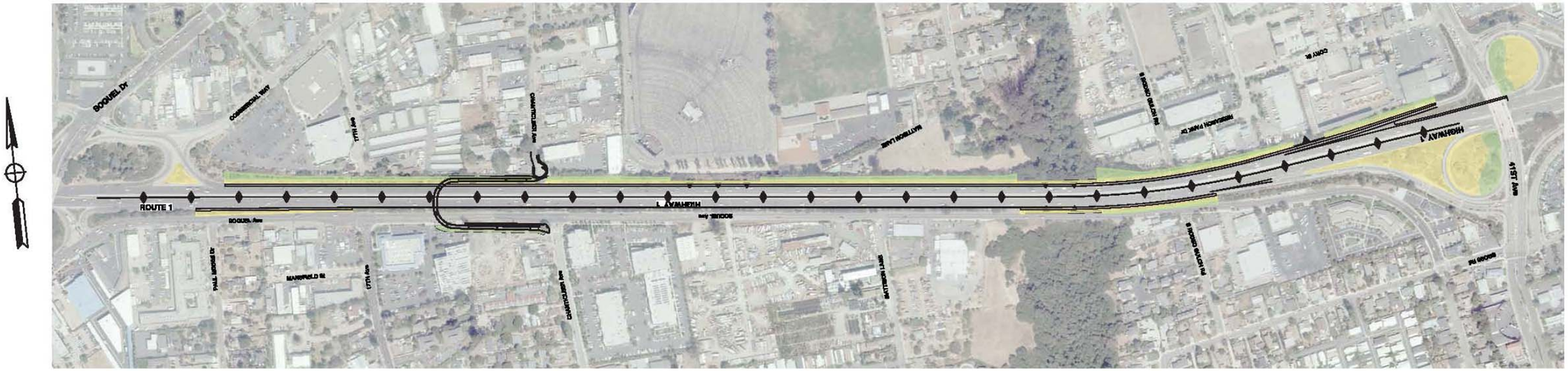
Given the distances of over 0.5 miles or more to any ridge lines in the area, it is not anticipated the proposed Chanticleer Pedestrian Bridge would block any views to ridgelines. The location of the ramp along the northbound lanes will block some views into adjacent areas from the highway.

Viewer sensitivity within the unit is likely to be moderately high, as previously discussed under the Tier I alternatives. The potential effect to the Soquel-Capitola Landscape Unit from the proposed project elements, described above, is anticipated to be on average a moderate change to the visual resources of the corridor; resulting in an overall moderately high visual impact, see Table 5.7-2 for a summary. Roadside vegetation would be lost along the north-



LEGEND & ABBREVIATIONS

Vegetation Removed by the Project (Approx. 9.3 Acres)



LEGEND & ABBREVIATIONS

Shrub Planting Area Available after Project Construction (Approx. 3 Acres)

Tree Planting Area Available after Project Construction (Approx. 1 Acre)

Figure 10: Tier II Project Vegetation Removal and Replanting Areas

5.4.2. BOUND LANES AND WITHIN THE 41ST AVENUE INTERCHANGE, ALTHOUGH SOME REPLANTING WOULD OCCUR IN BOTH LOCATIONS. THE PEDESTRIAN/BICYCLE BRIDGE WOULD BE A NEW VISUAL ELEMENT AS WELL.Santa Cruz-Arana Gulch Landscape Unit

The proposed new lanes would terminate at the existing northbound off-ramp and southbound on-ramp of Soquel Avenue; therefore, the changes anticipated within the Santa Cruz-Arana Gulch Landscape Unit would be minor and only associated with views from this unit into the newly widened highway for southbound travelers.

5.5. NO BUILD ALTERNATIVE

Activities that would occur under the No Build Alternative include routine maintenance of the project corridor. The three highway construction projects associated with the No Build Alternative (see above) would create some changes to the visual environment within the corridor. Each of these projects has received or is in process to receive its respective environmental clearances, including an analysis of the visual environment; therefore, they are not analyzed here.

5.6. GLARE

Glare constitutes the light that can reasonably be expected from a roadway corridor. It can include the light from street/roadway lighting and lighting from signs, as well as light from vehicles on the roadway. Light becomes glare when it escapes outside of its intended area (e.g., the roadway corridor) into adjoining areas (e.g., the windows of a residence); this is also called light trespassing. This analysis specifically looks at whether the proposed project/alternative would increase light trespass into areas adjoining the project.

5.6.1. Tier I Glare

Portions of the existing freeway are currently well lit, with street lighting primarily at interchanges but also along portions of the mainline. Other portions of the corridor are unlit. The project alternatives have not proposed increasing the amount of lighting along the corridor or lighting new areas that are not currently lit; however, because the highway would be widened under these alternatives, it can be anticipated that the highway lighting would be moved and may be relocated closer to homes and businesses adjacent to the roadway, depending on the interchange location. This analysis applies to each of the two proposed Tier I build alternatives.

An additional source of glare is associated with the headlights of the vehicles on the roads. While this would not change with the addition of lanes on the highway, the removal of

vegetation along the freeway might cause more light trespass from these sources into adjacent areas. This is somewhat mitigated in residential areas adjacent to the highway by the proposed sound walls. The inclusion of plantings along the highway would also help reduce light trespass from the corridor. It can be anticipated that in some locations, particularly those associated with commercial areas where there are no proposed sound walls, that there could be additional light from headlights; however, because these areas have fewer sensitive receptors (e.g., homes), an increase in glare from headlights is not anticipated to be a substantial issue.

The proposed ramp metering also has the potential to be a source of glare. However, these lights are oriented specifically to the ramp areas, so that drivers may clearly see them. In addition, these fixtures are hooded to reduce light trespass. Therefore, they are not anticipated to add to any glare associated with either the TSM or the HOV project alternatives.

5.6.2. Tier II Glare

Similar to the effects associated with the HOV Lane and TSM Alternatives, additional sources of glare are not anticipated with the Tier II Auxiliary Lane Alternative. Existing lighted signs associated with the ramps would be relocated to accommodate the widening, but because the ramps are in the same locations, the signs would be near their existing location but closer to the edge of ROW than the current placement. Much of the existing community development is commercial in nature and it is anticipated that any additional glare created would be less of a concern than it would be in a residential area. Some of the existing vegetation that screens Route 1 from the community would be removed by the project construction; therefore, the light from headlights on the highway may shine into adjacent areas. However, this is not anticipated to be a concern because of the lack of sensitive receptors in the area.

Ramp metering associated with the NB on-ramps at 41st Avenue has the potential to be a source of glare. However, these lights are oriented specifically to the ramp areas, so that drivers may clearly see them. In addition, these fixtures are hooded to reduce light trespass. Therefore, they are not anticipated to add to any glare associated the Tier II project.

5.7. SUMMARY OF ANTICIPATED CHANGES BY LANDSCAPE UNITS

Table 5.7-1 provides a summary of the visual elements that are proposed as part of each alternative. This summary includes elements such as walls and bridges, as well as landscape removal areas that would be highly noticeable changes in the environment, but excludes those elements, such as culverts, that are not typically as visible in the landscape.

Table 5.7-2 is a summary of the anticipated changes to the visual quality by landscape unit for each alternative. Note that the visual quality rating is an average for each landscape unit as a whole. Specific areas within the unit might be have a higher or lower visual quality (including both pre- and post project); see Section 6 Analysis of Key Viewpoints for an analysis of specific locations within the corridor.

Table 5.7-1
Summary of Visual Elements for Each Alternative

PROJECT VISUAL ELEMENT	UNITS	TIER I HOV LANE ALT.	TIER I TSM ALT.	TIER II ALT.
STRUCTURAL ELEMENTS[1]				
New or Widened Over/Undercrossings (Bridges)	Total No.	15	7	0
New Pedestrian Bridges (including Ramps)	Total No.	3	3	1
Retaining Walls	Linear Feet	33,000	16,000	1,200
Sound Walls	Linear Feet	17,800	23,600	310
Ramp Metering	Number of Interchanges	9	9	0
LANDSCAPE ELEMENTS				
Vegetation Removal	Acres	109	61	9.3
Replanting Areas – Trees, Shrubs, Groundcovers[2]	Acres	15	10	1
Replanting Areas – Shrubs and Groundcovers[2]	Acres	50	13	2
MISCELLANEOUS ELEMENTS				
Glare Potential[3]	N/A	Moderate	Moderate	Moderate
Local Streets Widened	N/A	Yes	No	No
New Concrete Median Barrier	N/A	Yes	Yes	Yes

1 While the widening of the highway paving would be a noticeable element, it is implied with each alternative.

2 Based on Caltrans' setback requirements for trees, not all planting areas can include large trees as part of the planting palette.

3 Glare potential is considered possible from the relocation of street lights within interchanges and also the reduction of vegetation along the edges of the highway, which would allow headlight glare into areas surrounding the highway. However, this affect is considered mitigatable.

Table 5.7-2
Summary of Anticipated Changes by Landscape Unit

LANDSCAPE UNITS	ANTICIPATED CHANGE TO VISUAL RESOURCE[1]	ANTICIPATED VIEWER RESPONSE[2]	ANTICIPATED VISUAL IMPACT[2]
TIER I – HOV LANE ALTERNATIVE			
Upland Unit	Moderate	Moderately High	Moderately High[3]
Aptos Unit	High	High	High
Soquel-Capitola Unit	High	Moderately High	Moderately High
Santa Cruz-Arana Gulch Unit	High	High	High
TIER I – TSM ALTERNATIVE			
Upland Unit	Moderate	Moderately High	Moderately High
Aptos Unit	High	High	High
Soquel-Capitola Unit	Moderately High	Moderately High	Moderately High
Santa Cruz-Arana Gulch Unit	Moderately High	High	Moderately High
TIER II – AUXILIARY LANE ALTERNATIVE			
Soquel-Capitola Unit	Moderate	Moderately High	Moderately High

1. See description of anticipated changes to the existing visual quality in Section 5.
2. These values represent anticipated averages for the entire landscape unit, for an evaluation of specific points and the associated affects based on project alternatives, see Section 6 for a Key Viewpoint analysis
3. See the description of impacts to visual character at the beginning of Section 5 for a definition of Low, Moderate, Moderately High, and High categories.

5.8. SHORT-TERM VERSUS LONG-TERM IMPACTS

As the name implies, short-term impacts are of relatively short duration (e.g., the visual presence of construction equipment or the time for establishment of new plants). Long-term impacts are those that are either permanent to the corridor, such as new retaining walls or

sound walls, or those impacts that take much longer to achieve full mitigation (e.g., the length of time required for new plantings to reach maturity).

5.8.1. TIER I SHORT-TERM AND LONG-TERM IMPACTS

Short-term impacts of the two Tier I build alternatives would include the visual presence of construction equipment, temporary roadside barriers, and construction signage. As part of the work, much of the existing mature vegetation within the ROW would be removed. Some vegetation would be replanted as part of the project mitigation where suitable land exists per Caltrans setback requirements. New plantings can be expected to become established in their new location within a 1- to 3-year time frame. During this time, new top growth to the leaves and branches would be less while the plants put on more root growth. After establishment, the new plantings should start to achieve their standard growth rates for their species.

Long term, the new tree plantings would take decades to achieve a mature size, depending on the individual species. Shrubs and vines could be expected to mature sooner. Effective mitigation of sound walls by screening vegetation could reasonably be expected to take up to 10 years, depending on the planting densities, spacing of new plants, and depth of area of planting, with deeper planting areas likely achieving screening sooner. Other long-term impacts would include the new roadway elements, walls, and bridge designs that would become new visual elements within the corridor.

5.8.2. Tier II Short-Term and Long-Term Impacts

The short- and long-term impacts associated with the Tier II project alternative would be similar to those described for the Tier I project alternatives. The difference is that the Tier II project covers a much smaller area, so looking at the overall corridor, the percentage of area affected is much less.

Long term impacts associated with the Tier II project include the addition of new structures into the landscape, including the new Chanticleer pedestrian/bicycle bridge, new sound walls and new retaining walls. The new paving width would also be considered a long-term impact. The removal of vegetation along the northbound lanes and within the 41st Avenue Interchange would be noticeable from the beginning of the project and would be considered a short-term impact. Replanting would help mitigate the change, but this would require a number of years before the vegetation provided close to the same coverage as the existing mature vegetation.

5.9. CUMULATIVE IMPACTS

A cumulative impact, as defined by the CEQ, is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes such actions. CEQA Guidelines define cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

5.9.1. Tier I Cumulative Impacts

The two Tier I build alternatives would be a continuation of many of the same design elements that were first introduced into the corridor by the Route 1/Route 17 Merge Lanes Project and continued by the Route 1 Auxiliary Lanes Project between Soquel Drive and Morrissey Boulevard. Sound walls and retaining walls, wider pavement sections, and reduced planting areas from these two previous projects, combined with anticipated changes from either the TSM or HOV Lane Alternative, would increase the built environment of the Route 1 corridor, replacing the current vegetated visual appearances with one more associated with hardscape/paving elements. Furthermore, views from the highway corridor into adjacent areas would become increasingly limited by sound walls. It is anticipated that the overall cumulative changes to the corridor under the Tier I Alternatives, coupled with the previous projects, would substantially change the visual environment along the Route 1 corridor.

5.9.2. Tier II Cumulative Impacts

As with the Tier I project alternatives, the Tier II project would continue the appearance of urbanization of the highway corridor established by the Route 1/Route 17 Merge Lanes Project and the Route 1 Auxiliary Lanes Project north of the Soquel Drive interchange. The current vegetated appearance would be reduced within the corridor between the 41st Avenue and Soquel Drive interchanges, although this would be greatly reduced in area from what might be expected from the Tier I projects. The cumulative impact of the Tier II project would be moderately substantial, given the increased urbanization along the corridor from previous projects.

5.10. SUBSTANTIAL UNAVOIDABLE IMPACTS

5.10.1. Tier I Projects

The extent of the vegetation removal within the corridor associated with either the HOV Lane Alternative (109 acres) or the TSM Alternative (61 Acres) would create a substantial change to the existing visual environment along the corridor, most notably in the area of Arana Gulch and the Aptos area near the two railroad bridge replacements. It may be possible to replant with new highway plantings in many of the locations disturbed by the project, but it would be decades before the vegetation reached the size and scale of the existing plant material.

Loss of vegetation within the project corridor, the addition of walls and other hardscape elements, and the blocking of outward views from the corridor could affect an official Scenic Highway designation for the portion of Route 1 within the project limits. The Route 1 corridor is currently not listed as an official Scenic Route by the State (it is currently identified as eligible for future listing), but it is listed by the County.

Either of the proposed projects would result in an inherent urbanization along most of this portion of the highway; however, the components of the project are not inconsistent with the highway environment. Minimization, in the form of community-based design, architectural treatments, and landscaping, would help reduce the impacts. However, the overall changes to the visual environment of the corridor would be substantial, and it cannot be assumed that mitigation measures would be able to fully compensate for the changes.

5.10.2. Tier II Project

While the Tier II project alternative has a much smaller footprint than either of the Tier I build alternatives, the effect of the Tier II project on the visual environment of the corridor is to continue creating a more urbanized appearance to the corridor from its existing condition, as has been established by the previous Route 1/Route 17 Merge Lanes Project and the Route 1 Auxiliary Lanes Project north of the Soquel Drive interchange. Clearing along the northbound lanes and within the 41st Avenue Interchange would essentially remove most of the existing highway plantings and reduce the area available for replanting, while planting areas along the southbound lanes would remain unchanged, except near the southbound off-ramp from Soquel Avenue and at the southbound off-ramp at 41st Avenue.

The Tier II project, with its limited footprint and location within a commercial section (where there are fewer sensitive receptors as compared to a residential area) of the Route 1 corridor, would have a moderately substantial impact to the corridor.

6. Analysis of Key Viewpoints

The findings presented in this study are based on review of the entire length of the project and its surroundings. The project is assessed from stationary locations, as well as from dynamic viewpoints such as vehicles, pedestrians, and bicyclists. The FHWA analysis methodology recommends selecting many key viewpoints that represent the potential visual effects of the project and the viewers' experience. The key viewpoints include a representation of all critical visual elements of the proposed project and viewer group types. Descriptions of the key viewpoints are provided below.

The post-construction simulations shown for the key viewpoints on the following pages include application of best management practices (BMPs) and avoidance and minimization measures, as described in Section 7 of this report, to the extent feasible for each particular view. The most noticeable measures shown in the simulations are listed below:

- Applying architectural detailing to the retaining walls and sound walls, including textures, colors, and patterns
- Saving and protecting as much existing vegetation as feasible
- Including new landscaping where feasible
- Including skyline trees in the new plantings

Because it is not possible to analyze every view within the project area, it is necessary to select many key viewpoints that typify the visual effects of the project. These key views represent each landscape unit and the views that might potentially be affected by the project. The numbering of the key viewpoints coincides with the numbers on the typical view photographs found in the Landscape Unit sheets (Figures 5 to 8). Aesthetic treatments shown on structures and specific plant types in the simulations are representative only. Actual types of treatments and landscaping would be based on design constraints and community input. Key viewpoints within the project area are described below:

- **Key Viewpoint #3, Upland Landscape Unit**: The key viewpoint within the Upland Landscape Unit was taken from the Freedom Boulevard Bridge over Route 1 looking to the east. This viewpoint was selected because it typifies the existing images on the southern end of the project and shows these from the viewpoint of a pedestrian on the bridge.
- **Key Viewpoint #9, Aptos Landscape Unit**: The photograph was taken from the right lane of northbound Route 1, looking to the west along Route 1. The bridge in the

photograph is the South Aptos Railroad crossing. This view was selected because it shows the effects of the existing vegetation and their removal on the views within the corridor to highway travelers within the Aptos Landscape Unit. In general, this unit has a great deal of roadside vegetation, particularly at creek crossings.

- **Key Viewpoint #11B, Aptos Landscape Unit:** This key viewpoint is from the perspective of the residents along McGregor Drive. The photograph is taken looking to the north from the intersection of Margaret Avenue and McGregor Drive into the project corridor. The view was selected as a key viewpoint because it shows the potential visual changes to the views from the residents that border the highway corridor.
- **Key Viewpoint #16, Soquel-Capitola Landscape Unit:** The photograph for this key viewpoint was taken from the Capitola Avenue overcrossing above the highway. The viewpoint was selected because it provides an overview of the proposed improvements to the Bay Avenue/Porter Street to 41st Avenue improvements. The view is from the perspective of a pedestrian on the bridge, but it demonstrates what can be anticipated by the highway traveler.
- **Key Viewpoint #19B, Soquel-Capitola Landscape Unit:** The image for photopoint 19B is from the Route 1 median at Chanticleer Avenue, looking west along the northbound lanes of the highway. The view was selected to demonstrate the effects of the proposed bicycle/pedestrian bridge over the highway. The view is from the perspective of the Route 1 traveler.
- **Key Viewpoint #21B, Soquel-Capitola Landscape Unit:** The photograph for this key viewpoint is from the perspective of the pedestrian on Soquel Avenue looking east along the street. It was selected to demonstrate the effect of the proposed bicycle/pedestrian bridge to the local streetscape of Soquel Avenue.
- **Key Viewpoint #22, Soquel-Capitola Landscape Unit:** This photograph was taken along the ROW fence near the sidewalk along Soquel Avenue. The view is towards the north and into the 41st Avenue interchange. The view was selected as a key viewpoint because it demonstrates the anticipated changes to the 41st Avenue interchange.
- **Key Viewpoint #23, Santa Cruz-Arana Gulch Landscape Unit**: The view is taken from the northbound lanes of Route 1 looking to the west at the La Fonda Bridge overcrossing. The La Fonda Bridge and areas along the northbound lanes would include new elements that would be constructed as part of the separate auxiliary lanes project north of Soquel Drive. The Route 1 HOV Lane Alternative (Tier I) would

potentially add elements to the view. This viewpoint was selected as a key viewpoint to show the transitions between the two projects to the highway traveler.

- **Key Viewpoint #25, Santa Cruz-Arana Gulch Landscape Unit**: The view is within the Soquel Drive interchange looking southwest into the existing Arana Gulch area. The view is from the perspective of the traveler on Soquel Drive and was chosen to show the impacts associated with the proposed improvements within the Arana Gulch area.
- **Key Viewpoint #27, Santa Cruz-Arana Gulch Landscape Unit:** The photograph is taken from the Fairmount Avenue-Morrissey Boulevard intersection looking to the northeast towards the Route 1 southbound on-ramp. The view is from the perspective of a local neighborhood and was selected to show the anticipated improvements at the west end of the project. These improvements are incremental based on several already-approved or constructed projects in this portion of the corridor.

Rendered simulations have been developed for each key viewpoint based on the proposed alternatives. Simulations were developed for the Tier I TSM Alternative for Key Viewpoints #3, #9, #11B, #16, #22, and #27. The Tier I HOV Lane Alternative also has simulations for each of these key viewpoints and has an additional simulation for Key Viewpoints #23 and #25. These two viewpoints have no corresponding improvements proposed as part of the TSM Alternative. For the Tier II Auxiliary Lane Alternative, with its smaller footprint, simulations were developed for Key Viewpoints #19B, #21B, and #23.

For each key viewpoint that is rendered, there is descriptive text of the orientation, existing visual character/quality, proposed project features, anticipated changes to the visual environment, anticipated viewer response, and the resulting visual impact anticipated in each view. This is followed by the rendered simulations. Lastly, two tables are provided to summarize the anticipated impacts. The first table quantifies the anticipated impacts by using a numerical analysis that corresponds to the low, moderately low, moderate, moderately high, and high ratings identified below. The second table then summarizes the overall anticipated visual impact to the view.

For the impact analysis table, the numeric analysis rating of 1 to 5 corresponds with the following values:

- High = 4.51 to 5.00
- Moderately High = 3.51 to 4.50
- Moderate = 2.51 to 3.50
- Moderately Low = 1.51 to 2.50
- Low = 0 to 1.50

A numeric value was assigned to each of the three visual quality traits (i.e., vividness, intactness, and unity) and each of the four visual character traits (i.e., scale, diversity, continuity, and dominance) for both the existing and proposed views. The ratings in each category were added up and divided by the number of traits in each category. There is no weighting of any category over any other. For example:

(Vividness + Intactness + Unity)/3 = Visual Quality Rating
(Scale + Diversity + Continuity + Dominance)/4 = Visual Character Rating

From these calculations, the percentage of change anticipated in the view was then calculated by finding the difference between existing and proposed view and then dividing that number by the initial rating figure. For example:

(Existing Visual Quality Rating – Proposed Visual Quality Rating)/Existing Visual Quality Rating = Percent Change

The resulting percent change corresponds to the following:

- 0% to 10% = Low degree of change
- 10% to 20% = Moderately Low degree of change
- 20% to 30% = Moderate degree of change
- 30% to 40% = Moderately High degree of change
- Above 40% = High degree of change

For the viewer responses shown in the individual analysis summary tables, the existing and proposed would be the same because the viewers themselves do not change, only the stimulus changes. The anticipated changes to character and quality, along with the anticipated viewer response and sensitivity, follow the Low – Moderate – High rating designations from above. These are averaged between each category, with the higher rating prevailing to determine the resource change and overall anticipated visual impact within the key viewpoint.

Lastly, Table 6.3-1 provides a summary of the anticipated impacts to the visual environment for each of the key viewpoints.

6.1. TIER I HOV LANE ALTERNATIVE

Viewpoints identified as key for identifying the changes to the visual environment anticipated with the HOV Lane Alternative are viewpoints #3, #9, #11B, #16, #22, #23, and #27. These are described and evaluated below:

6.1.1. Key Viewpoint #3 Analysis

Figure 11: Key Viewpoint #3 Location Map, HOV Lane Alternative

Orientation: The view was taken in the Upland Landscape Unit. The photo is to the southeast along Route 1 from the Freedom Boulevard overpass. The view is from the perspective of the pedestrian/bike user on the bridge.

Existing Visual Character/Quality: The foreground elements include the roadway paving and the existing median. The vegetated slopes form the mid- to background of the view. The existing visual quality of this view is considered moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: Under this alternative, the median would be narrowed and paved to accommodate an additional lane in each direction. The southbound on-ramp would also be realigned slightly in this view, and a retaining wall would be necessary along the slope next to the on-ramp. Because the Freedom Boulevard overcrossing would be replaced, new fencing would be added along the bridge barrier railing, adding a new element to the view.

Changes to Visual Character: The paving cross section increases, but this is in place of bare ground, except where the oleander hedge is located in the immediate foreground of the view. Additionally, the existing vegetation along the highway remains in place. The highway would appear wider to travelers on Route 1 and on Freedom Boulevard, but this would not be outside of the anticipated views associated with the highway. Changes to the visual character are anticipated to be low.

Anticipated Viewer Response: The freeway serves more than 80,000 travelers per day, although this southern end of the project would be expected to have less traffic than the more developed northern stretch. Because the photograph is from the perspective of a person/ traveler on the bridge, the number of views would be limited to several hundred per day. The widened pavement section would be noticeable to those on the highway, as well as those on the bridge. In addition, for those on the bridge, fencing would be a new element in their view. Duration of views for those crossing the bridge would be anticipated at less than a minute.

Figure 12: Key Viewpoint #3 in the Upland Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-1A: HOV Lane Alternative, Key Viewpoint #3
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.05	3.13	Dirt median detracts from view
	Intactness	2.62	3.17	
	Unity	2.67	3.00	
	TOTAL[6]	**2.78**	**3.10**	Percent Change = 11.51% = Moderate Low degree of change
VISUAL CHARACTER[2]	Scale	3.67	2.87	
	Diversity	3.13	2.43	
	Continuity	2.90	3.37	
	Dominance	3.27	3.43	
	TOTAL[6]	**3.24**	**3.03**	Percent Change = 6.48% = Low degree of change
VIEWER EXPOSURE[3]	Location of Views	2.80		
	Number of Viewers	2.50		
	Duration of Views	1.75		
	TOTAL[6]	**2.35**		Moderately Low Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.00		
	Viewer Awareness	2.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.42**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

For highway travelers, the duration though this stretch of the corridor would also be less than a minute. Viewer sensitivity is anticipated to be moderate.

Resulting Visual Impact: The resulting visual impact from the changes is considered moderate. The proposed improvements from this perspective increase the overall visual quality of the view. This may be in part due to the existing dirt median detracting from the existing view. The degree of change to the visual character is anticipated to be moderately low while the change to the visual quality is expected to be low.

The information from Table 6.1-1A on the anticipated changes to the visual environment is carried forward to Table 6.1-1B, as shown in the light blue column.

Table 6.1-1B: HOV Lane Alternative, Key Viewpoint #3 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Low**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Moderately Low**	**Moderately Low**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderately Low**	VIEWER RESPONSE	**Moderate**
	VIEWER SENSITIVITY	**Moderate**	**Moderate**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two rating were then averaged again to determine the anticipate Visual Impact. If unable to average, the higher rating was used.

6.1.2. Key Viewpoint #9 Analysis

Figure 13: Key Viewpoint #9 Location Map, HOV Lane Alternative

Orientation: The photo is taken within the Aptos Landscape Unit at the southern railroad bridge crossing. The view is to the west along the northbound lanes of Route 1. The view is from the perspective of the highway traveler.

Existing Visual Character/Quality: The character of this portion of the highway is one of a very well vegetated corridor that helps to isolate the highway within the landscape. The amount, maturity, and closeness to the highway of the vegetation create a much more intimate appearance to the highway and its elements and reduce their overall scale in the environment. The existing visual quality of this area is considered moderately high, with moderately high vividness and intactness with moderate unity. Much of this rating is due to the existing vegetation that overhangs the highway and frames the existing railroad bridge, while the bridge and its aged appearance detracts from the view.

Proposed Project Features: The railroad bridge would be replaced and the highway profile lowered to meet clearance requirements for the bridge. The highway would be wider than existing, with two additional 12-foot-wide lanes in each direction and shoulders to meet standards. The wider roadway would equate to a longer bridge. In addition to the bridge, sound walls would be added on either side of the highway.

Changes to Visual Character: The most notable change to the existing visual environment would be the removal of the mature vegetation and overhanging trees within this view and the addition of view-blocking sound walls. The large eucalyptus trees that frame the existing bridge and much of the roadside vegetation would be removed. In addition, the roadway and bridge would appear wider than existing. The use of vines and vine portals would, over time, help reduce the impact of the walls; however, views into the surrounding landscape would not be restored. The change in the visual character from the project elements is anticipated to be moderately low.

Figure 14: Key Viewpoint #9 in the Aptos Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-2A: HOV Lane Alternative, Key Viewpoint #9 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.75	2.50	
	Intactness	3.52	2.23	
	Unity	3.25	2.32	
	TOTAL[6]	**3.51**	**2.35**	Percent Change = 33.05% = Moderately High degree of change
VISUAL CHARACTER[2]	Scale	3.75	2.03	
	Diversity	3.17	2.15	
	Continuity	3.45	2.43	
	Dominance	3.62	2.17	
	TOTAL[6]	**3.50**	**2.19**	Percent Change = 37.43% = Moderately High degree of change
VIEWER EXPOSURE[3]	Location of Views	3.00		
	Number of Viewers	4.25		
	Duration of Views	2.50		
	TOTAL[6]	**3.25**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.10		
	Viewer Awareness	3.20		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.60**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Anticipated Viewer Response: The duration of the view would likely be from several seconds to less than a minute to travelers in the portion of the corridor shown in the photograph. Viewer sensitivity to the changes is expected to be moderately high, given the importance of vegetation and large trees, in particular, within the community. The primary viewer groups affected include highway travelers consisting of daily commuters and occasional motorists and tourists. Regular travelers would be most sensitive to the changes, while the occasional motorists and tourists would most likely not be aware of the changes.

Resulting Visual Impact: Adverse changes to the existing view are expected to be moderately high. It is expected that the sound walls would permanently block views out from the corridor. The height of the vegetation behind the wall allows for some "borrowed landscape" effect, and the use of vines and shrub plantings could help soften the appearance of the wall. The overall visual quality, with minimization measures, is anticipated to be moderate, with moderate vividness and unity, and moderately low intactness.

The information from Table 6.1-2A for the anticipated changes to the visual environment is carried forward to Table 6.1-2B, as shown in the light blue column.

Table 6.1-2B: HOV Lane Alternative, Key Viewpoint #9 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderately High**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Moderately High**	**Moderately High**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE	**Moderately High**
	VIEWER SENSITIVITY	**Moderately High**	**Moderately High**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.1.3. Key Viewpoint #11B Analysis

Orientation: This photo was taken in the Aptos Landscape Unit at the intersection of McGregor Road and Margaret Avenue. The view is to the north towards the Route 1 corridor. The view is from the perspective of the resident.

Existing Visual Character/Quality: The view shows the existing ROW fence along the highway corridor. A narrow planting area exists between the fence and the highway, and this is planted with trees, shrubs, and vines. The foreground consists mostly of roadway paving for the two streets. The overall visual quality of the view is moderate, with moderately low vividness and moderate intactness and unity.

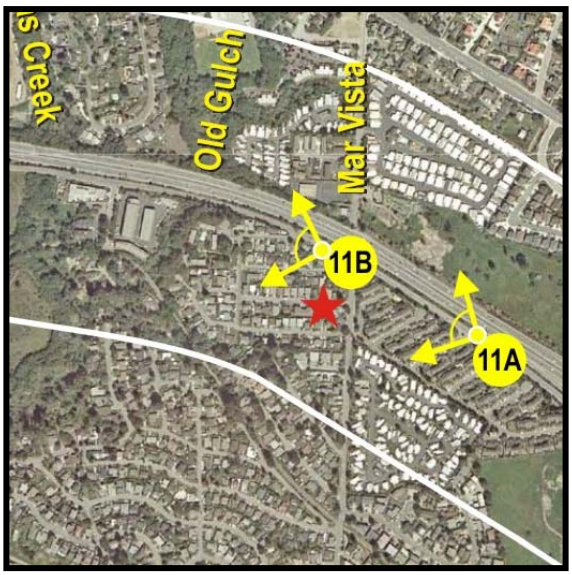


Figure 15: Key Viewpoint #11B Location Map, HOV Lane Alternative

Proposed Project Features: A new sound wall would be constructed along McGregor Drive, which would cause the removal of the existing vegetation and fence. The existing limited views into the highway corridor would be blocked by the wall. Given the remaining area anticipated along the wall, tree and shrub plantings may not be feasible, given Caltrans setback requirements; however, vine plantings would be possible along both sides of the wall.

Changes to Visual Character: For residents, the biggest change would be the addition of the wall along McGregor Drive and the removal of the existing vegetation. Minimization measures to break up the expanse of wall along the roadway, coupled with vine plantings, would soften the wall and provide visual interest. The visual character of the view is anticipated to have a moderately high degree of change due to the replacement of the existing screening vegetation with a wall.

Anticipated Viewer Response: The wall would parallel McGregor Drive for most of its distance from State Park Drive to Park Avenue; it would be within the drivers' view for several minutes. For residents that face McGregor Drive, the wall would be a permanent addition to the view. In part, due to the anticipated duration of the views combined with the community's values and goals, viewer sensitivity is anticipated to be moderately high in this location.

Figure 16: Key Viewpoint #11B in the Aptos Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-3A: HOV Lane Alternative, Key Viewpoint #11B
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	2.27	2.03	
	Intactness	3.00	2.25	
	Unity	3.33	3.33	
	TOTAL[6]	**2.87**	**2.54**	Percent Change = 11.50% = Moderately Low degree of change
VISUAL CHARACTER[2]	Scale	3.60	2.77	
	Diversity	4.03	2.13	
	Continuity	3.77	2.50	
	Dominance	3.75	2.20	
	TOTAL[6]	**3.79**	**2.40**	Percent Change = 36.68% = Moderately High degree of change
VIEWER EXPOSURE[3]	Location of Views	3.25		
	Number of Viewers	2.50		
	Duration of Views	4.00		
	TOTAL[6]	**3.25**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.00		
	Viewer Awareness	4.10		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.87**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: The resulting effect of the addition of the wall is anticipated to have a moderately low effect on the existing visual environment. Viewer sensitivity is expected to be particularly high at this location because it is in a residential area and a few homes face the new wall location. The visual character as well as the visual quality of the view is likely to experience a moderately high degree of change due to the removal of the existing vegetation and the addition of the wall with vine plantings.

The information from Table 6.1-3A on the anticipated changes to the visual environment is carried forward to Table 6.1-3B, as shown in the light blue column.

Table 6.1-3B: HOV Lane Alternative, Key Viewpoint #11B Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderately High**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Moderately Low**	**Moderate**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE	**Moderately High**
	VIEWER SENSITIVITY	**Moderately High**	**Moderately High**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.1.4. Key Viewpoint #16 Analysis

Orientation: This photo was taken in the Capitola-Soquel Landscape Unit looking northbound on Route 1. The orientation is to the west, and the view is from the perspective of the pedestrian/bike user on the Capitola Avenue overcrossing.

Existing Visual Character/Quality: The view shows the four-lane highway and vegetated side slopes. The character is typical of what could be anticipated along highway areas in this part of California. The visual quality is moderate, with moderate vividness, intactness, and unity.

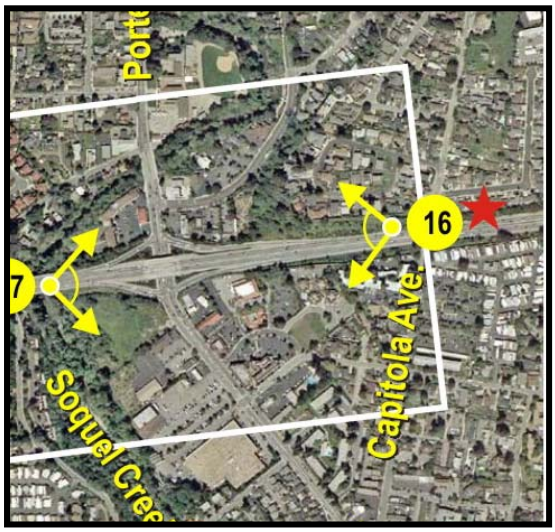


Figure 17: Key Viewpoint #16 Location Map, HOV Lane Alternative

Proposed Project Features: Given the overview of the corridor presented in this image, the general improvements between the Bay Avenue/Porter Street interchange and the 41st Avenue Bridge in the background can be seen. These include the widened bridge over Bay Avenue/Porter Street and the widened pavement section between the two interchange. The 41st Avenue Bridge would be replaced, and a retaining wall would be placed along the highway and its on- and off-ramps. New roadside barriers would also be added. Because the Capitola Avenue Bridge would also be replaced, new fencing would be expected on the bridge barrier rail.

Changes to Visual Character: The additional highway elements, together with the associated removal of much of the existing vegetation in this portion of the corridor, would create a more urban appearance to the highway. The softening effects of the vegetation would be removed in the short term. In the long term, as new plantings grow, this would diminish. Overall, the degree of change anticipated in the view is moderately low.

Anticipated Viewer Response: Approximately 100,000 travelers drive this portion of the highway on a daily basis. The duration of views would run several minutes to traverse this portion of the corridor. For those on the bridge, the view time is anticipated to be less than a minute, although they would have clear views into the corridor. It is anticipated that viewers would be very sensitive to the vegetation removal. Overall viewer sensitivity is anticipated to be moderate due to the smaller number of viewers on the bridge. Given the number of views associated with the highway, viewer sensitivity is expected to be higher for that user group.

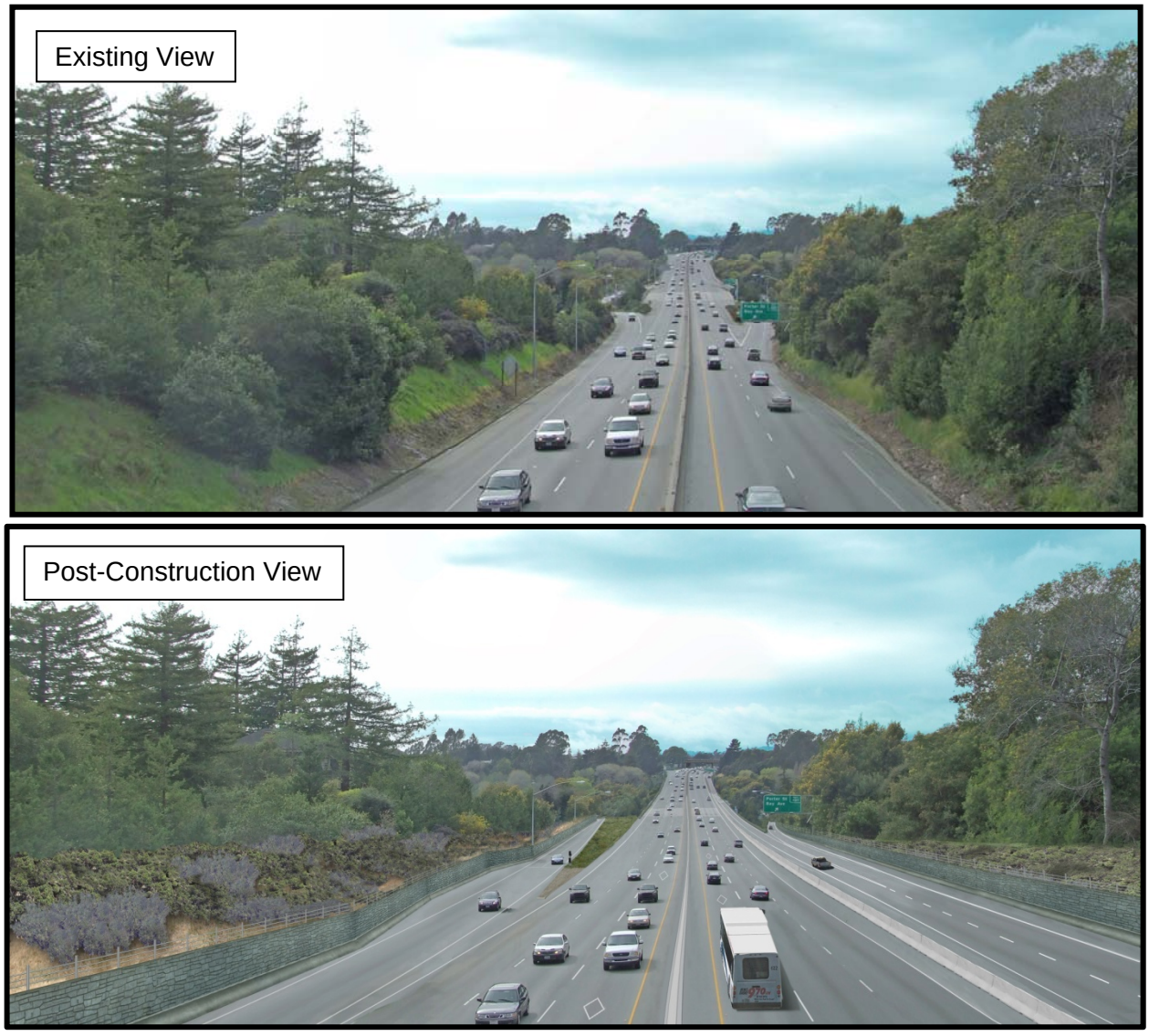


Figure 18: Key Viewpoint #16 in the Soquel-Capitola Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-4A: HOV Lane Alternative, Key Viewpoint #16
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.28	2.43	
	Intactness	3.28	2.12	
	Unity	3.25	2.39	
	TOTAL[6]	**3.27**	**2.44**	Percent Change = 25.38% = Moderate degree of change
VISUAL CHARACTER[2]	Scale	3.25	2.32	
	Diversity	2.50	2.15	
	Continuity	3.00	2.24	
	Dominance	3.67	2.75	
	TOTAL[6]	**3.10**	**2.37**	Percent Change = 23.55% = Moderate degree of change
VIEWER EXPOSURE[3]	Location of Views	2.62		
	Number of Viewers	2.50		
	Duration of Views	3.00		
	TOTAL[6]	**2.71**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	2.75		
	Viewer Awareness	3.10		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.45**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: The resulting impact of the highway expansion in this area would be to create a more urban appearance to the highway corridor. The additional lanes, combined with the walls and barriers, would expand the hard surfaces within the view. The removal of the mature vegetation and the replacement with new plantings would tend to increase the appearance of the hard surfaces because the softening effects of vegetation would take many years for plantings to mature. The overall impact to the visual environment of the view is anticipated to be moderate, due in part to the degree of sensitivity of the viewers. The anticipated changes to the visual quality and character are both anticipated to be moderate as well.

The information from Table 6.1-4A on the anticipated changes to the visual environment is carried forward to Table 6.1-4B, as shown in the light blue column.

Table 6.1-4B: HOV Lane Alternative, Key Viewpoint #16 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderate**	RESOURCE CHANGE **Moderate**	VISUAL IMPACT **Moderate**
	CHANGE TO VISUAL QUALITY	**Moderate**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE **Moderate**	
	VIEWER SENSITIVITY	**Moderate**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.1.5. Key Viewpoint #22 Analysis

Orientation: This photo was taken in the Capitola-Soquel Landscape Unit looking northeast towards the 41st Avenue southbound off-ramp. The view is from the community, just off of the sidewalk along Soquel Avenue.

Existing Visual Character/Quality: In the foreground can be seen the southbound off-ramp paving, with the interchange plantings associated with the 41st Avenue interchange in the mid-ground. The 41st Avenue Bridge can be seen in the background of the image. The view is of a well-landscaped interchange. The overall visual quality of the view is moderate, with moderate vividness, intactness, and unity.

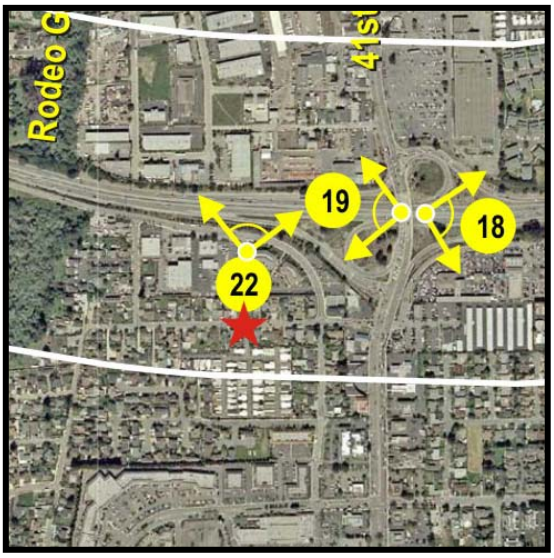


Figure 19: Key Viewpoint #22 Location Map, HOV Lane Alternative

Proposed Project Features: From this vantage point, the new ramp alignment is visible in the mid-ground. The vegetation associated with this quadrant would be removed by the construction activities. Additionally, the 41st Avenue Bridge would be replaced, and there would be a realignment of the northbound on-ramp across the bridge.

Changes to Visual Character: The overall character of the interchange would remain because only the ramp configurations would change in the existing interchange, and the new bridge would replace an existing structure. The existing ramp pavement in the foreground would be removed and additional planting areas added. The existing vegetation would be removed, and new replacement plantings would give the interchange a more open feel and appearance, at least until the new plantings reach the same level of maturity as the existing. Overall, the visual character of the interchange is anticipated to have a moderate degree of change, due mostly to the removal of the existing vegetation that currently screens portions of the interchange.

Anticipated Viewer Response: The Soquel Avenue frontage road has substantially fewer drivers per day than the freeway, but it is an active arterial road for the community. Portions of the view into this area would be obscured by existing buildings. In addition, any plantings along the edge of the ROW would further obscure views into the interchange from this vantage point. Viewer sensitivity to changes is expected to be moderate.

Figure 20: Key Viewpoint #22 in the Soquel-Capitola Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-5A: HOV Lane Alternative, Key Viewpoint #22 Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.31	2.37	
	Intactness	3.22	2.65	
	Unity	3.12	2.57	
	TOTAL[6]	**3.22**	**2.53**	Percent Change = 21.43% = Moderate degree of change
VISUAL CHARACTER[2]	Scale	3.67	2.50	
	Diversity	3.07	2.48	
	Continuity	3.33	2.83	
	Dominance	3.17	2.67	
	TOTAL[6]	**3.31**	**2.62**	Percent Change = 20.85% = Moderate degree of change
VIEWER EXPOSURE[3]	Location of Views	2.75		
	Number of Viewers	2.50		
	Duration of Views	3.00		
	TOTAL[6]	**2.75**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	2.50		
	Viewer Awareness	2.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.25**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: The resulting changes to the 41st Avenue interchange are anticipated to be extensive – new ramp configurations would replace the present layout and the removal of the existing vegetation from portions of the interchange would lay bare these changes. New plantings would take many years to reach a comparable level. Overall, the impact to the visual environment is anticipated to be moderate with a moderated degree of change anticipated to both the visual quality and the visual character of the view.

The information from Table 6.1-5A on the anticipated changes to the visual environment is carried forward to Table 6.1-5B, as shown in the light blue column.

Table 6.1-5B: HOV Lane Alternative, Key Viewpoint #22
Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderate**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Moderate**	**Moderate**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE	**Moderate**
	VIEWER SENSITIVITY	**Moderate**	**Moderate**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.1.6. Key Viewpoint #23 Analysis

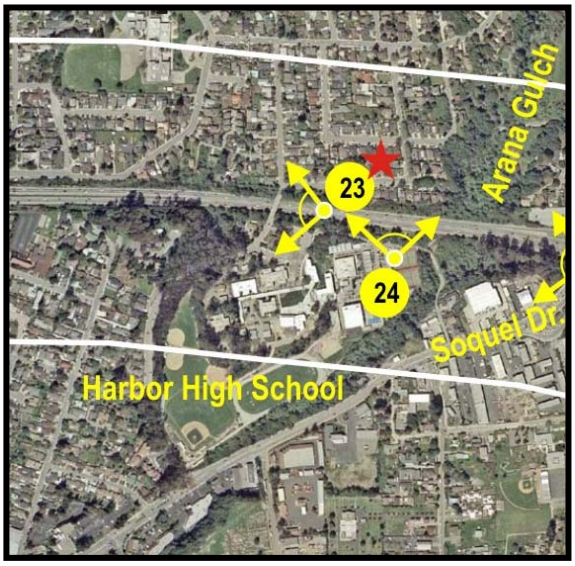


Figure 21: Key Viewpoint #23 Location Map, HOV Lane Alternative

Orientation: The photograph was taken from the northbound lanes of Route 1 within the Santa Cruz-Arana Gulch Landscape Unit. The orientation is looking to the west, and the view is from the perspective of the highway traveler.

Existing Visual Character/Quality: Upon completion of the auxiliary lanes project north of Soquel Drive, the existing character would be that of a wider highway corridor with much younger plantings than is currently seen along this portion of the corridor. The La Fonda Bridge would be replaced and would feature more prominently in the landscape due to the vegetation removal. The overall existing visual quality of the area shown in the photograph is moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: The existing highway would be widened to meet the face of the wall that was constructed by the auxiliary lanes project north of Soquel Drive. This would also be true for the southbound lanes as well, although this would not be seen from this perspective.

Changes to Visual Character: For highway users, the highway would appear wider than the current view or the view anticipated at completion of the La Fonda bridge over Route 1 north of Soquel Drive. These lanes would be in addition to the widening under construction with the auxiliary lanes project.

Anticipated Viewer Response: To highway travelers, the duration of views through this stretch would be short, approximately 1-minute or less. From the perspective of the northbound traveler, the proposed view would be similar to the existing view (after completion of the auxiliary lane project). Overall, viewer sensitivity to changes in the area is anticipated to be moderately high, based on the number of travelers on the highway and the local community's goals and values.

(Below) Existing view prior to Auxiliary Lane Project.

(Below) Anticipated existing view once Auxiliary Lane Project is completed; the image is from the Auxiliary Lanes Visual Assessment Report.

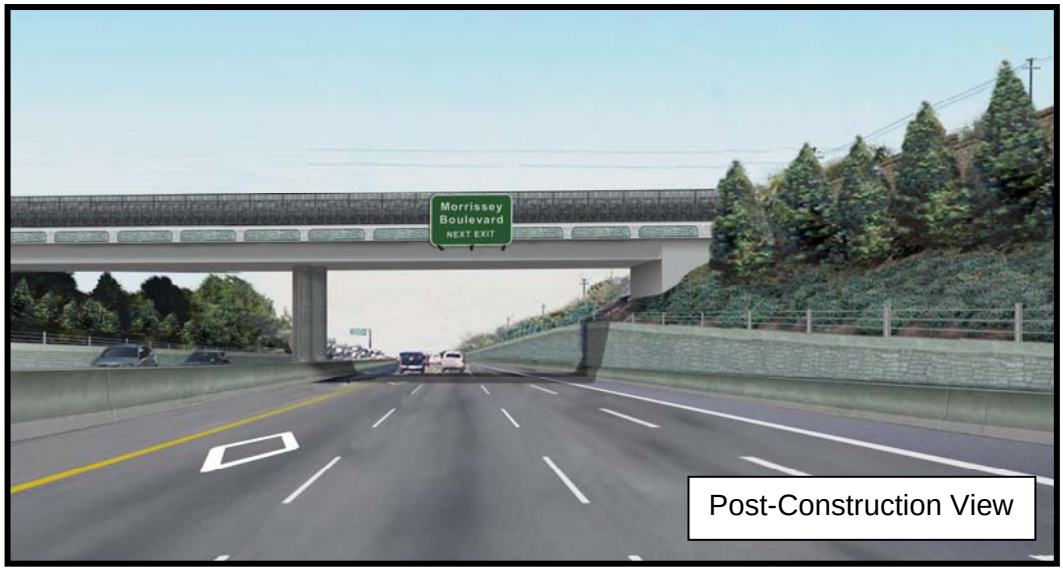


Figure 22: Key Viewpoint #23 in the Santa Cruz-Arana Gulch Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-6A: HOV Lane Alternative, Key Viewpoint #23
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	2.83	2.58	
	Intactness	3.57	3.43	
	Unity	3.27	3.25	
	TOTAL[6]	**3.22**	**3.09**	Percent Change = 4.04% = Low degree of change
VISUAL CHARACTER[2]	Scale	3.00	2.53	
	Diversity	2.50	2.70	
	Continuity	3.17	3.10	
	Dominance	2.83	3.17	
	TOTAL[6]	**2.88**	**2.88**	Percent Change = 0% = Low degree of change
VIEWER EXPOSURE[3]	Location of Views	3.25		
	Number of Viewers	5.0		
	Duration of Views	1.0		
	TOTAL[6]	**3.08**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	4.0		
	Viewer Awareness	3.2		
	Local Values and Goals	4.2		
	TOTAL[6]	**3.80**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: For the northbound traveler, the resulting impact to the visual environment would be small because most of the changes are associated with the previous auxiliary lane project north of Soquel Drive. New plantings would be included in the project, but these would take many years to reach a mature height. For this key viewpoint, the anticipated change to both the visual quality and the visual character is anticipated to be low while the overall degree of change is anticipated to be moderate due to the anticipated moderately high sensitivity of the viewer..

The information from Table 6.1-6A on the anticipated changes to the visual environment is carried forward to Table 6.1-6B, as shown in the light blue column.

Table 6.1-6B: HOV Lane Alternative, Key Viewpoint #23 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Low**	RESOURCE CHANGE **Low**	VISUAL IMPACT **Moderate**
	CHANGE TO VISUAL QUALITY	**Low**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE **Moderately High**	
	VIEWER SENSITIVITY	**Moderately High**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.1.7. Key Viewpoint #25 Analysis

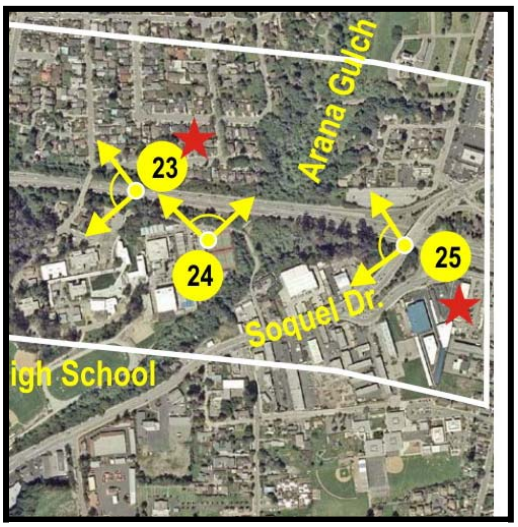


Figure 23: Key Viewpoint #25 Location Map, HOV Lane Alternative

Orientation: The viewpoint is within the Santa Cruz-Arana Gulch Landscape Unit. The photograph is taken from the south end of the Soquel Drive Bridge over Route 1 looking to the southwest. The view is from the perspective of the pedestrian on Soquel Drive.

Existing Visual Character/Quality: The existing character of the area is that of a well-vegetated eucalyptus forest. The existing visual quality of the area shown in the photograph is moderately high, with moderately high vividness and intactness and moderate unity. There is extensive vegetation and skyline trees within the existing area, and these heighten the visual interest and help to screen a jumble of buildings along Soquel Avenue. The gas station and other buildings along Soquel Avenue lower the vividness of the view due to the imposition of competing forms, lines, and colors that lower the unity and intactness of the view.

Proposed Project Features: From this vantage point, the new ramps within the quadrant would be visible in the fore- and mid-ground. New plantings associated with the improvements would also be included in the interchange area.

Changes to Visual Character: The inclusion of the ramps and the grading necessary to meet the Soquel Drive/Soquel Avenue roadways would remove all of the existing trees within this quadrant. New highway plantings would mitigate some of the affects; however, it would be many years before they would reach the scale and size of the existing vegetation.

Anticipated Viewer Response: The anticipated viewer response is high, given the removal of so much vegetation within the view. Although the elements of the project reflect similar elements within the highway corridor, the skyline trees provided a vividness that would be missing with the new elements. New plantings would eventually replace some of the vividness lost to construction. Overall, viewer sensitivity is anticipated to be high.

Figure 24: Key Viewpoint #25 in the Santa Cruz-Arana Gulch Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-7A: HOV Lane Alternative, Key Viewpoint #25
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	4.07	1.66	
	Intactness	4.08	2.08	
	Unity	3.50	2.43	
	TOTAL[6]	**3.88**	**2.06**	Percent Change = 46.91% = High degree of change
VISUAL CHARACTER[2]	Scale	3.67	2.40	
	Diversity	3.75	2.10	
	Continuity	4.17	2.50	
	Dominance	4.33	1.93	
	TOTAL[6]	**3.98**	**2.23**	Percent Change = 43.97% = High degree of change
VIEWER EXPOSURE[3]	Location of Views	3.85		
	Number of Viewers	3.25		
	Duration of Views	3.10		
	TOTAL[6]	**3.40**		Moderately High Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	4.25		
	Viewer Awareness	4.50		
	Local Values and Goals	5.00		
	TOTAL[6]	**4.58**		High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: The resulting impact for highway travelers and those on the Soquel Drive Bridge is expected to be high right after construction. With time, new plantings would return some of the existing character lost during construction, but the change in character and quality would remain high. The degree of change to both the visual quality and the visual character of the view is anticipated to be high, as is the viewer sensitivity.

The information from Table 6.1-7A on the anticipated changes to the visual environment is carried forward to Table 6.1-7B, as shown in the light blue column.

Table 6.1-7B: HOV Lane Alternative, Key Viewpoint #25 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**High**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**High**	**High**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderately High**	VIEWER RESPONSE	**High**
	VIEWER SENSITIVITY	**High**	**High**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.1.8. Key Viewpoint #27 Analysis

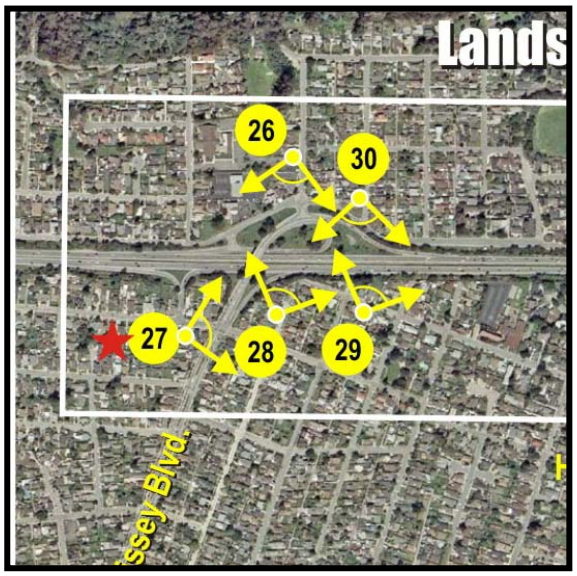


Figure 25: Key Viewpoint #27 Location Map, HOV Lane Alternative

Orientation: The photograph was taken from the southwest corner of the Fairmount Avenue-Morrissey Boulevard intersection within the Santa Cruz-Arana Gulch Landscape Unit. The orientation is looking to the northeast, and the view is from the perspective of the local resident.

Existing Visual Character/Quality: The overall character of this portion of the project corridor is suburban in development type, with single-family detached homes predominant in the area. The existing intersection has residences on all four corners. The existing highway on-ramps to southbound Route 1 can be seen in the mid-ground, as can the approach to the Morrissey Boulevard Bridge over Route 1. The overall visual quality of the view is moderate, with moderate vividness and intactness, and moderately high unity.

Proposed Project Features: Under the HOV Lane Alternative, the southbound on-ramp connection would be moved farther away from this intersection and the residences. The Morrissey Boulevard Bridge would be replaced. Within the Fairmount Avenue intersection, a landscaped median would be placed through the intersection to prevent left turns into or out of Fairmount Avenue.

Changes to Visual Character: From this vantage point, the improvements would create a minor change to the visual environment. The replacement of the bridge would not feature prominently in this view, although the approaches may shift slightly. The realignment of the on-ramp should pull the existing curb slightly away from the residences the closer one moves to the new ramp location. Overall, the change in visual character is anticipated to be moderately low.

Anticipated Viewer Response: Residents would have long duration views to the proposed changes. Given that the highway ramp would move farther away from this intersection, views should improve for this user group. Within this view, much else remains similar to existing; however, the landscaping that currently buffers the yellow house across the intersection would be removed by the project. Overall, viewer sensitivity is expected to be moderately high given the location of the residences in relation to the ramp.

Figure 26: Key Viewpoint #27 in the Santa Cruz-Arana Gulch Landscape Unit, HOV Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.1-8A: HOV Lane Alternative, Key Viewpoint #27
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	2.83	2.87	
	Intactness	3.10	3.07	
	Unity	3.58	3.92	
	TOTAL[6]	**3.17**	**3.28**	Percent Change = 3.47% = Low degree of change
VISUAL CHARACTER[2]	Scale	2.83	3.17	
	Diversity	3.6	3.65	
	Continuity	3.5	3.33	
	Dominance	3.5	3.33	
	TOTAL[6]	**3.36**	**3.37**	Percent Change = 0.30% = Low degree of change
VIEWER EXPOSURE[3]	Location of Views	4.00		
	Number of Viewers	2.50		
	Duration of Views	4.00		
	TOTAL[6]	**3.50**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.50		
	Viewer Awareness	3.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.92**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: The resulting visual impact from the changes is considered moderate; although the overall changes to the visual character and quality are low, it is anticipated that the moderately high viewer exposure and sensitivity would increase the response to the changes. Most of the change comes from the removal of the vegetation within the ROW that currently screens the existing yellow house and the addition of a planted median along Morrissey Boulevard.

The information from Table 6.1-8A on the anticipated changes to the visual environment is carried forward to Table 6.1-8B, as shown in the light blue column.

Table 6.1-8B: HOV Lane Alternative, Key Viewpoint #27 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Low**	RESOURCE CHANGE **Low**	VISUAL IMPACT **Moderate**
	CHANGE TO VISUAL QUALITY	**Low**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE **Moderately High**	
	VIEWER SENSITIVITY	**Moderately High**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.2. TIER I TSM ALTERNATIVE

For the TSM Alternative, simulations were developed for Key Viewpoints #3, #9, #16, #22, and #27. Key Viewpoint #11B is the same under the TSM Alternative as it is for the HOV Lane Alternative; refer to Section 6.1.3, Analysis for Key Viewpoint #11B, for the description of anticipated effects at this viewpoint. Key Viewpoints #23 and #25 are not affected under the TSM Alternative. Key viewpoints for the TSM Alternative are described and evaluated below.

6.2.1. Key Viewpoint #3 Analysis

Orientation: The view was taken in the Upland Landscape Unit. The photo is to the southeast along Route 1 from the Freedom Boulevard overpass. The view is from the perspective of the pedestrian/bike user on the bridge.

Figure 27: Key Viewpoint #3 Location Map, TSM Alternative

Existing Visual Character/Quality: The foreground elements include the roadway paving and the existing median. The vegetated slopes form the mid- to background of the view. The existing visual quality of this view is considered moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: Under this alternative, the southbound on-ramp would be realigned slightly in this view, and a retaining wall would be necessary along the slope next to the on-ramp. In addition to the extra lane on the ramp, ramp metering lights and signage would be included in the ramp construction.

Changes to Visual Character: The wider ramp and associated retaining wall, plus the addition of ramp metering elements, would be a minor change to the overall highway visual environment. These are all typical elements to the highway environment, although they would be new to Route 1.

Figure 28: Key Viewpoint #3 in the Upland Landscape Unit, TSM Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.2-1A: TSM Alternative, Key Viewpoint #3
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.05	3.05	
	Intactness	2.62	2.65	
	Unity	2.67	2.68	
	TOTAL[6]	**2.78**	**2.79**	Percent Change = 0% = Low degree of change
VISUAL CHARACTER[2]	Scale	3.67	3.17	
	Diversity	3.13	3.02	
	Continuity	2.90	2.83	
	Dominance	3.27	3.10	
	TOTAL[6]	**3.24**	**3.09**	Percent Change = 4.63% = Low degree of change
VIEWER EXPOSURE[3]	Location of Views	2.80		
	Number of Viewers	2.50		
	Duration of Views	1.75		
	TOTAL[6]	**2.35**		Moderately Low Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.00		
	Viewer Awareness	2.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.42**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Anticipated Viewer Response: The freeway serves more than 80,000 travelers per day, although this southern end of the project would be expected to have less than the more-developed northern stretch. For highway travelers, the duration though this stretch of the corridor would be less than a minute, and unless they were on the ramp, they would be less likely to notice the change to the ramp due to their focus being on the road ahead. Overall, viewer sensitivity would be moderate, given the number of viewers and the community's goals and values.

Resulting Visual Impact: The resulting visual impact from the changes would be considered moderately low. The degree of change to both the visual quality and the visual character is anticipated to be low from this viewpoint.

The information from Table 6.2-1A on the anticipated changes to the visual environment is carried forward to Table 6.2-1B, as shown in the light blue column.

Table 6.2-1B: TSM Alternative, Key Viewpoint #3
Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Low**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Low**	**Low**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderately Low**	VIEWER RESPONSE	**Moderately Low**
	VIEWER SENSITIVITY	**Moderate**	**Moderate**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.2.2. Key Viewpoint #9 Analysis

Figure 29: Key Viewpoint #9 Location Map, TSM Alternative

Orientation: The photo is taken in the Aptos Landscape Unit at the southern railroad bridge crossing. The view is to the west along the northbound lanes of Route 1. The view is from the perspective of the highway traveler.

Existing Visual Character/Quality: The character of this portion of the highway is one of a very well-vegetated corridor that helps to isolate the highway within the landscape. The amount, maturity, and closeness to the highway of the vegetation create a much more intimate appearance to the highway and its elements and reduce its overall scale in the environment. The existing visual quality of this area is considered moderately high, with moderately high vividness and intactness with moderate unity. Much of this rating is due to the existing vegetation that overhangs the highway and frames the existing railroad bridge, while the bridge and its aged appearance detract from the view.

Proposed Project Features: Under this alternative, the railroad bridge would be replaced and the highway profile lowered to meet clearance requirements for the bridge. The highway would be wider than existing, with one extra 12-foot-wide lane in each direction and paved shoulders to meet standards. The wider roadway would equate to a longer bridge. Sound walls would also be located in the area of the new bridge and would block views into the surrounding landscape.

Changes to Visual Character: The most notable change to the existing visual environment would be the removal of the mature vegetation and overhanging trees within this view and the addition of view-blocking sound walls. The large eucalyptus trees that frame the existing bridge and much of the roadside vegetation would be removed. In addition, the roadway would appear wider and the bridge longer than existing. The proposed setback of the sound walls would allow for some planting between the barrier and the walls, most likely vines and shrubs; however, it is not likely that trees could be included due to roadway setback requirements, and the views into the surrounding landscape would not be restored. Changes to the visual character are anticipated to be moderately low.

Figure 30: Key Viewpoint #9 in the Aptos Landscape Unit, TSM Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.2-2A: TSM Alternative, Key Viewpoint #9
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.75	2.50	
	Intactness	3.52	2.23	
	Unity	3.25	2.32	
	TOTAL[6]	**3.51**	**2.35**	Percent Change = 33.05% = Moderately High degree of change
VISUAL CHARACTER[2]	Scale	3.75	2.03	
	Diversity	3.17	2.15	
	Continuity	3.45	2.43	
	Dominance	3.62	2.17	
	TOTAL[6]	**3.50**	**2.19**	Percent Change = 37.43% = Moderately High degree of change
VIEWER EXPOSURE[3]	Location of Views	3.00		
	Number of Viewers	4.25		
	Duration of Views	2.50		
	TOTAL[6]	**3.25**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.10		
	Viewer Awareness	3.20		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.60**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Anticipated Viewer Response: The duration of the view would likely be several seconds to less than a minute for travelers in the portion of the corridor shown in the photograph. Viewer sensitivity to the changes is expected to be moderate to high, given the importance of vegetation and large trees, in particular, within the community. The primary viewer groups affected would be highway travelers, including daily commuters and occasional motorists and tourists. Regular travelers would be most sensitive to the changes, while the occasional motorists and tourists would most likely not be aware of the changes. Overall, viewer sensitivity is expected to be moderately high given the number of viewers and the community's goals and values.

Resulting Visual Impact: Adverse changes to the existing view are expected to be moderate. It is expected that the sound walls would permanently block views out from the corridor. The height of the vegetation behind the wall allows for some "borrowed landscape" effect, and the use of vines and shrub plantings could help soften the appearance of the wall. The overall visual quality, with minimization is anticipated to be moderate with moderate vividness, intactness, and unity.

The information from Table 6.1-2A on the anticipated changes to the visual environment is carried forward to Table 6.1-2B, as shown in the light blue column.

Table 6.2-2B: TSM Alternative, Key Viewpoint #9 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderately High**	RESOURCE CHANGE **Moderately High**	VISUAL IMPACT **Moderate High**
	CHANGE TO VISUAL QUALITY	**Moderately High**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE **Moderately High**	
	VIEWER SENSITIVITY	**Moderately High**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.2.3. Key Viewpoint #16 Analysis

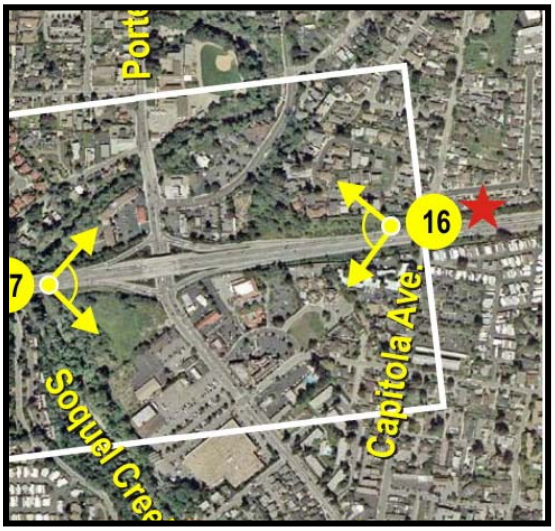


Figure 31: Key Viewpoint #16 Location Map, TSM Alternative

Orientation: This photo was taken in the Capitola-Soquel Landscape Unit looking northbound on Route 1. The orientation is to the west, and the view is from the perspective of the pedestrian/bike user on the bridge.

Existing Visual Character/Quality: The view shows the four-lane highway and vegetated side slopes. The character is typical of what could be anticipated along highway areas in this part of California. The visual quality is moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: Given the overview of the corridor presented in this image, the general improvements can be seen between the Bay Avenue/Porter Street interchange and the 41st Avenue Bridge in the background. The 41st Avenue Bridge would be replaced, and a retaining wall would be placed along the highway and its on- and off-ramps. New roadside barriers would also be added. Because the Capitola Avenue Bridge would also be replaced, new fencing would be expected along the bridge barrier rail.

Changes to Visual Character: The additional highway elements, together with the associated removal of much of the existing vegetation in this portion of the corridor, would create a more urban appearance to the highway. The softening effects of the vegetation would be removed in the short term. In the long term, as new plantings grow, this would diminish. Overall, the anticipated changes to the visual character are anticipated to be low.

Anticipated Viewer Response: Approximately 100,000 travelers drive this portion of the highway on a daily basis. The duration of views would run several minutes to traverse this portion of the corridor. For those on the bridge, the view time is anticipated to be less than a minute, although viewers would have clear views into the corridor. It is anticipated that viewers would be very sensitive to the vegetation removal, but the overall viewer sensitivity is anticipated to be moderate.

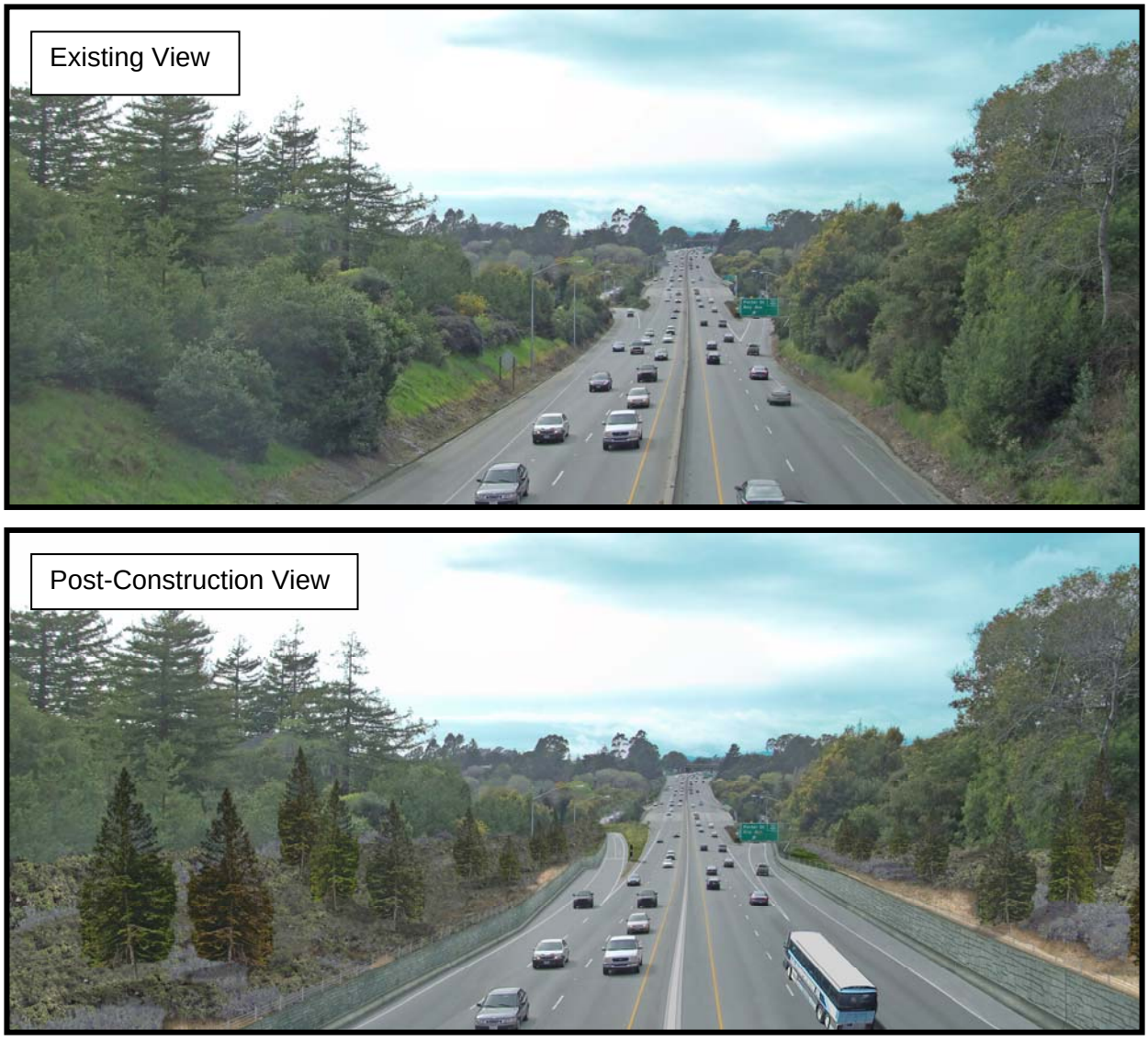


Figure 32: Key Viewpoint #16 in the Soquel-Capitola Landscape Unit, TSM Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.2-3A: TSM Alternative, Key Viewpoint #16
Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.28	2.52	
	Intactness	3.28	2.75	
	Unity	3.25	2.83	
	TOTAL[6]	**3.27**	**2.70**	Percent Change = 17.43% = Moderately Low degree of change
VISUAL CHARACTER[2]	Scale	3.25	2.89	
	Diversity	2.50	2.21	
	Continuity	3.00	2.47	
	Dominance	3.67	2.63	
	TOTAL[6]	**3.10**	**2.55**	Percent Change = 17.74% = Moderately Low degree of change
VIEWER EXPOSURE[3]	Location of Views	2.62		
	Number of Viewers	2.50		
	Duration of Views	3.00		
	TOTAL[6]	**2.71**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	2.75		
	Viewer Awareness	3.10		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.45**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: Similar to the effects described in the previous alternative, under the TSM Alternative, the resulting impact of the highway expansion in this area would be to create a more urban appearance to the highway corridor. The additional lanes, combined with the walls and barriers, would expand the hard surfaces within the view. The removal of the mature vegetation and the replacement with new plantings would tend to increase the appearance of the hard surfaces because the softening effects of vegetation would take many years to be realized. The overall visual impact is anticipated to be moderate, with a low degree of change in both the visual character as well as the visual quality of the view.

The information from Table 6.2-3A on the anticipated changes to the visual environment is carried forward to Table 6.2-3B, as shown in the light blue column.

Table 6.2-3B: TSM Alternative, Key Viewpoint #16 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderately Low**	RESOURCE CHANGE **Moderately Low**	VISUAL IMPACT **Moderate**
	CHANGE TO VISUAL QUALITY	**Moderately Low**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE **Moderate**	
	VIEWER SENSITIVITY	**Moderate**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.2.4. Key Viewpoint #22 Analysis

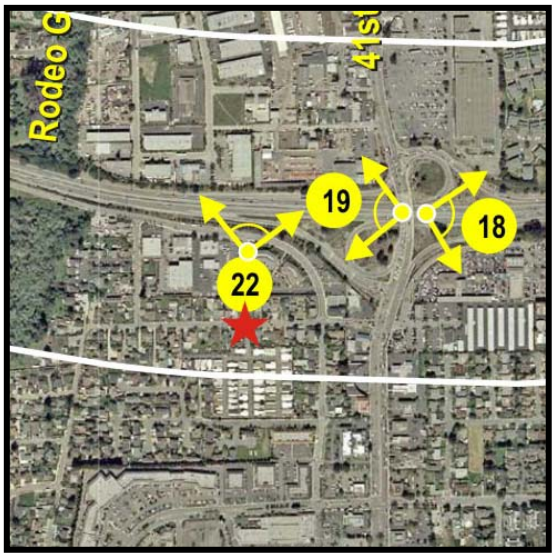


Figure 33: Key Viewpoint #22 Location Map, TSM Alternative

Orientation: This photo was taken in the Capitola-Soquel Landscape Unit looking northeast towards the 41st Avenue southbound off-ramp. The view is from the community, just off of the sidewalk along Soquel Avenue.

Existing Visual Character/Quality: In the foreground of the view can be seen the southbound off-ramp paving, with the interchange plantings associated with the 41st Avenue interchange in the mid-ground. The 41st Avenue Bridge can be seen in the background of the image. The view is of a well-landscaped interchange. The overall visual quality of the view is moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: From this vantage point, the viewer would see minor widening to the ramps and the addition of ramp metering devices. In addition, the existing bridge would be replaced with a new, slightly longer structure. Existing vegetation within the interchange would be removed as part of the stormwater quality portion of the project.

Changes to Visual Character: The removal of the existing vegetation would be the most noticeable element to the project. The improvements to the ramps and the replacement of the bridge with a new, but similar, structure would not largely impact the view.

Anticipated Viewer Response: The Soquel Avenue frontage road has substantially fewer drivers per day than the freeway, but it is an active arterial road for the community. Portions of the view into this area would be obscured by existing buildings. In addition, any plantings along the edge of the ROW would further obscure views into the interchange from this vantage point. The overall viewer sensitivity is anticipated to be moderate.

Resulting Visual Impact: The overall visual quality of the interchange area would likely be reduced from the existing under this alternative by the removal of the existing vegetation. There would be an overall moderate degree of visual impact to the view, with a moderate degree of change anticipated in both the visual character and the visual quality of the view.

Figure 34: Key Viewpoint #22 in the Soquel-Capitola Landscape Unit, TSM Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.2-4A: TSM Alternative, Key Viewpoint #22
Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.31	2.45	
	Intactness	3.22	2.60	
	Unity	3.12	2.32	
	TOTAL[6]	**3.22**	**2.46**	Percent Change = 23.60% = Moderate degree of change
VISUAL CHARACTER[2]	Scale	3.67	2.45	
	Diversity	3.07	2.51	
	Continuity	3.33	2.79	
	Dominance	3.17	2.82	
	TOTAL[6]	**3.31**	**2.64**	Percent Change = 20.24% = Moderate degree of change
VIEWER EXPOSURE[3]	Location of Views	2.75		
	Number of Viewers	2.50		
	Duration of Views	3.00		
	TOTAL[6]	**2.75**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	2.50		
	Viewer Awareness	2.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.25**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

The information from Table 6.2-4A on the anticipated changes to the visual environment is carried forward to Table 6.2-4B, as shown in the light blue column.

Table 6.2-4B: TSM Alternative, Key Viewpoint #22
Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderate**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Moderate**	**Moderate**	
				Moderate
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE	
	VIEWER SENSITIVITY	**Moderate**	**Moderate**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.2.5. Key Viewpoint #27 Analysis

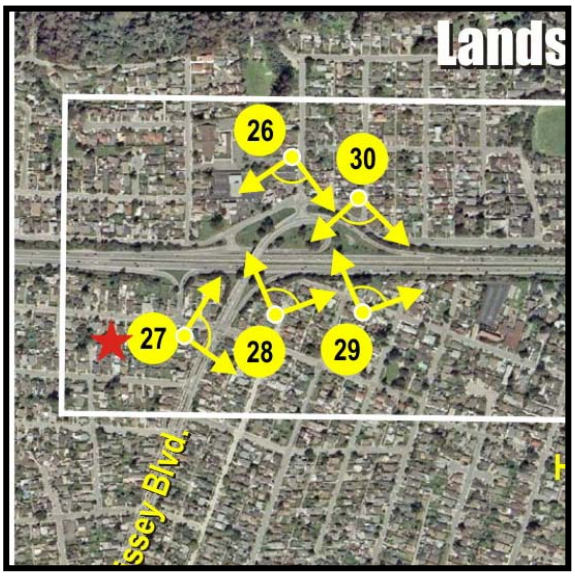


Figure 35: Key Viewpoint #27 Location Map, TSM Alternative

Orientation: The photograph was taken from the southwest corner of the Fairmount Avenue/ Morrissey Boulevard intersection within the Santa Cruz-Arana Gulch Landscape Unit. The orientation is looking to the northeast, and the view is from the perspective of the local resident.

Existing Visual Character/Quality: The overall character of this portion of the project corridor is suburban in development type, with single-family detached homes predominant in the area. The existing intersection has residences on all four corners. The existing highway on-ramps to southbound Route 1 can be seen in the mid-ground, as can the approach to the Morrissey Boulevard Bridge over Route 1. The overall visual quality of the view is moderate, with moderate vividness and intactness, and moderately high unity.

Proposed Project Features: Under the TSM Alternative, the southbound on-ramp connection would be widened slightly to the edge of the ROW line. Ramp metering devices would be added to the visual environment of the ramp.

Changes to Visual Character: From this vantage point, the proposed highway improvements would create a minor change to the visual environment. The widening of the ramp would cause removal of existing vegetation along the ROW fence; however, the addition of a vegetated median would reduce the visual presence of Morrissey Boulevard to the pedestrians, and the additional vegetation could be anticipated to enhance the existing view.

Anticipated Viewer Response: Residents would have long-duration views to the proposed changes. Given that the highway ramp moves farther away from this intersection, the views should improve for this user group. Within this view, much else remains; however, the landscaping that currently buffers the yellow house across the intersection would be removed by the project. Overall viewer sensitivity is expected to be moderately high, given the location of the residences in relation to the ramp.

Figure 36: Key Viewpoint #27 in the Santa Cruz-Arana Gulch Landscape Unit, TSM Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.2-5A: TSM Alternative, Key Viewpoint #27
Anticipated Changes in Visual Character and Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	2.83	2.80	
	Intactness	3.10	2.97	
	Unity	3.58	3.38	
	TOTAL[6]	**3.17**	**3.05**	Percent Change = 3.78% = Low degree of change
VISUAL CHARACTER[2]	Scale	2.83	2.77	
	Diversity	3.60	3.47	
	Continuity	3.50	3.40	
	Dominance	3.50	3.28	
	TOTAL[6]	**3.36**	**3.23**	Percent Change = 3.87% = Low degree of change
VIEWER EXPOSURE[3]	Location of Views	4.00		
	Number of Viewers	2.50		
	Duration of Views	4.10		
	TOTAL[6]	**3.53**		Moderately High Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.75		
	Viewer Awareness	3.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.92**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Resulting Visual Impact: The resulting visual impact from the changes is considered moderate; although the overall changes to the visual character and quality are low, it is anticipated that the moderately high viewer exposure and sensitivity would accentuate the response to the changes. Most of the change comes from the removal of the vegetation within the ROW that currently screens the existing yellow house.

The information from Table 6.2-5A on the anticipated changes to the visual environment is carried forward to Table 6.2-5B, as shown in the light blue column.

Table 6.2-5B: TSM Alternative, Key Viewpoint #27
Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Low**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Low**	**Low**	
VIEWER (Response)	VIEWER EXPOSURE	**Moderately High**	VIEWER RESPONSE	**Moderate**
	VIEWER SENSITIVITY	**Moderately High**	**Moderately High**	

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.3. TIER II PROJECT ALTERNATIVE

For the Tier II Auxiliary Lane Alternative, simulations were developed for Key Viewpoints #19B, #21B, and #22. The remaining key viewpoints fall outside of the project area for the Tier II project. Key viewpoints for the Tier II project are described and evaluated below:

6.3.1. Key Viewpoint #19B Analysis

Orientation: The photograph was taken from the median of Route 1 within the Soquel-Capitola Landscape Unit. The orientation of the photograph is looking westward along the northbound lanes.

Existing Visual Character/Quality: The overall character of this portion of the project corridor is that of a four-lane highway, with the wide paved surface and median guardrail prominent in the view. The existing vegetation on either side of the highway somewhat limits the views out from the highway corridor, but it does not entirely block the view. The overall visual quality of the view is moderate, with moderate vividness, intactness, and unity.

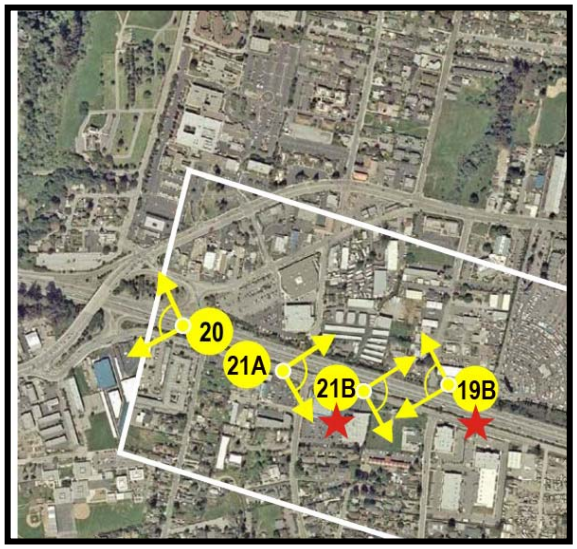


Figure 37: Key Viewpoint #19B Location Map, Tier II Project Alternative

Proposed Project Features: Under the Tier II Auxiliary Lane Alternative, the highway would be widened to three lanes in each direction. A bicycle/pedestrian bridge would be constructed over the highway. Visible bridge elements would include the columns, girders, and fencing. The ramps, which would parallel the highway, would also be a new visible element. The visibility of elements would be increased by the associated removal of roadside vegetation around the bridge and ramp structures, particularly along the NB lanes of Route 1.

Changes to Visual Character: From this vantage point, the improvements would create a minor change to the visual environment. The proposed bridge and associated ramps would be the most noticeable elements, but from the perspective of the traveler on the freeway, this would be consistent with the other existing bridges that already cross over the highway. The removal of vegetation adjacent to the highway, particularly where the ramp is placed, would reduce the vegetated edges to the highway within this view (along the northbound lanes), replacing it with one that is less well vegetated and screened.

In approaching this viewpoint, a traveler on northbound Route 1 beneath the 41st Avenue overcrossing and would begin to see the new bridge and its access ramp on the right side of the highway, just off of the shoulder. These elements would become increasingly prominent to the viewer until crossing under the bridge. It is not likely that the ramp structure can be screened by vegetation given its proximity to the roadway and the required Caltrans setbacks for plantings. Southbound travelers would not see any ramp structure until they pass under the bridge, and even then they would not figure prominently to these viewers since one ramp is adjacent to Soquel Avenue and the existing vegetation between the highway and Soquel Avenue will largely remain in place and the other ramp is across the highway from the southbound lanes.

Figure 38: Key Viewpoint #19B in the Soquel-Capitola Landscape Unit, Tier II Auxiliary Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.3-1A: Tier II Project Alternative, Key Viewpoint #19B
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.45	2.27	
	Intactness	3.40	2.13	
	Unity	3.23	2.28	
	TOTAL[6]	**3.36**	**2.23**	Percent Change = 33.63% = Moderately High degree of change
VISUAL CHARACTER[2]	Scale	3.35	2.43	
	Diversity	2.83	2.11	
	Continuity	3.18	2.24	
	Dominance	3.67	2.47	
	TOTAL[6]	**3.47**	**2.31**	Percent Change = 33.43% = Moderately High degree of change
VIEWER EXPOSURE[3]	Location of Views	4.50		
	Number of Viewers	4.50		
	Duration of Views	1.75		
	TOTAL[6]	**3.58**		Moderately High Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	4.50		
	Viewer Awareness	4.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**4.58**		High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Anticipated Viewer Response: Because the new bridge would cross over the highway, it would be prominent to the viewers traveling on the highway; however, for these viewers, bridge crossings are expected in a highway environment, and the change created by the new bridge is expected to be minor. For travelers in the northbound lanes, the removal of the vegetation along the edge of the highway and its replacement with the access ramp would likely be a change that alters the current appearance of the highway, removing the vegetated edge to the highway. For the community adjacent to the highway, the removal of this vegetation would allow views into the corridor that are currently at least partially screened by the existing vegetation.

Resulting Visual Impact: The resulting visual impact from the changes is anticipated to be moderately high, with a moderately high degree of change to both the visual character as well as the visual quality of the view. It is anticipated that viewer exposure and sensitivity would accentuate the response to the changes. Most of the change would come from the construction of the bridge and ramp structure combined with the removal of the vegetation from within the ROW.

The information from Table 6.3-1A on the anticipated changes to the visual environment is carried forward to Table 6.3-1B, as shown in the light blue column.

Table 6.3-1B: Tier II Project Alternative, Key Viewpoint #19B Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderately High**	RESOURCE CHANGE **Moderately High**	VISUAL IMPACT **Moderately High**
	CHANGE TO VISUAL QUALITY	**Moderately High**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderately High**	VIEWER RESPONSE **High**	
	VIEWER SENSITIVITY	**High**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.3.2. Key Viewpoint #21B Analysis

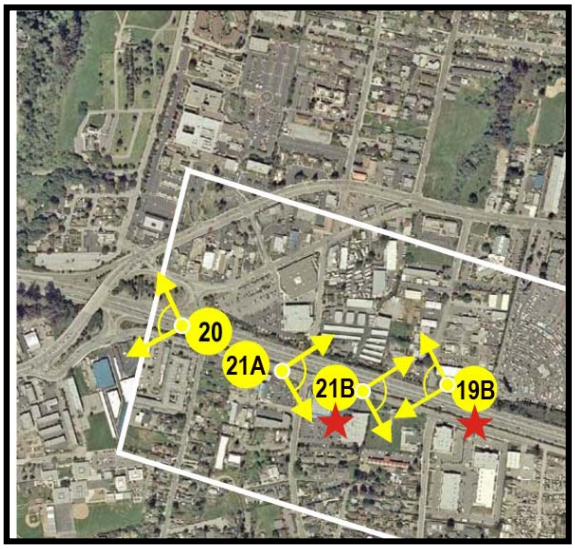


Figure 39: Key Viewpoint #21B Location Map, Tier II Project Alternative

Orientation: This photo was taken in the Capitola-Soquel Landscape Unit east along Soquel Avenue from approximately 17th Avenue.

Existing Visual Character/Quality: The fore- and mid-ground shows the streetscape currently found along Soquel Avenue on the left side of the roadway and the existing vegetation between the highway and Soquel Avenue on the right side of the roadway. The overall visual rating for the existing environment is moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: The proposed pedestrian bridge would cross over Soquel Avenue at approximately the high spot in the roadway; therefore, the bridge would appear prominently over the roadway. Elements included in the view would be the concrete structure of the bridge – columns, girders and deck – and the safety fencing on the deck. From this vantage point, the access ramp would not be visible because it would be blocked from the viewer by the existing streetscape plantings. However, as the traveler moves southbound on Soquel Avenue, the ramp elements -- columns, girders, decking, fencing, (and retaining wall near the end of the ramp where it meets the Soquel Avenue sidewalk) would become increasingly prominent to the viewer until they passed under the bridge where the ramp would fill the view on the right side of the vehicle.

Changes to Visual Character: The new bridge would be prominent to travelers on the roadway and to pedestrians on the sidewalk. Because there currently is no bridge (and associated access ramps) that crosses over the road, this would be a new element to the streetscape along Soquel Avenue. Most of the existing vegetation between Route 1 and Soquel Avenue in this view should remain, with only that vegetation in the immediate area of the bridge removed by the construction.

In approaching this viewpoint, a traveler on southbound Soquel Avenue would begin to see the new bridge and its access ramp on the right side of the roadway beginning at just before Paul Minnie Avenue as Soquel Avenue begins paralleling Route 1. The structures would

become increasingly prominent to the viewer as they approached the bridge with the ramp becoming more visible after crossing under the bridge. It is not likely that the ramp structure can be screened by vegetation given its proximity to the back of the sidewalk. Northbound travelers would see any ramp structure as they approach the bridge. This would be to their left, across the southbound and parking lanes along Soquel Avenue. Existing vegetation between Soquel Avenue and Route 1 is anticipated to remain and would provide a partial screening of portions of the bridge for both northbound and southbound drivers.

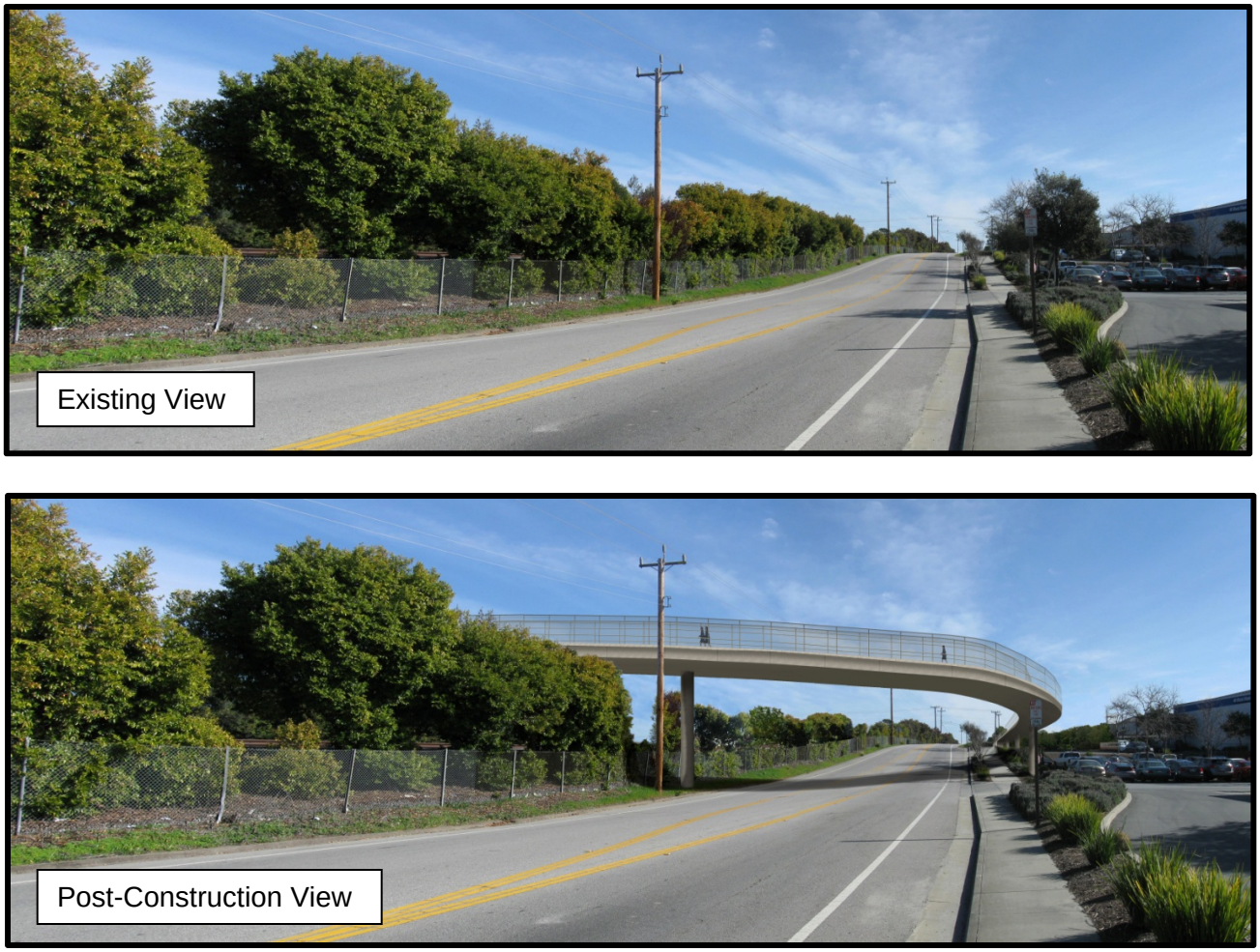


Figure 40: Key Viewpoint #21B in the Soquel-Capitola Landscape Unit, Tier II Auxiliary Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.3-2A: Tier II Project Alternative, Key Viewpoint #21B
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.42	2.43	
	Intactness	3.24	2.07	
	Unity	3.36	2.14	
	TOTAL[6]	**3.34**	**2.21**	Percent Change = 33.83% = Moderately High degree of change
VISUAL CHARACTER[2]	Scale	3.53	2.43	
	Diversity	3.13	2.22	
	Continuity	3.35	2.13	
	Dominance	3.42	2.45	
	TOTAL[6]	**3.36**	**2.31**	Percent Change = 31.25% = Moderately High degree of change
VIEWER EXPOSURE[3]	Location of Views	2.75		
	Number of Viewers	2.50		
	Duration of Views	3.00		
	TOTAL[6]	**2.75**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	3.50		
	Viewer Awareness	3.24		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.75**		Moderately High Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

Anticipated Viewer Response: The Soquel Avenue frontage road has substantially fewer drivers per day then the highway, but it is an active arterial road for the community. The bridge would be a new element to the existing view. The overall viewer sensitivity is anticipated to be moderately high with a moderate viewer exposure.

Resulting Visual Impact: The resulting visual impact from the changes is considered moderately high – both the overall degree of change to the visual character and quality are anticipated to be moderately high. It is anticipated that viewer exposure and sensitivity would increase the response to the changes. The most noticeable difference in this view would be the bridge over the roadway. The addition of this new structure, and its associated ramp, would bring new elements to the viewshed of Soquel Avenue, one with elements not typical to a local street.

The information from Table 6.3-2A on the anticipated changes to the visual environment is carried forward to Table 6.3-2B, as shown in the light blue column.

Table 6.3-2B:Tier II Project Alternative, Key Viewpoint #21B Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderately High**	RESOURCE CHANGE **Moderately High**	VISUAL IMPACT **Moderately High**
	CHANGE TO VISUAL QUALITY	**Moderately High**		
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE **Moderately High**	
	VIEWER SENSITIVITY	**Moderately High**		

Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.3.3. Key Viewpoint #22 Analysis

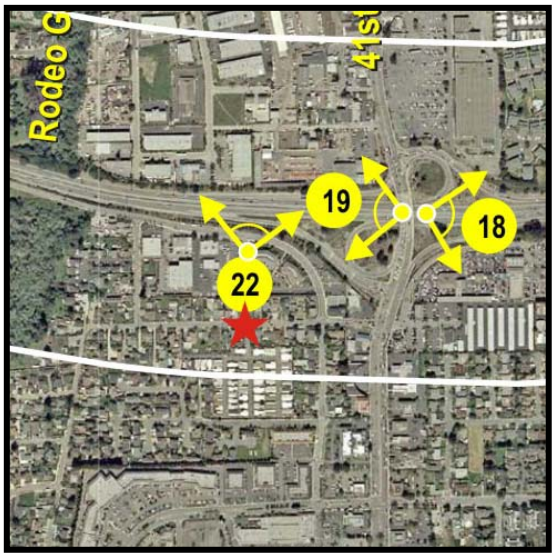


Figure 41: Key Viewpoint #22 Location Map, Tier II Project Alternative

Orientation: This photo was taken in the Capitola-Soquel Landscape Unit looking northeast towards the 41st Avenue southbound off-ramp. The view is from the community, just off of the sidewalk along Soquel Avenue.

Existing Visual Character/Quality: In the foreground of the view can be seen the southbound off-ramp paving, with the interchange plantings associated with the 41st Avenue interchange in the mid-ground. The 41st Avenue Bridge can be seen in the background of the image. The view is of a well-landscaped interchange. The overall visual quality of the view is moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: From this vantage point, the viewer would see minor widening to the ramps and the addition of ramp metering devices. Existing vegetation within the interchange would be removed as part of the stormwater quality portion of the project.

Changes to Visual Character: The removal of the existing vegetation would be the most noticeable element to the project. The improvements to the ramps would not be make as large an impact to the view.

Anticipated Viewer Response: The Soquel Avenue frontage road has substantially fewer drivers per day than the freeway, but it is an active arterial road for the community. Portions of the view into this area would be obscured by existing buildings. In addition, any plantings along the edge of the right-of-way would further obscure views into the interchange from this vantage point. The overall viewer sensitivity is anticipated to be moderate.

Resulting Visual Impact: The overall visual quality of the interchange area would likely be reduced from the existing under this alternative by the removal of the existing vegetation. There would be an overall moderate degree of visual impact to the view, with a moderate degree of change anticipated in both the visual character and the visual quality of the view.

Figure 42: Key Viewpoint #22 in the Soquel-Capitola Landscape Unit, Tier II Auxiliary Lane Alternative

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect.

Table 6.3-3A: Tier II Project Alternative, Key Viewpoint #22
Anticipated Changes in Visual Character and Quality,
and Their Effect on Viewers

	ATTRIBUTE	RATINGS[7]		REMARKS (Anticipated changes are shown in the blue rows)
		EXISTING CONDITION	PROPOSED CONDITION[5]	
VISUAL QUALITY[1]	Vividness/Memorability	3.31	2.45	
	Intactness	3.22	2.60	
	Unity	3.12	2.32	
	TOTAL[6]	**3.22**	**2.46**	Percent Change = 23.60% = Moderate degree of change
VISUAL CHARACTER[2]	Scale	3.67	2.45	
	Diversity	3.07	2.51	
	Continuity	3.33	2.79	
	Dominance	3.17	2.82	
	TOTAL[6]	**3.31**	**2.64**	Percent Change = 20.24% = Moderate degree of change
VIEWER EXPOSURE[3]	Location of Views	2.75		
	Number of Viewers	2.50		
	Duration of Views	3.00		
	TOTAL[6]	**2.75**		Moderate Exposure
VIEWER SENSITIVITY[4]	Attention of Viewer	2.50		
	Viewer Awareness	2.75		
	Local Values and Goals	4.50		
	TOTAL[6]	**3.25**		Moderate Sensitivity

1 – Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1). A rating below 1 would only be used for an extremely low rating.

2 – Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1). A rating below 1 would only be used for an extremely low rating.

3 – Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (5) to less than 1 minute (1). A rating below 1 would only be used for an extremely low rating.

4 – Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1). A rating below 1 would only be used for an extremely low rating.

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 7 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Low, 4 = Moderate, 5 = High

The information on the anticipated changes to the visual environment from Table 6.3-3A is carried forward to Table 6.3-3B, as shown in the light blue column.

Table 6.3-3B: Tier II Project Alternative, Key Viewpoint #22 Analysis Summary

VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	**Moderate**	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	**Moderately Low**	**Moderate**	
				Moderate
VIEWER (Response)	VIEWER EXPOSURE	**Moderate**	VIEWER RESPONSE	
	VIEWER SENSITIVITY	**Moderate**	**Moderate**	

Ratings for each category were determined by taking the percent change ratings from the previous table and averaging these for the Resource Change/Viewer Response columns. These two ratings were then averaged again to determine the anticipated Visual Impact. If unable to average, the higher rating was used.

6.4. SUMMARY OF ANTICIPATED CHANGES BY KEY VIEWPOINTS

Table 6.4-1 provides a summary of findings from each key viewpoint's analysis for the anticipated change to the visual resource, the anticipated viewer response to that change, and the overall anticipated visual impact for each alternative.

Table 6.4-1
Summary of Anticipated Visual Impacts by Key Viewpoint and Alternative

KEY VIEWPOINT	ANTICIPATED CHANGE TO VISUAL RESOURCE	ANTICIPATED VIEWER RESPONSE	ANTICIPATED VISUAL IMPACT
TIER I HOV LANE ALTERNATIVE			
Key Viewpoint #3	Moderately Low	Moderate	Moderate
Key Viewpoint #9	Moderately High	Moderately High	Moderately High
Key Viewpoint #11B*	Moderate	Moderately High	Moderately High
Key Viewpoint #16	Moderate	Moderate	Moderate
Key Viewpoint #22	Moderate	Moderate	Moderate
Key Viewpoint #23	Low	Moderate	Moderate
Key Viewpoint #25	High	High	High
Key Viewpoint #27	Low	Moderate	Moderate
TIER I TSM ALTERNATIVE			
Key Viewpoint #3	Low	Moderate	Moderately Low
Key Viewpoint #9	Moderately High	Moderately High	Moderately High
Key Viewpoint #16	Moderately Low	Moderate	Moderate
Key Viewpoint #22	Moderate	Moderate	Moderate
Key Viewpoint #27	Low	Moderate	Moderate
TIER II AUXILIARY LANE ALTERNATIVE			
Key Viewpoint #19B	Moderately High	High	Moderately High
Key Viewpoint #21B	Moderately High	Moderately High	Moderately High
Key Viewpoint #22	Moderate	Moderate	Moderate

*The image and analysis results for this key viewpoint are the same for both Tier I build alternatives.

7. Avoidance and Minimization Measures

Caltrans and FHWA mandate that a qualitative/aesthetic approach be taken to mitigate for visual quality loss in the project area. This approach seeks to replicate desirable visual qualities that are impacted by a project to restore a viewshed's original level of aesthetics. It fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality that would occur in the project viewshed when the project is implemented. It also constitutes mitigation that can more readily generate public acceptance of the project.

Visual mitigation for adverse project impacts, identified 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' design staff. The requirements are arranged by project feature and include design options in order of effectiveness. One or more of these options are to be implemented on applicable project features wherever they occur. Typical Best Management Practices (BMPs) have been incorporated as project features to minimize adverse impacts and are depicted in key viewpoint simulations.

Effective implementation of the following mitigation measures would require a multi-disciplinary design approach as required by NEPA and the Caltrans Policy and Procedures Manual.

7.1. TIER I VISUAL MEASURES

The Tier I alternatives are being considered in this report at the planning level only. Future implementation of projects would be determined as funding becomes available. In addition, the projects may be phased over time. Because it is not known when the projects would go forward, the mitigation measures described for the Tier I project would also apply to any Tier II projects moving forward, pending further environmental reviews for those projects.

Table 7.1-1
Tier I Mitigation Measures

Mitigation No.	Description	Responsible Party
Measures for Corridor Aesthetics		
VA-1	Work with the community during preliminary design to develop Aesthetic Guidelines for the project improvements through a formalized structure that allows for community input.	Santa Cruz County Regional Transportation Commission and Caltrans

Table 7.1-1
Tier I Mitigation Measures

Mitigation No.	Description	Responsible Party
Measures to Preserve Existing Vegetation		
VA-2	Beginning with preliminary design and continuing through final design and construction, save and protect as much existing vegetation in the corridor as feasible, especially eucalyptus and other skyline trees.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-3	Survey exact locations for trees and include in plan set.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-4	Protect the drip zone of isolated trees with temporary fencing.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-5	Protect large infield areas of existing plantings to be preserved with temporary fencing.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Noise Barriers		
VA-6	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the sound walls.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-7	Include vine plantings on one or both faces of sound walls wherever feasible (given Caltrans setback and maintenance requirements). If vines are only planted on one side of the wall, include vine portals in the design of the wall to accommodate vine access to both sides of the wall.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Retaining Walls		
VA-8	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the retaining walls.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Bridge Aesthetics		
VA-9	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the proposed bridges in the corridor.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Fencing and Barriers		
VA-10	If bridge rail is used at the creek crossing retaining walls, use Type 80 rail with aesthetic treatment.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-11	Include aesthetic treatment on concrete median barrier consistent with the visual character of the corridor and the adjacent community.	Santa Cruz County Regional Transportation Commission and Caltrans

Table 7.1-1
Tier I Mitigation Measures

Mitigation No.	Description	Responsible Party
VA-12	Replace existing chain link fencing between Highway 1 and the adjacent frontage roads with ornamental fencing.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Landscape Plantings		
VA-13	Beginning with preliminary design and continuing through final design and construction, landscape and revegetate disturbed areas to the greatest extent feasible.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-14	Include skyline trees in the planting palette to bring down the scale of the new freeway elements.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-15	Include infill shrub planting between Highway 1 and adjacent frontage roads to the maximum extent possible.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-16	Include vines on a minimum of 20 percent of the fencing between eastbound Highway 1 and adjacent frontage roads.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-17	Where horticulturally appropriate, provide a permanent irrigation system to all plantings.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-18	Include an extended 3-year maintenance period as part of the construction period to provide a single source of maintenance through the establishment period.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Stormwater Treatment Facilities		
VA-19	Beginning with preliminary design and continuing through final design and construction, use drainage and water quality elements, where required, that maximize the allowable landscape.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-20	Locate basins so that they would be at least 10 feet from the edge of the Caltrans plant setback to allow landscape screening to be installed.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-21	Design basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. They should be shaped in an informal, curvilinear manner.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-22	Basin slope grading should incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it should be worked into the overall design concept.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-23	Employ grading design of any ponds or swales that is	Santa Cruz County Regional Transportation

Table 7.1-1 Tier I Mitigation Measures		
Mitigation No.	**Description**	**Responsible Party**
	sympathetic to the design guidelines developed in VA-1.	Commission and Caltrans
VA-24	Locate maintenance access drives in unobtrusive areas away from local streets. Such drives should consist of inert materials or herbaceous groundcover that is visually compatible with the surrounding landscape.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-25	Basins should be designed so that chain-link perimeter fencing is not required.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-26	Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-27	Design rock slope protection to consist of aesthetically pleasing whole material with a variety of sizes.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-28	Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in non-obtrusive areas and design should appear natural.	Santa Cruz County Regional Transportation Commission and Caltrans

7.2 TIER II VISUAL MITIGATION

The following actions are recommended to address the potential adverse visual impacts to the project area, as well as community concerns over the change of visual scale of the highway corridor. With the implementation of the following mitigation measures, the overall impacts would be reduced but not eliminated.

Table 7.2-1 Tier II Mitigation Measures		
Mitigation No.	**Description**	**Responsible Party**
Measures to Preserve Existing Vegetation		
VA-1	Beginning with preliminary design and continuing through final design and construction, save and protect as much existing vegetation in the corridor as feasible, especially eucalyptus and other skyline trees.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-2	Survey exact locations for trees and include in plan set.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-3	Protect the drip zone of isolated trees with temporary fencing.	Santa Cruz County Regional Transportation

Table 7.2-1
Tier II Mitigation Measures

Mitigation No.	Description	Responsible Party
		Commission and Caltrans
VA-4	Protect large infield areas of existing plantings to be preserved with temporary fencing.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Noise Barriers (if included in final project)		
VA-5	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the sound walls.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-6	Include vine plantings on one or both faces of sound walls wherever feasible (given Caltrans setback and maintenance requirements). If vines are only planted on one side of the wall, include vine portals in the design of the wall to accommodate vine access to both sides of the wall.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Retaining Walls		
VA-7	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the retaining walls.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Bridge Aesthetics		
VA-8	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply aesthetic treatments to the proposed bridges in the corridor.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Fencing and Barriers		
VA-9	If bridge rail is used at Rodeo Gulch retaining walls, use Type 80 rail with aesthetic treatment.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-10	Include aesthetic treatment on concrete median barrier consistent with the visual character of the corridor and the adjacent community.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-11	Replace existing chain link fencing between eastbound Highway 1 and Soquel Ave. with ornamental fencing.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Landscape Plantings		
VA-12	Beginning with preliminary design and continuing through final design and construction, landscape and revegetate disturbed areas to the greatest extent feasible.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-13	Include skyline trees in the planting palette to bring down the scale of the new freeway elements.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-14	Include infill shrub planting between Highway 1 and Soquel Ave. to the maximum extent possible.	Santa Cruz County Regional Transportation

Table 7.2-1
Tier II Mitigation Measures

Mitigation No.	Description	Responsible Party
		Commission and Caltrans
VA-15	Include vines on a minimum of 20 percent of the fencing between eastbound Highway 1 and Soquel Ave.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-16	Where horticulturally appropriate, provide a permanent irrigation system to all plantings.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-17	Include an extended 3-year maintenance period as part of the construction period to provide a single source of maintenance through the establishment period.	Santa Cruz County Regional Transportation Commission and Caltrans
Measures for Stormwater Treatment Facilities		
VA-18	Beginning with preliminary design and continuing through final design and construction, use drainage and water quality elements, where required, that maximize the allowable landscape.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-19	Locate basins so that they would be at least 10 feet from the edge of the Caltrans plant setback to allow landscape screening to be installed.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-20	Design basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. They should be shaped in an informal, curvilinear manner.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-21	Basin slope grading should incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it should be worked into the overall design concept.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-22	Employ grading design of any ponds or swales that is sympathetic to the design guidelines developed in VA-1.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-23	Locate maintenance access drives in unobtrusive areas away from local streets. Such drives should consist of inert materials or herbaceous groundcover that is visually compatible with the surrounding landscape.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-24	Basins should be designed so that chain-link perimeter fencing is not required.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-25	Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings.	Santa Cruz County Regional Transportation Commission and Caltrans
VA-26	Design rock slope protection to consist of aesthetically pleasing whole material with a variety of sizes.	Santa Cruz County Regional Transportation

Table 7.2-1
Tier II Mitigation Measures

Mitigation No.	Description	Responsible Party
		Commission and Caltrans
VA-27	Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in non-obtrusive areas and design them to appear natural.	Santa Cruz County Regional Transportation Commission and Caltrans

8. References

Caltrans. April 2006. *Standard Environmental Reference*, Environmental Handbooks, Volume 1: Guidance for Compliance, Chapter 27: Visual & Aesthetics Review, http://www.dot.ca.gov/ser/

City of Capitola. 2006. *Capitola Municipal Code*, http://www.ci.capitola.ca.us/

City of Capitola. 1989 (partially updated in 2004). Capitola General Plan. http://www.ci.capitola.ca.us/capcity.nsf/ComDevIntro.html

City of Santa Cruz. February 2006. City-wide Creeks and Wetlands Management Plan, http://www.ci.santa-cruz.ca.us/

City of Santa Cruz. July 2006. *Santa Cruz Municipal Code*. http://nt2.scbbs.com/cgi-bin/om_isapi.dll?clientID=419592316&infobase=procode-1&softpage=Browse_Frame_Pg

Federal Highway Administration (FHWA). 1981. *Visual Impact Assessment for Highway Projects.*

Santa Cruz County, *County Code*. August 2009. http://www.codepublishing.com/ca/santacruzcounty

Santa Cruz County, Planning Department. February 2010. *Aptos Village Plan*. http://sccounty01.co.santa-cruz.ca.us/PLN_pdf/Aptos_Village_Plan.pdf

Santa Cruz County, Planning Department. 1994. *General Plan*, Chapters 5: Conservation and Open Space and Chapter 8: Community Design. http://www.sccoplanning.com/html/policy/general_plan.htm

Santa Cruz County, Planning Department. May 1990. *Soquel Village Plan*. http://www.sccoplanning.com/pdf/policy/soquel_redo.pdf

Santa Cruz County, Planning Department. 2006. *Riparian Corridors Brochure*. http://www.co.santa-cruz.ca.us/

Swift, Carolyn. June 2004. *Historic Context Statement for the City of Capitola*, City of Capitola, CA.

USDOT. March 1988. Federal Highway Administration, Office of Environmental Policy, *Visual Impact Assessment for Highway Projects*, U.S. Department of Transportation, Washington D.C.

Wilbur Smith Associates. 2012. *Route 1 HOV Lane Project (From Morrissey Boulevard to San Andreas Road) Traffic Operations Report.* April.

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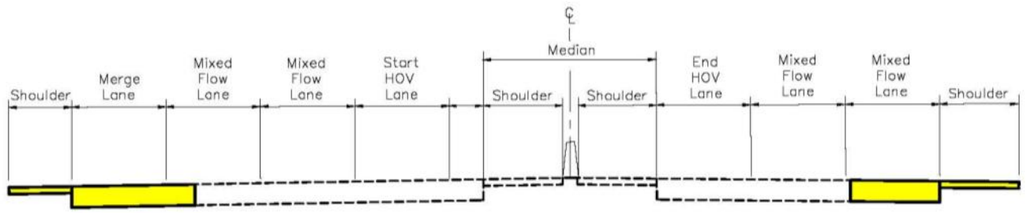
Appendix A

Figure 43: Tier I HOV Lane Alternative Plans

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	1	20

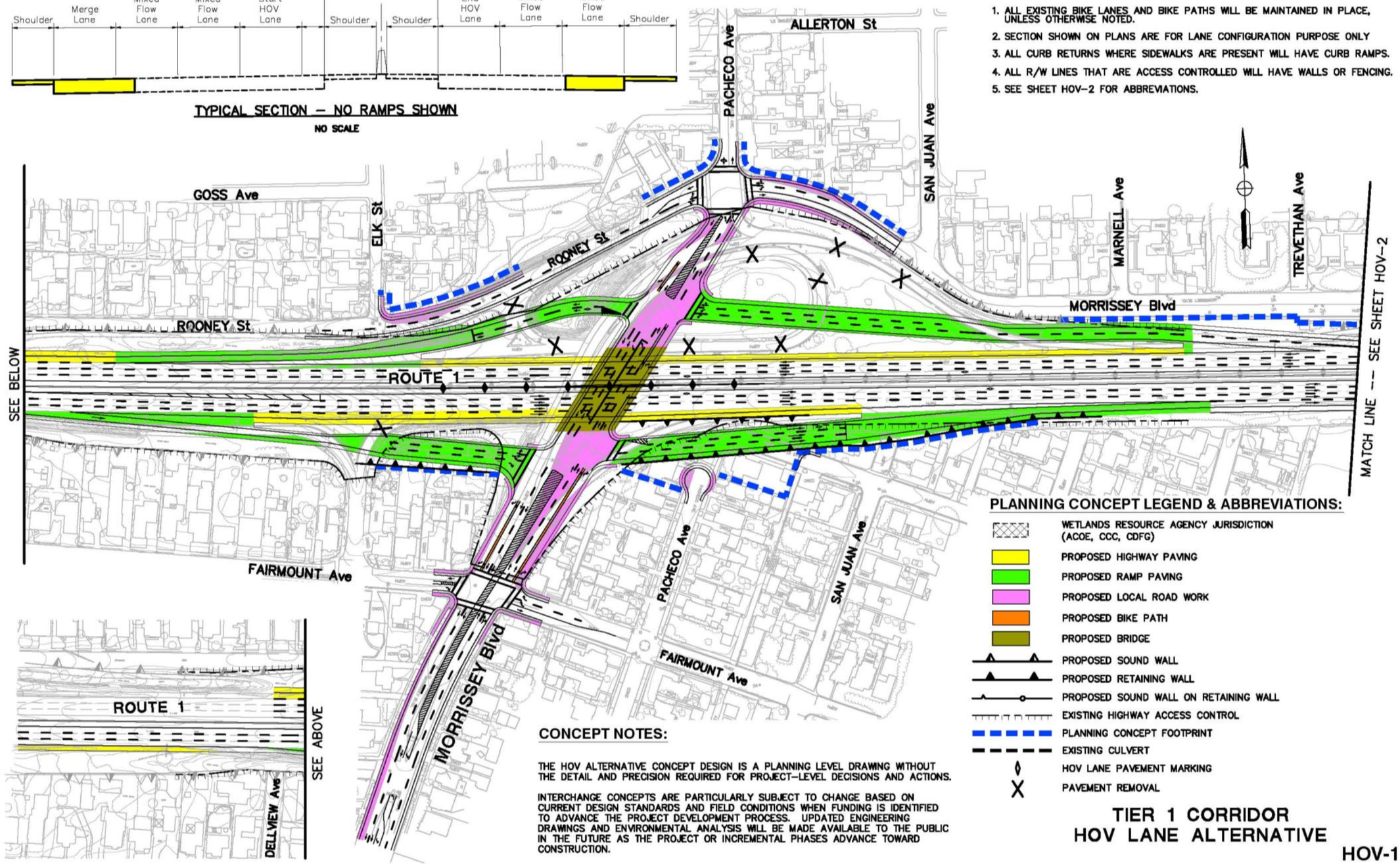


TYPICAL SECTION – NO RAMPS SHOWN

NO SCALE

GENERAL NOTES:

1. ALL EXISTING BIKE LANES AND BIKE PATHS WILL BE MAINTAINED IN PLACE, UNLESS OTHERWISE NOTED.
2. SECTION SHOWN ON PLANS ARE FOR LANE CONFIGURATION PURPOSE ONLY
3. ALL CURB RETURNS WHERE SIDEWALKS ARE PRESENT WILL HAVE CURB RAMPS.
4. ALL R/W LINES THAT ARE ACCESS CONTROLLED WILL HAVE WALLS OR FENCING.
5. SEE SHEET HOV-2 FOR ABBREVIATIONS.



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

INTERCHANGE CONCEPTS ARE PARTICULARLY SUBJECT TO CHANGE BASED ON CURRENT DESIGN STANDARDS AND FIELD CONDITIONS WHEN FUNDING IS IDENTIFIED TO ADVANCE THE PROJECT DEVELOPMENT PROCESS. UPDATED ENGINEERING DRAWINGS AND ENVIRONMENTAL ANALYSIS WILL BE MADE AVAILABLE TO THE PUBLIC IN THE FUTURE AS THE PROJECT OR INCREMENTAL PHASES ADVANCE TOWARD CONSTRUCTION.

TIER 1 CORRIDOR HOV LANE ALTERNATIVE

HOV-1

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	2	20

CONCEPT NOTES:

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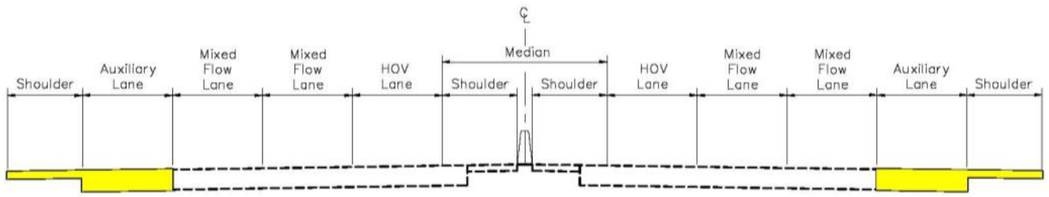
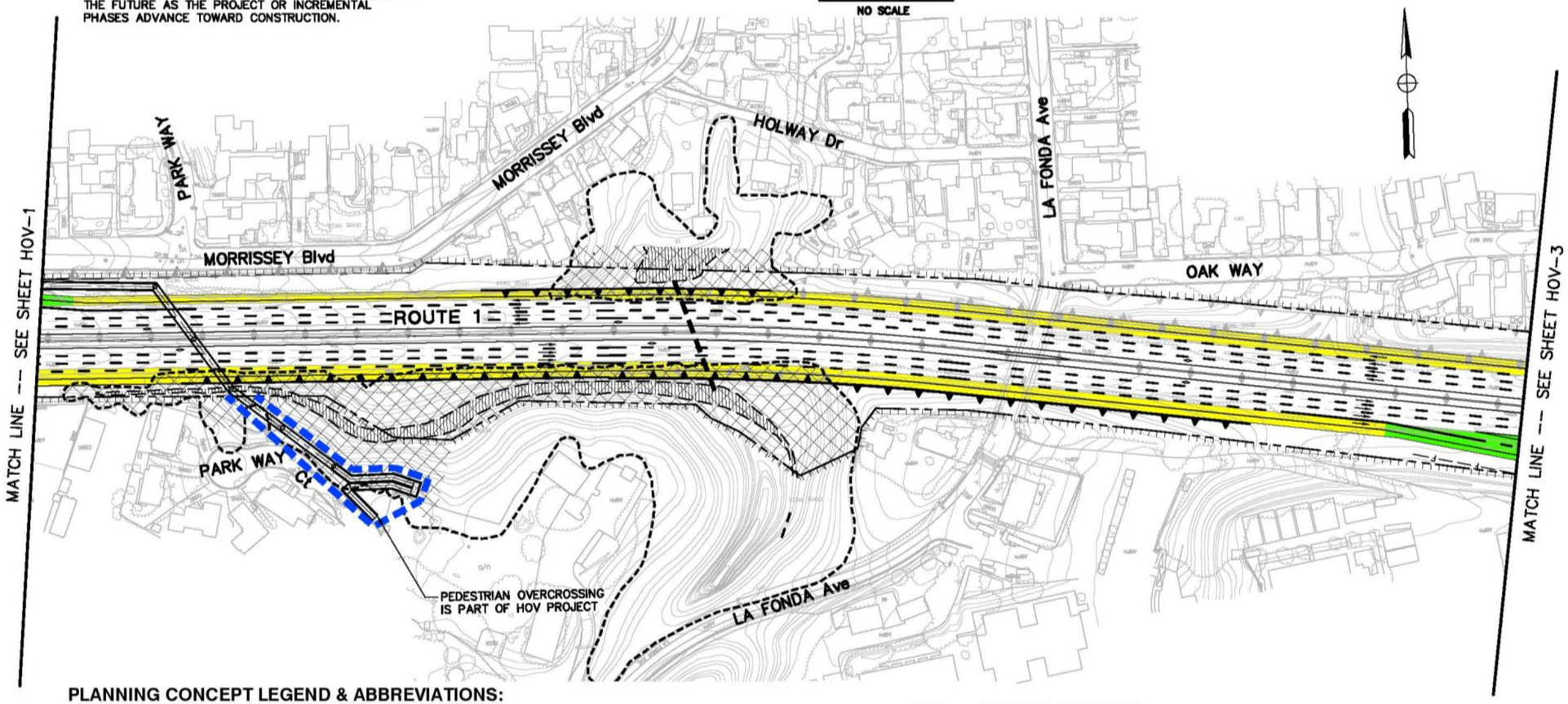


TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- X PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-2

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	3	20

CONCEPT NOTES:

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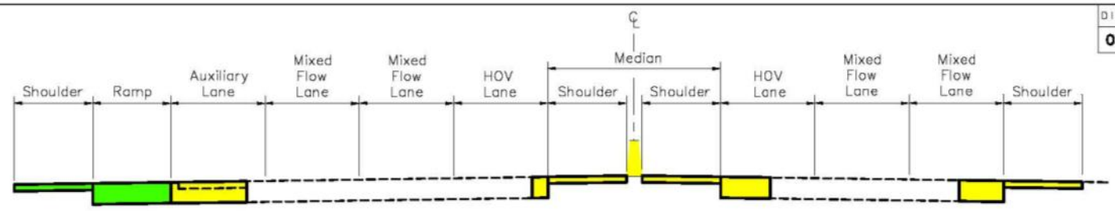
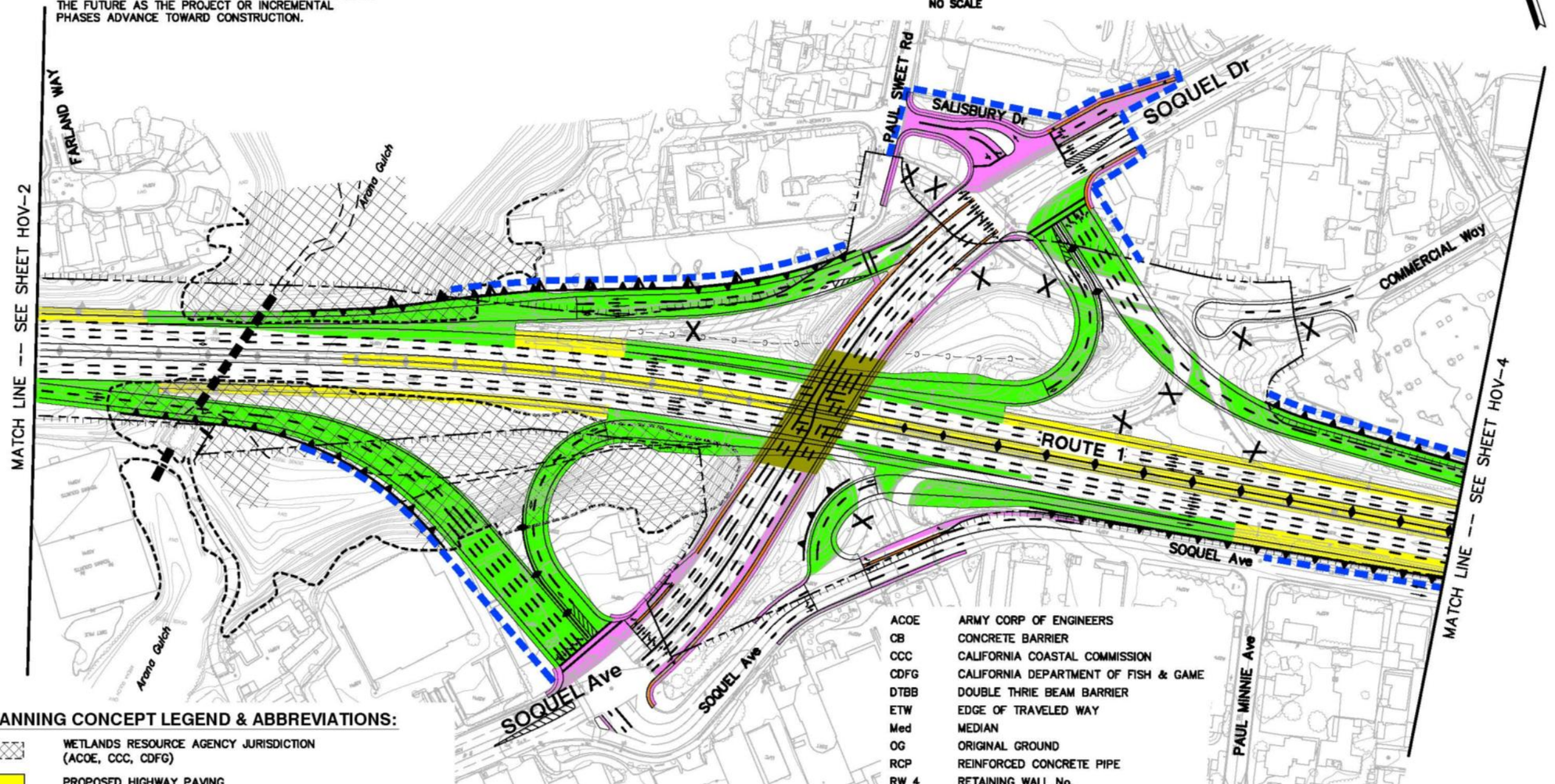


TYPICAL SECTION
NO SCALE



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- PROPOSED BRIDGE
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- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED
- - - -	EXISTING CULVERT
◊	HOV LANE PAVEMENT MARKING
X	PAVEMENT REMOVAL

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-3

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	4	20

CONCEPT NOTES:

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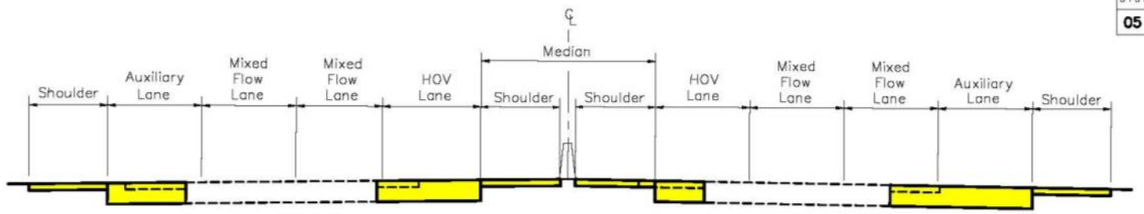
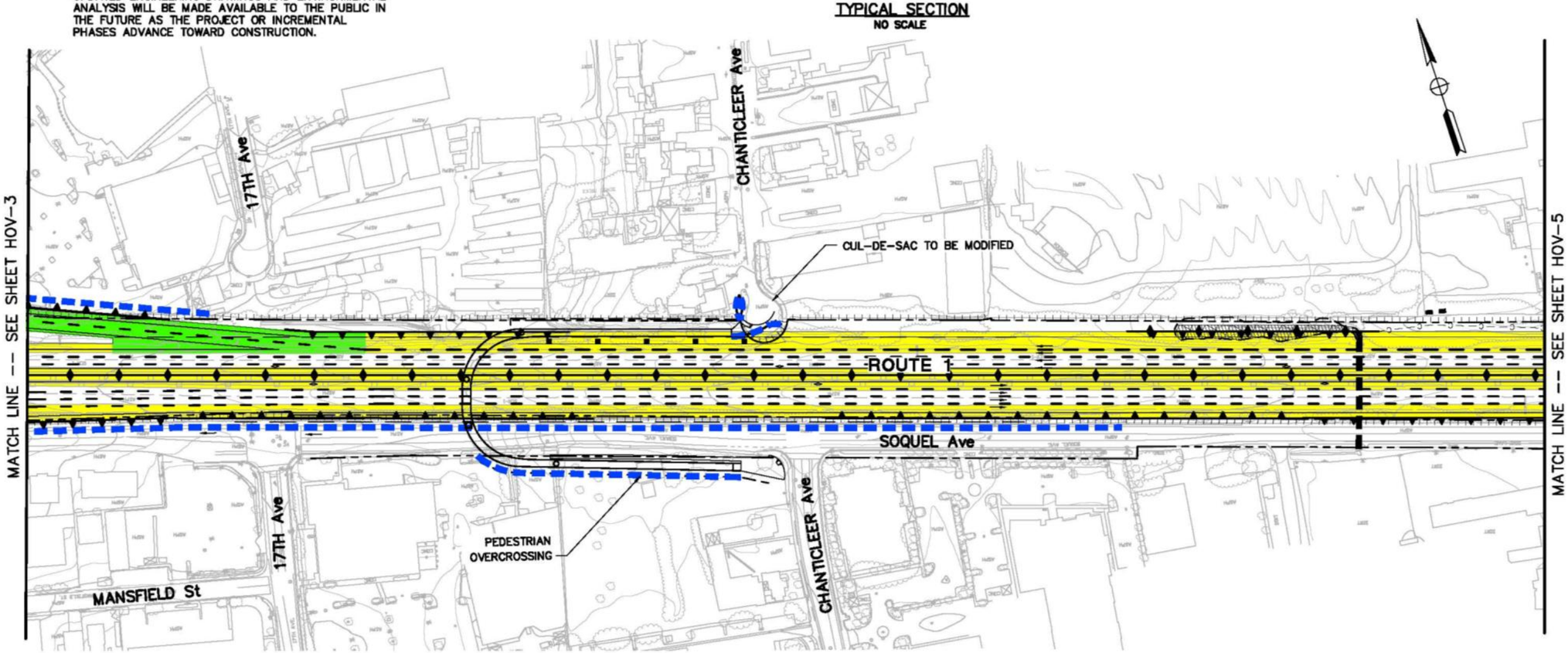


TYPICAL SECTION
NO SCALE



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- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- X PAVEMENT REMOVAL

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CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-4

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	5	20

CONCEPT NOTES:

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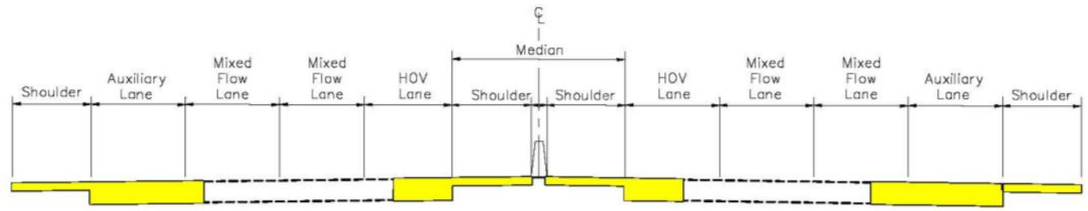
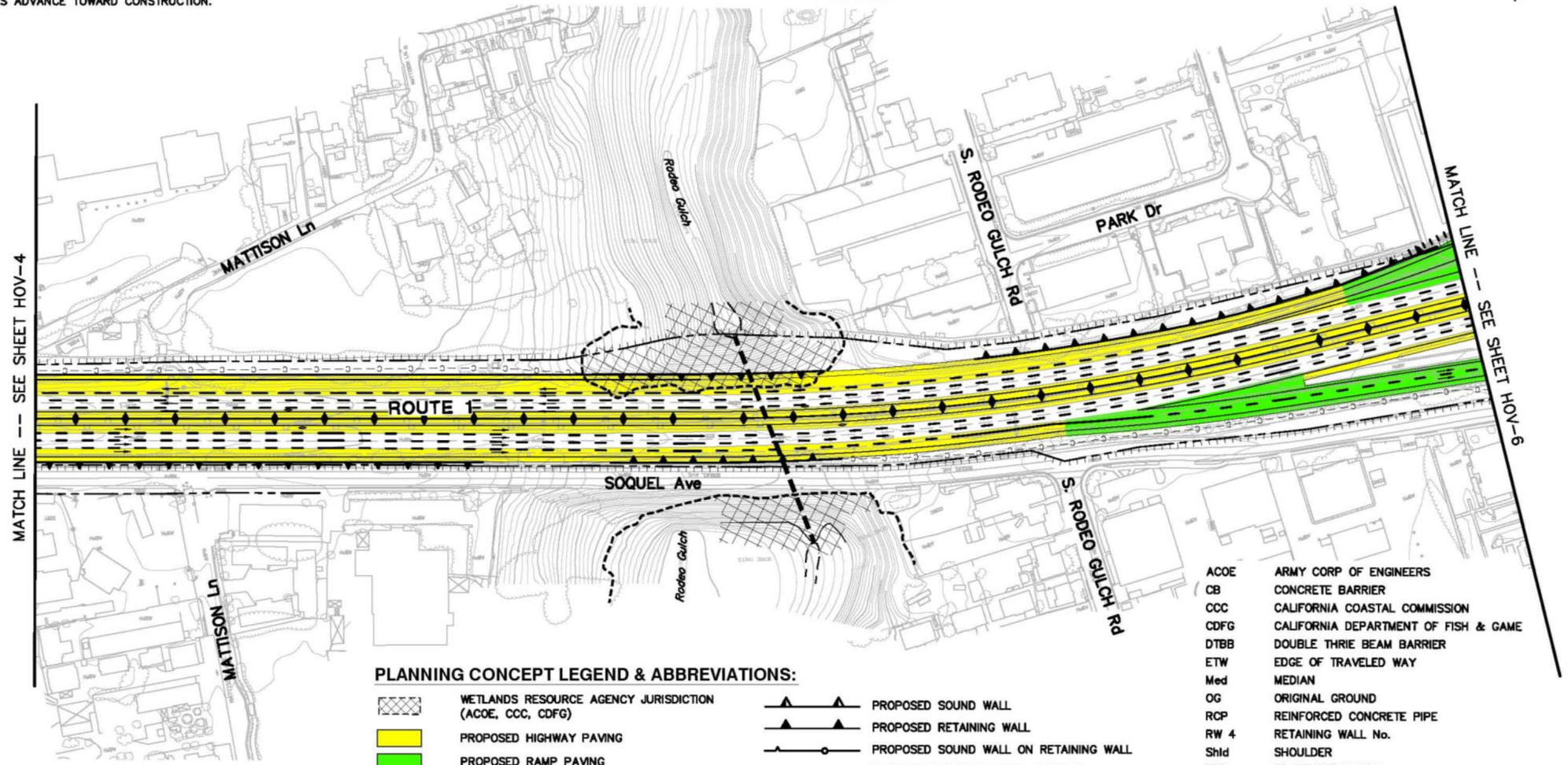


TYPICAL SECTION – NO RAMPS SHOWN

NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

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Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR HOV LANE ALTERNATIVE

HOV-5

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	6	20

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE

- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

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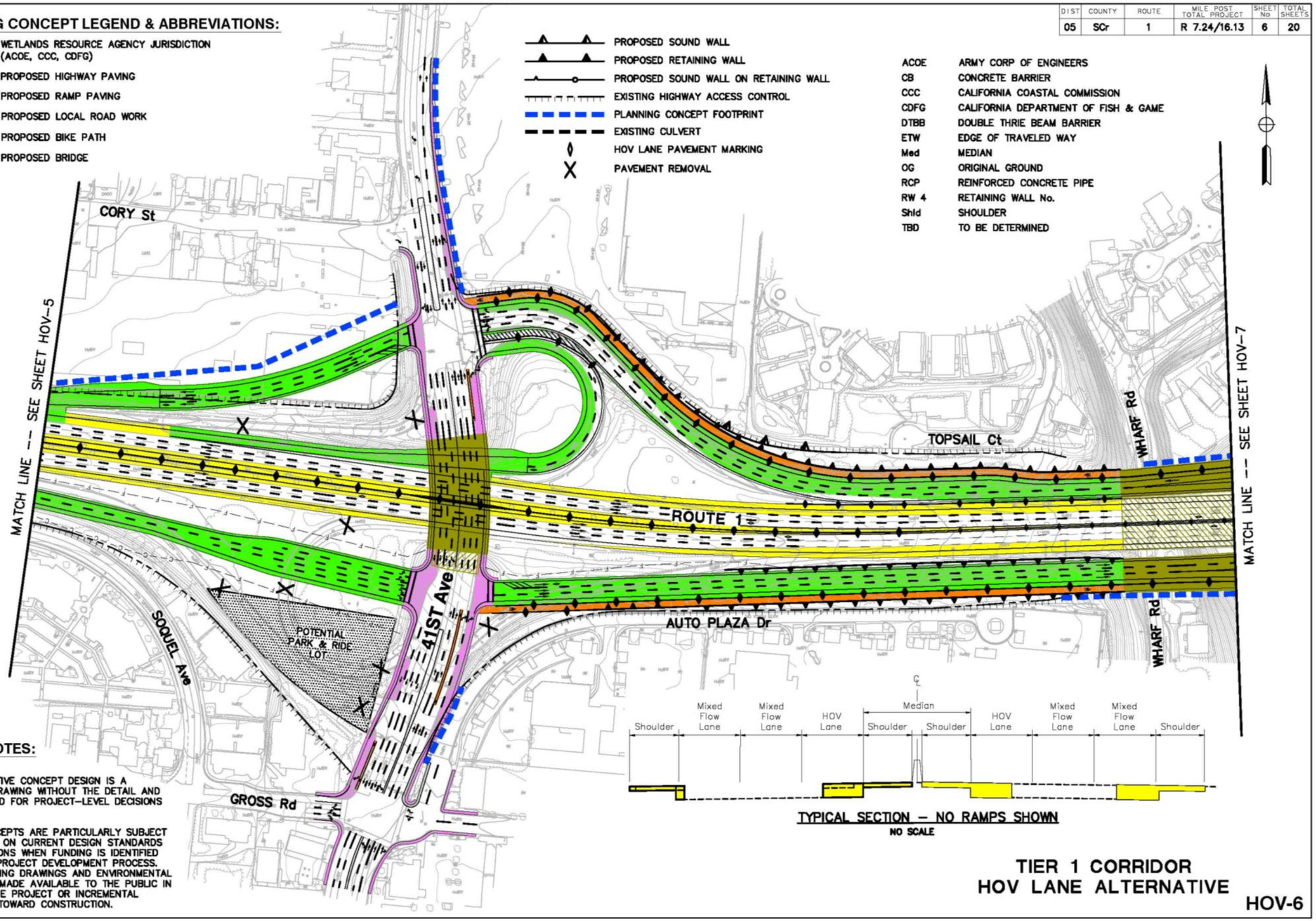
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED



TYPICAL SECTION – NO RAMPS SHOWN
NO SCALE

CONCEPT NOTES:

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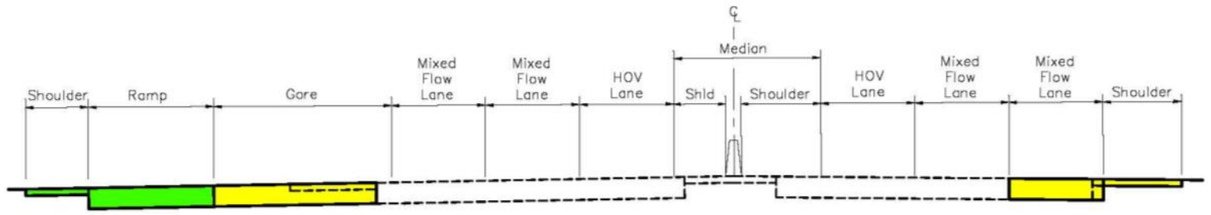
TIER 1 CORRIDOR HOV LANE ALTERNATIVE

HOV-6

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	7	20



TYPICAL SECTION
NO SCALE

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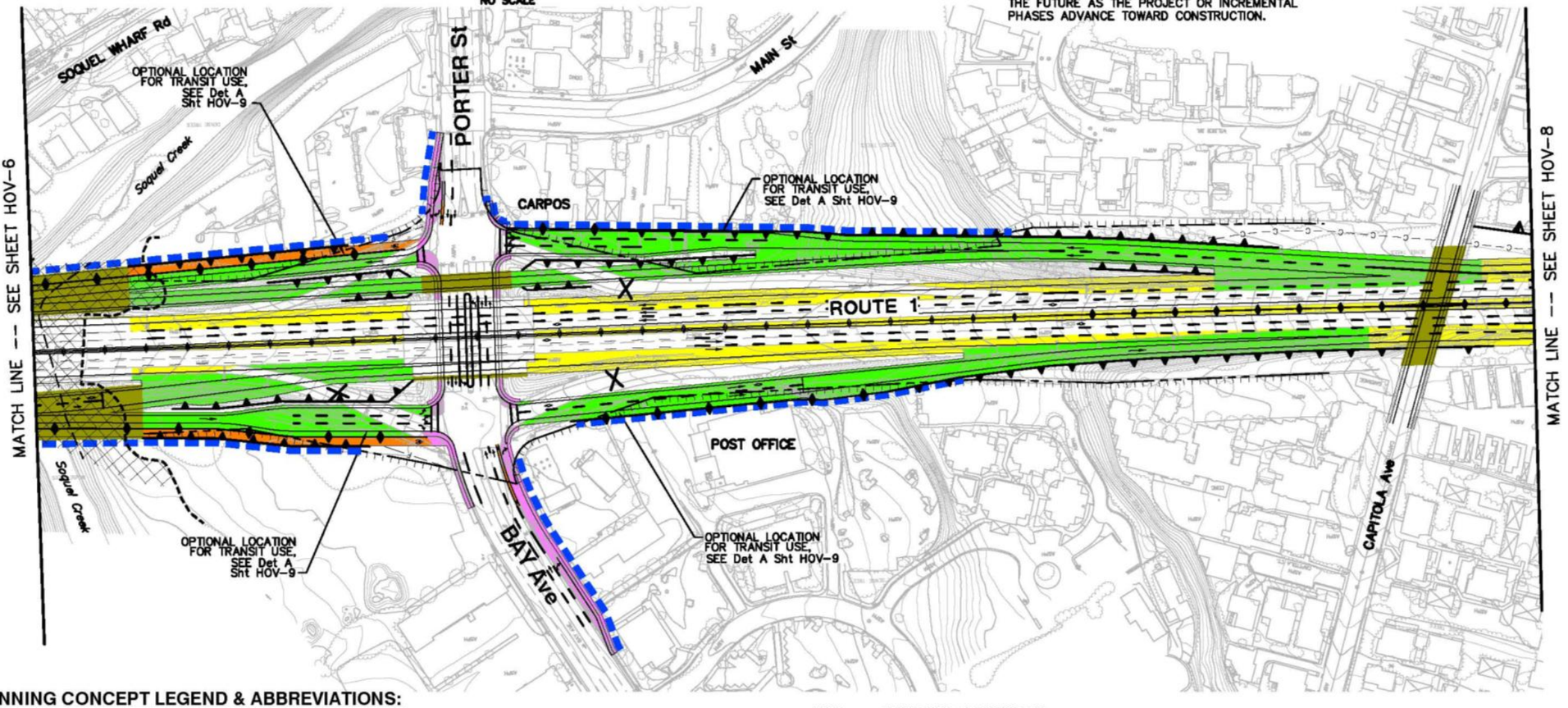

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- HOV LANE PAVEMENT MARKING
- X PAVEMENT REMOVAL

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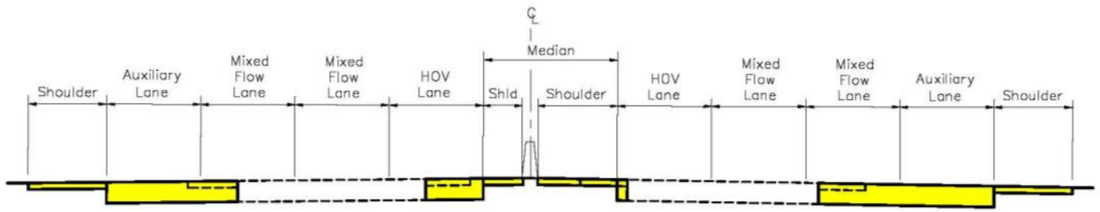
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

*** MINIMUM CLEARANCE OVER WHARF ROAD

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-7

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	8	20



TYPICAL SECTION
NO SCALE

CONCEPT NOTES:

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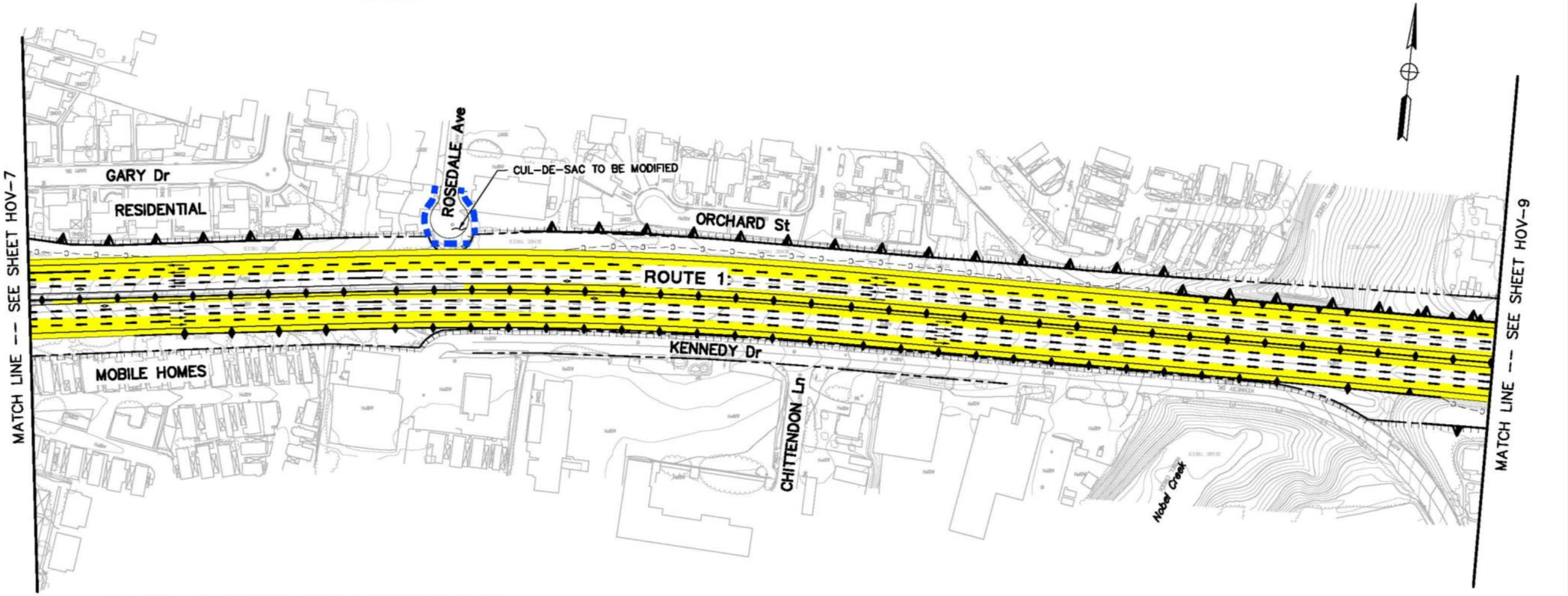

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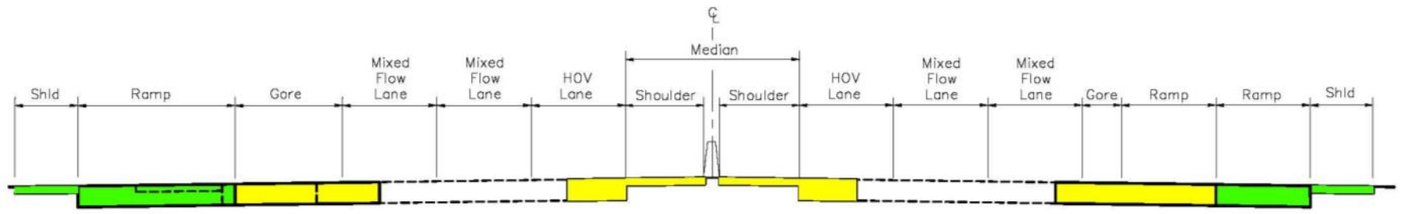
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-8

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	9	20



TYPICAL SECTION
NO SCALE

DETAIL A
NO SCALE

CONCEPT NOTES:

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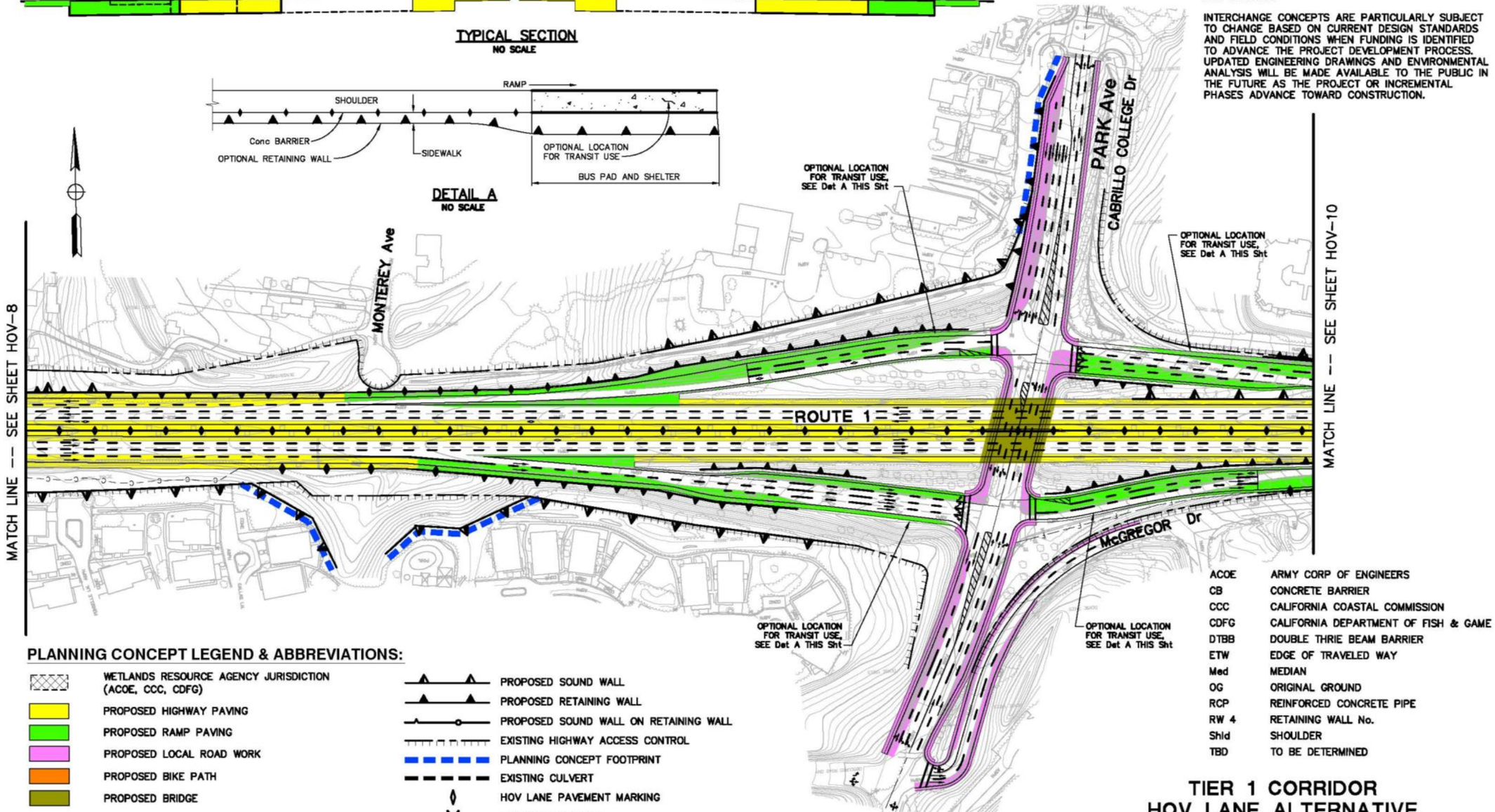

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RCP	REINFORCED CONCRETE PIPE
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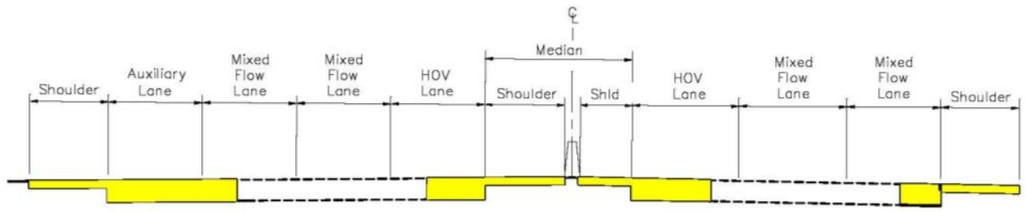
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-9

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	10	20



TYPICAL SECTION
NO SCALE

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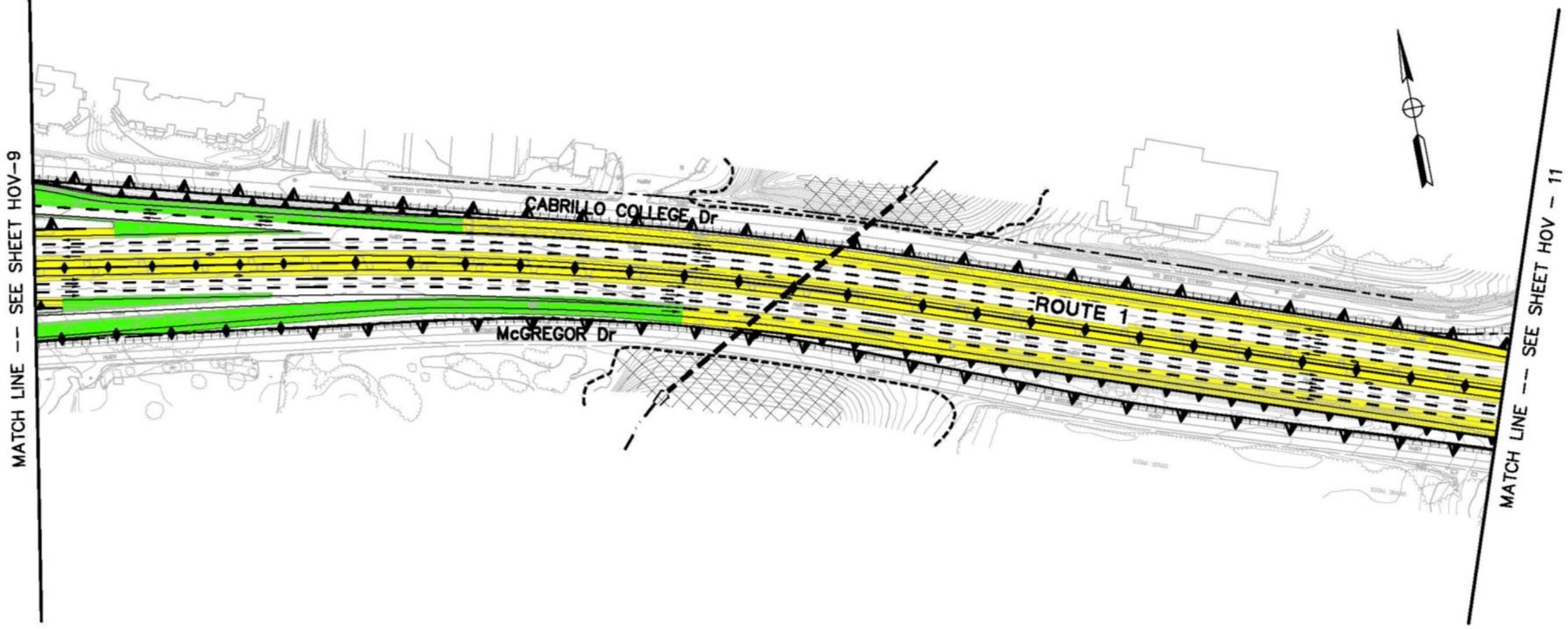

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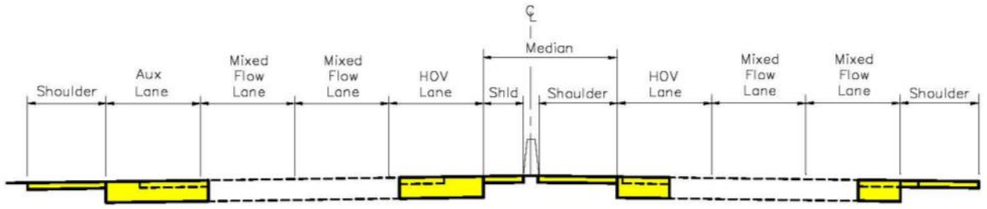
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-10

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	11	20

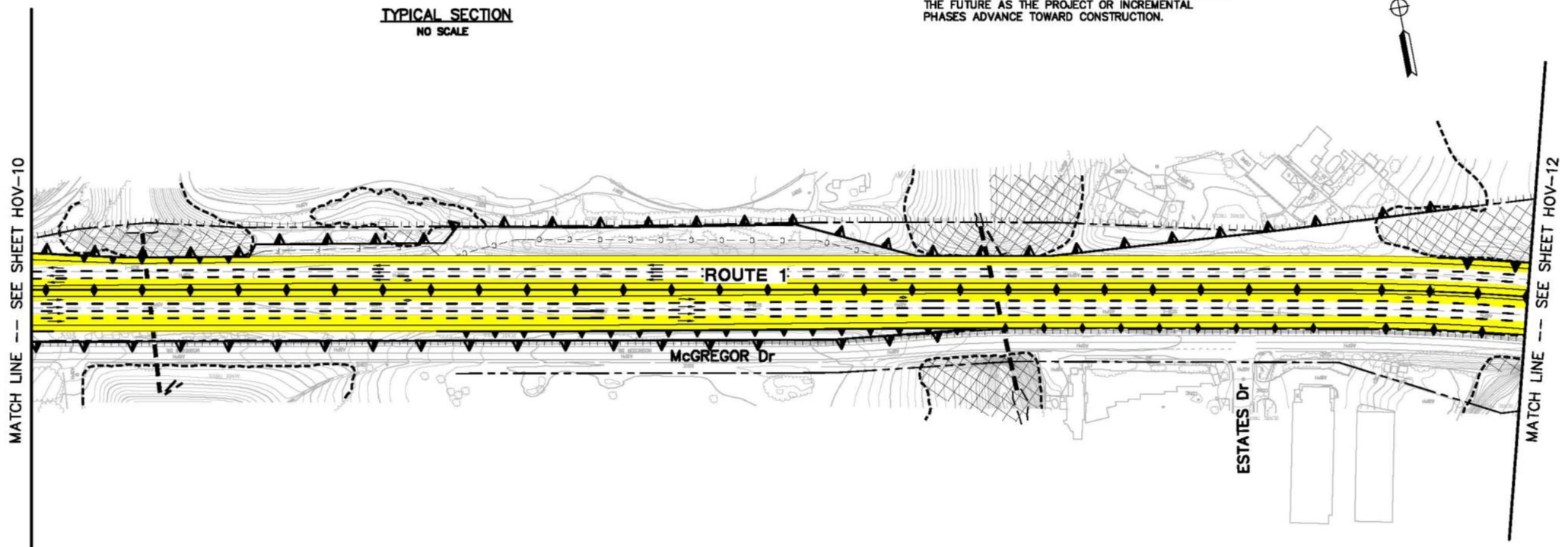


TYPICAL SECTION
NO SCALE

CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT–LEVEL DECISIONS AND ACTIONS.

INTERCHANGE CONCEPTS ARE PARTICULARLY SUBJECT TO CHANGE BASED ON CURRENT DESIGN STANDARDS AND FIELD CONDITIONS WHEN FUNDING IS IDENTIFIED TO ADVANCE THE PROJECT DEVELOPMENT PROCESS. UPDATED ENGINEERING DRAWINGS AND ENVIRONMENTAL ANALYSIS WILL BE MADE AVAILABLE TO THE PUBLIC IN THE FUTURE AS THE PROJECT OR INCREMENTAL PHASES ADVANCE TOWARD CONSTRUCTION.



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

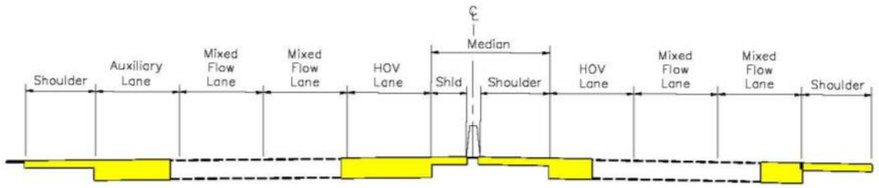
TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-11

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	12	20

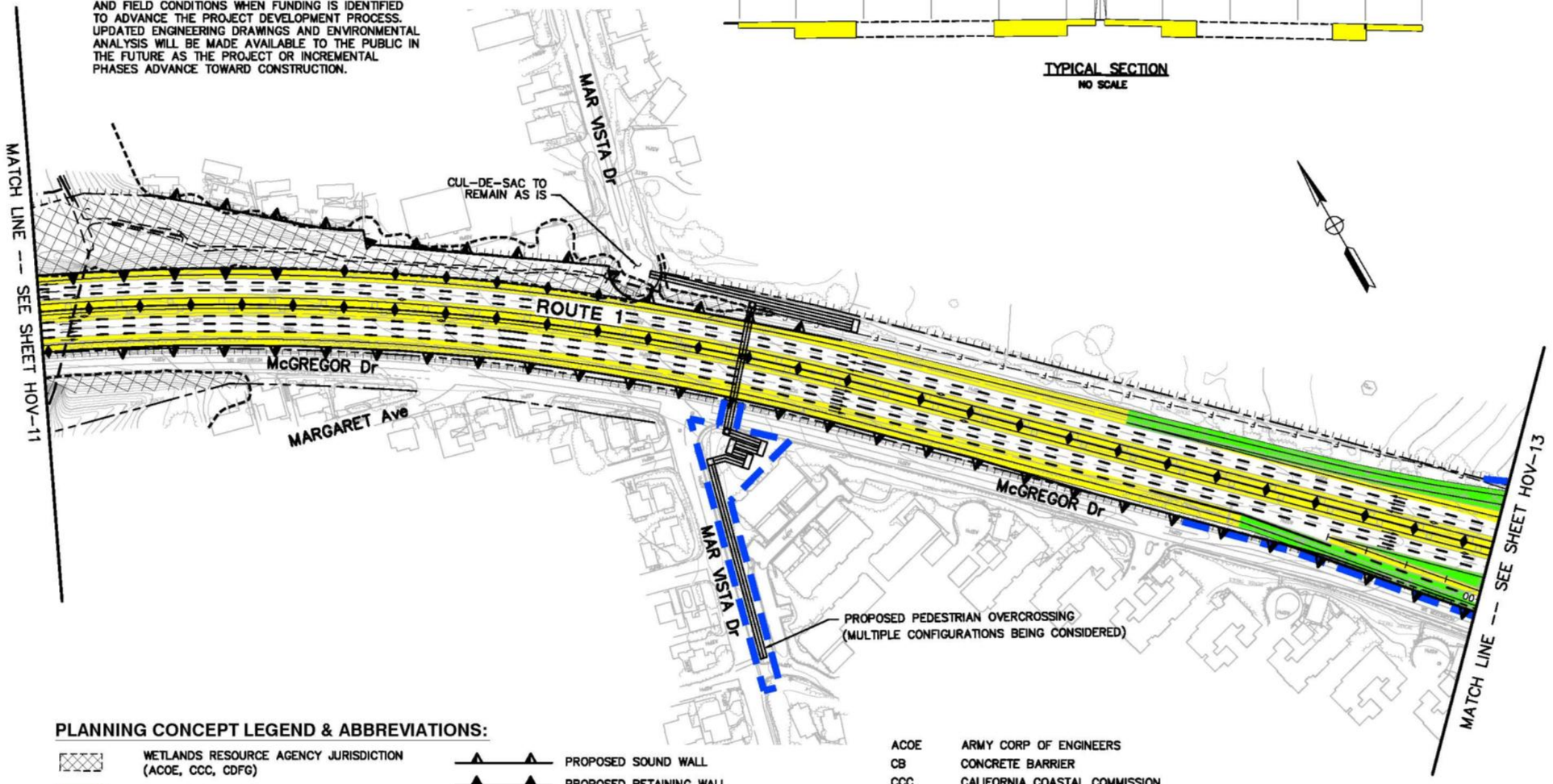
CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

INTERCHANGE CONCEPTS ARE PARTICULARLY SUBJECT TO CHANGE BASED ON CURRENT DESIGN STANDARDS AND FIELD CONDITIONS WHEN FUNDING IS IDENTIFIED TO ADVANCE THE PROJECT DEVELOPMENT PROCESS. UPDATED ENGINEERING DRAWINGS AND ENVIRONMENTAL ANALYSIS WILL BE MADE AVAILABLE TO THE PUBLIC IN THE FUTURE AS THE PROJECT OR INCREMENTAL PHASES ADVANCE TOWARD CONSTRUCTION.



TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

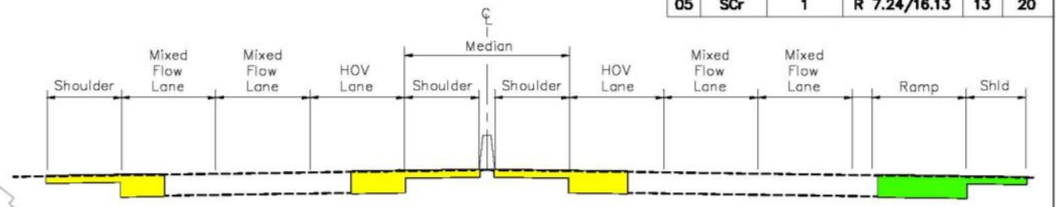
TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-12

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	13	20

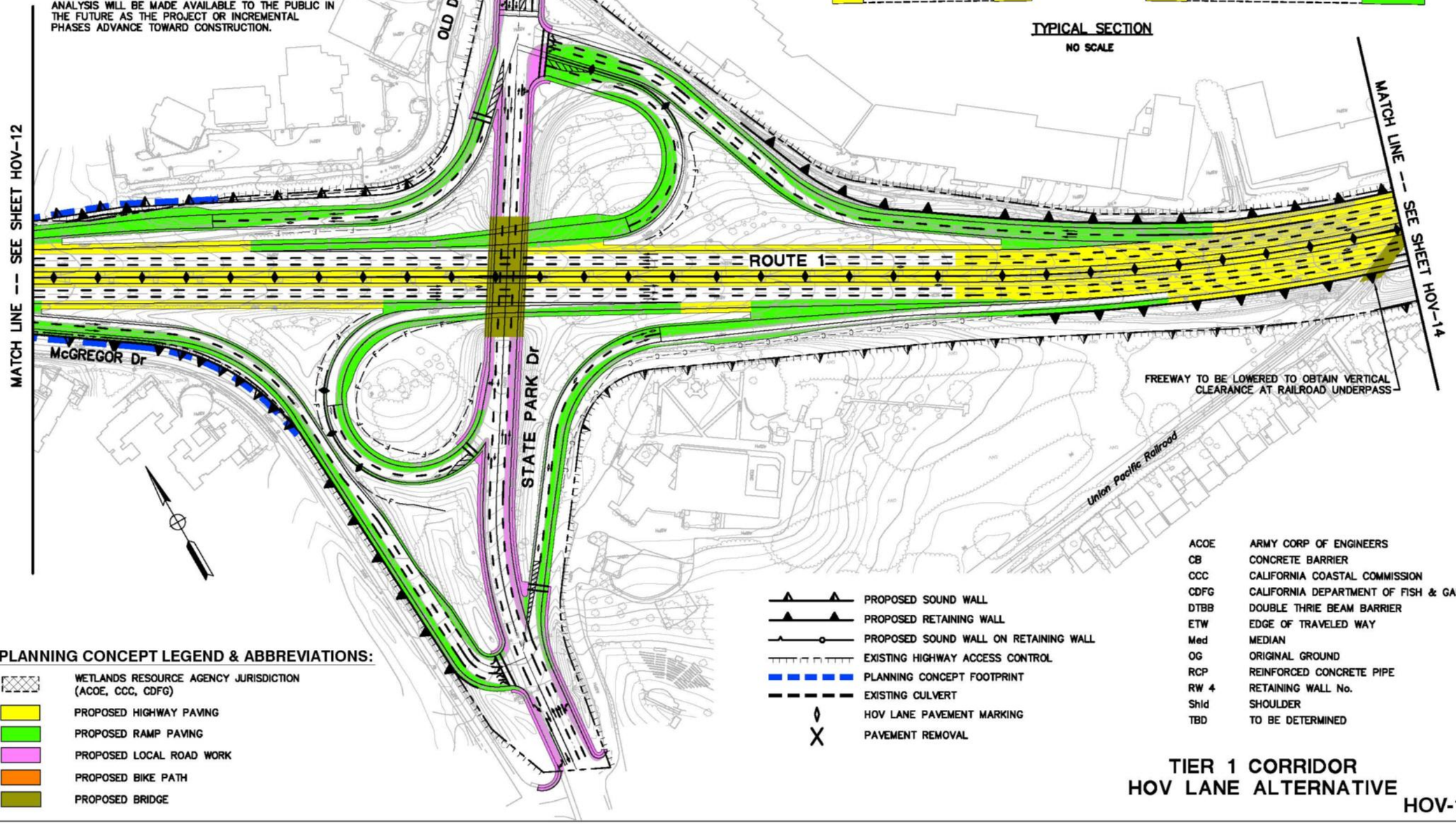
CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT–LEVEL DECISIONS AND ACTIONS.

INTERCHANGE CONCEPTS ARE PARTICULARLY SUBJECT TO CHANGE BASED ON CURRENT DESIGN STANDARDS AND FIELD CONDITIONS WHEN FUNDING IS IDENTIFIED TO ADVANCE THE PROJECT DEVELOPMENT PROCESS. UPDATED ENGINEERING DRAWINGS AND ENVIRONMENTAL ANALYSIS WILL BE MADE AVAILABLE TO THE PUBLIC IN THE FUTURE AS THE PROJECT OR INCREMENTAL PHASES ADVANCE TOWARD CONSTRUCTION.



TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE

- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

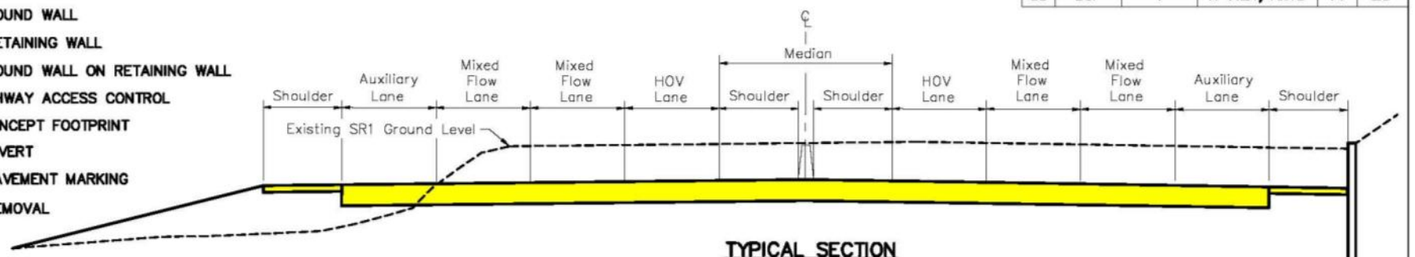
ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-13

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

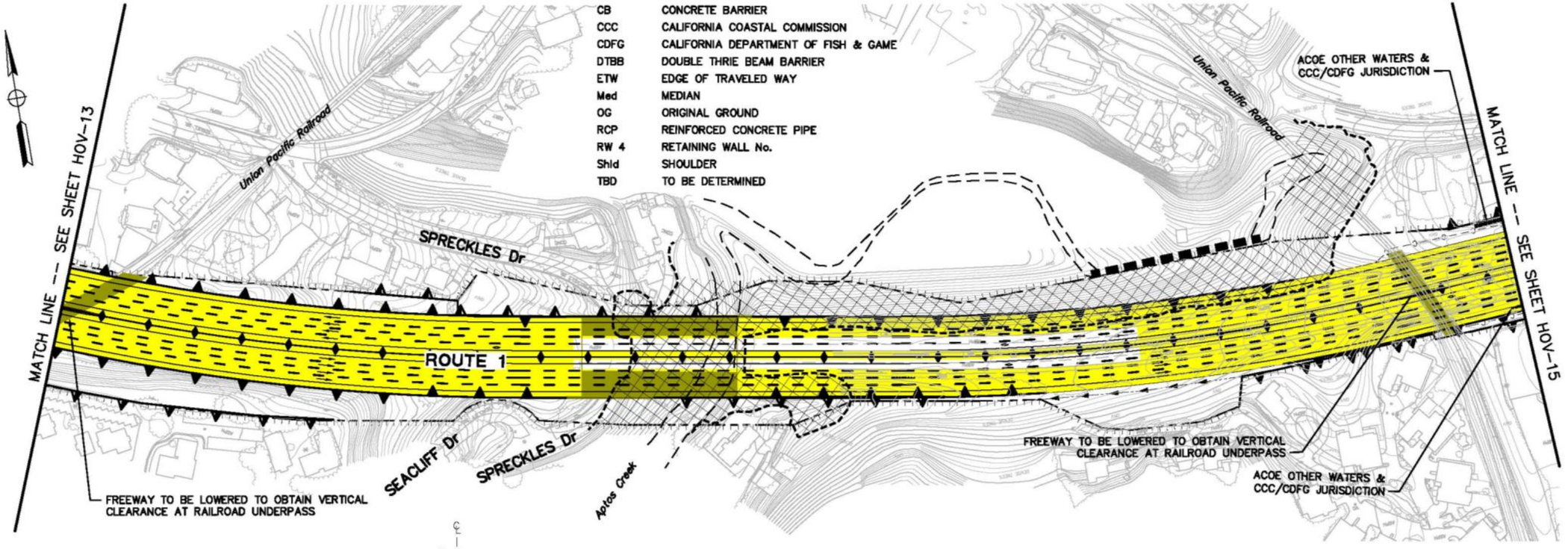
- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

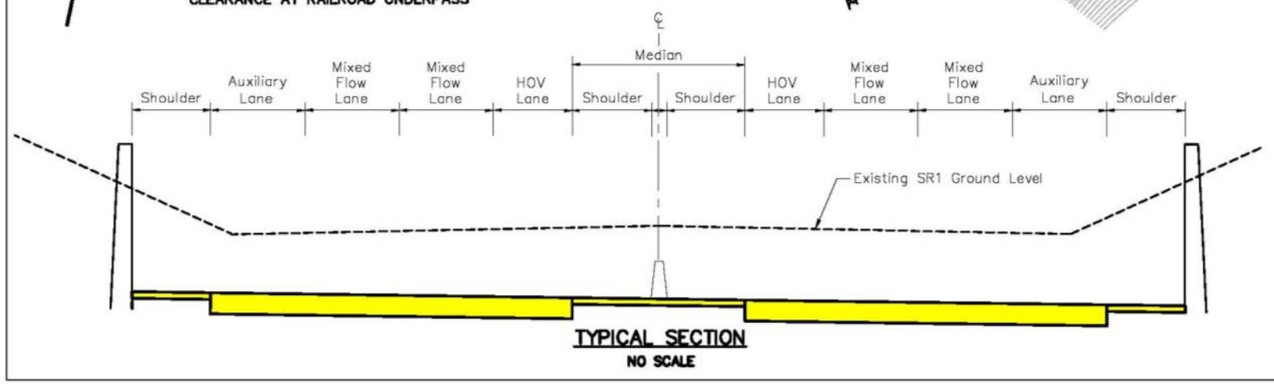
DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	14	20



TYPICAL SECTION
NO SCALE

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED





TYPICAL SECTION
NO SCALE

CONCEPT NOTES:

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TIER 1 CORRIDOR HOV LANE ALTERNATIVE

HOV-14

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	15	20

CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

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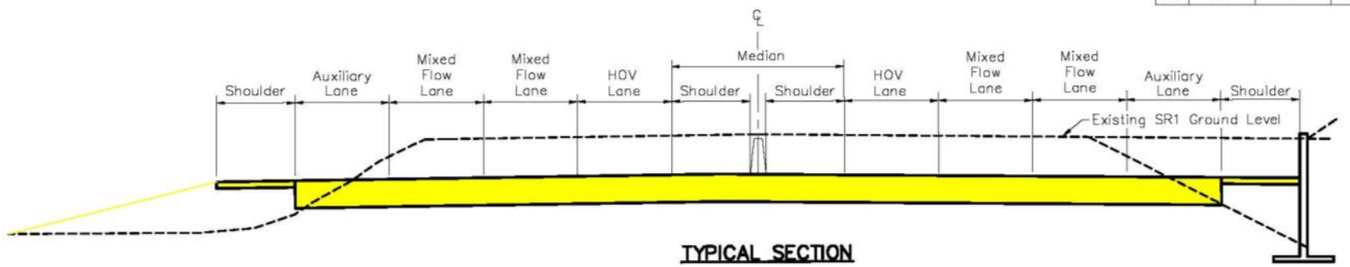
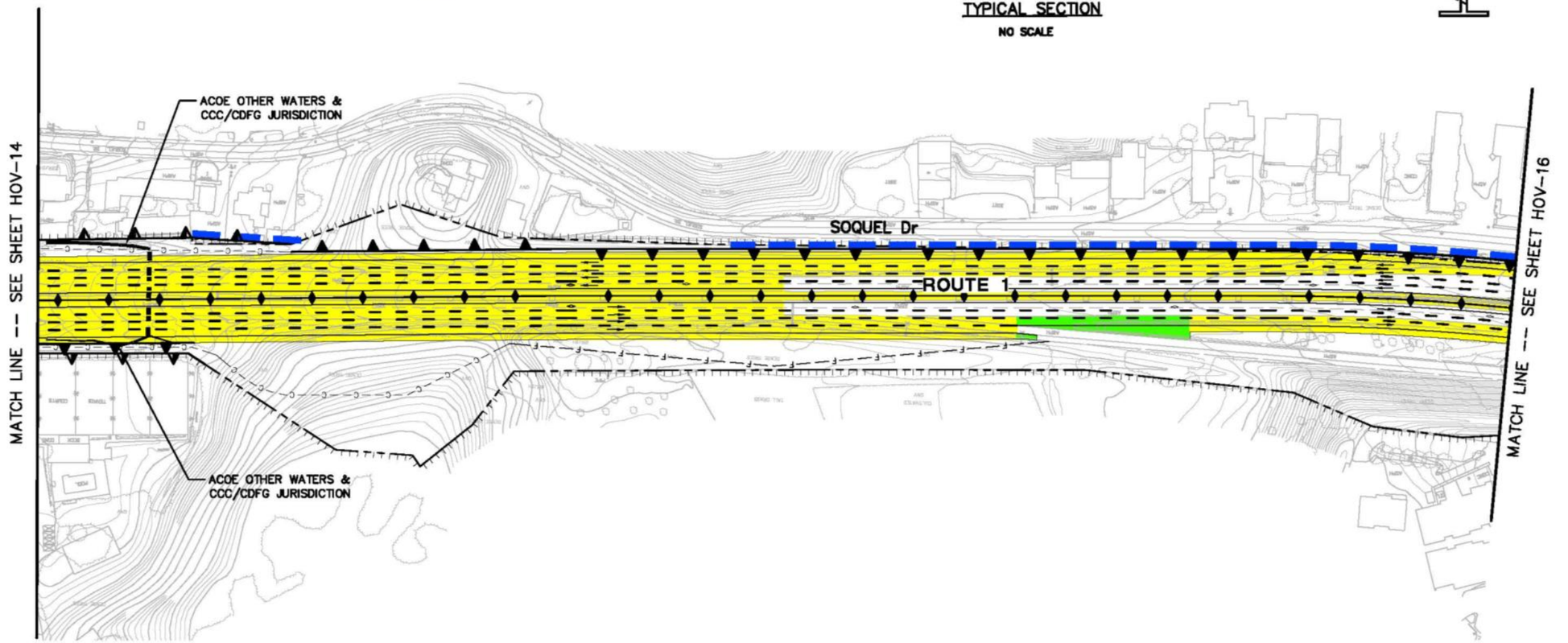


TYPICAL SECTION

NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

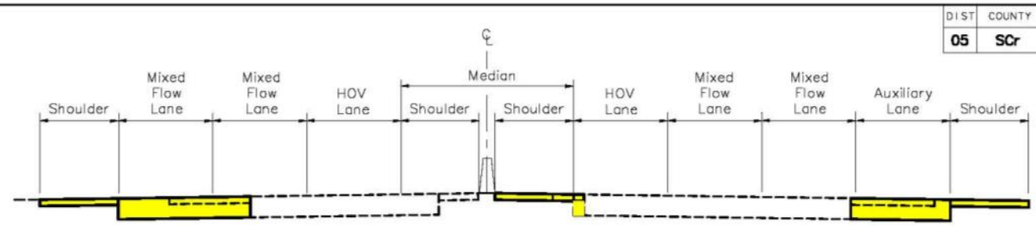
HOV-15

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	16	20

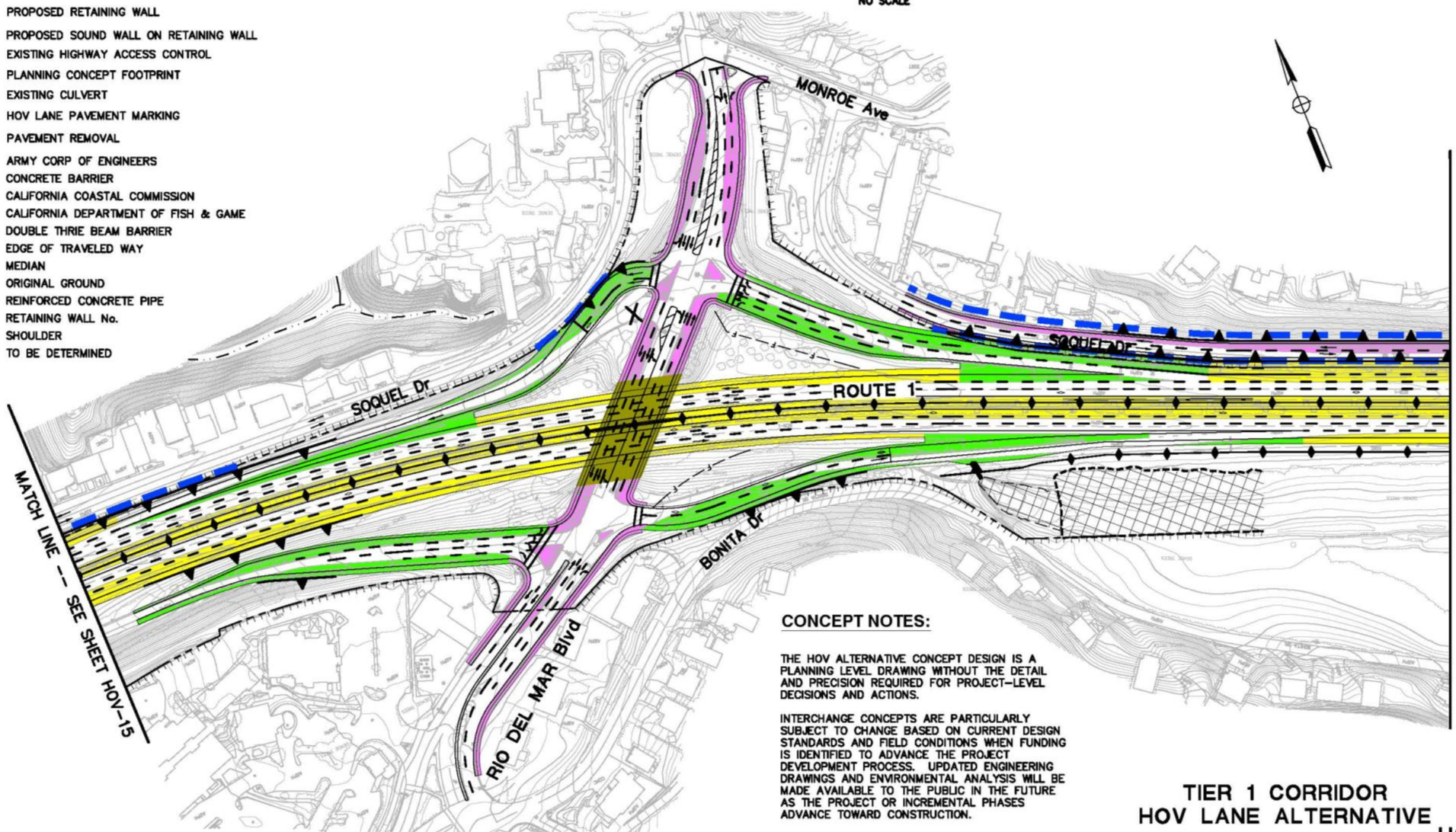
PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- X PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED



TYPICAL SECTION – NO RAMPS SHOWN
NO SCALE



CONCEPT NOTES:

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TIER 1 CORRIDOR HOV LANE ALTERNATIVE

HOV-16

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	17	20

CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT–LEVEL DECISIONS AND ACTIONS.

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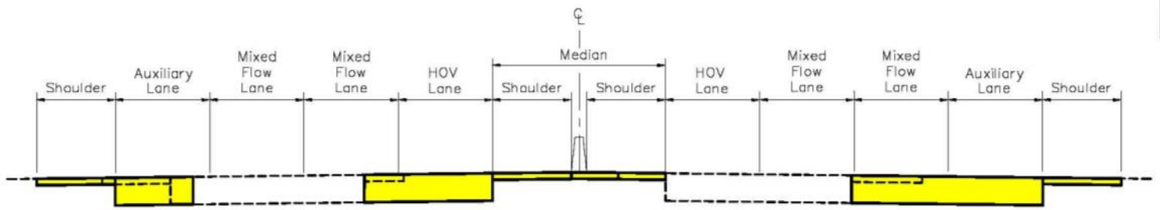
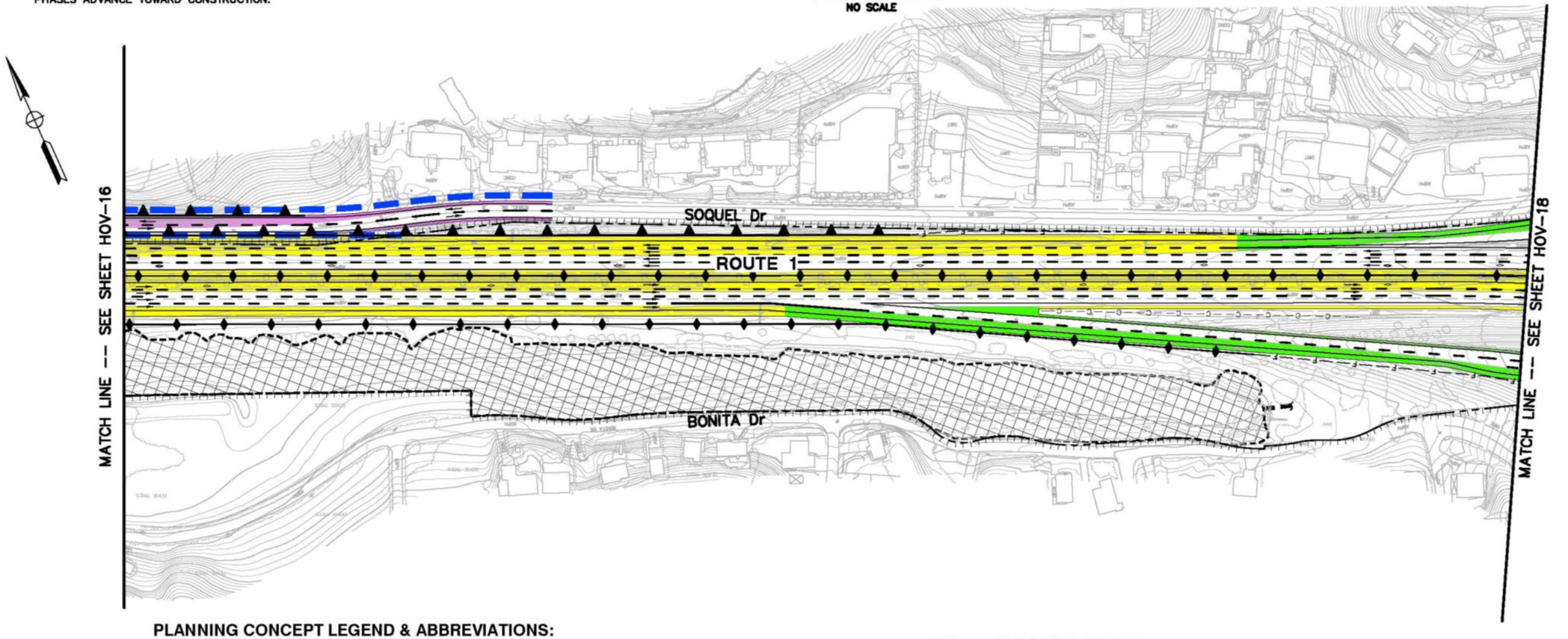


TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

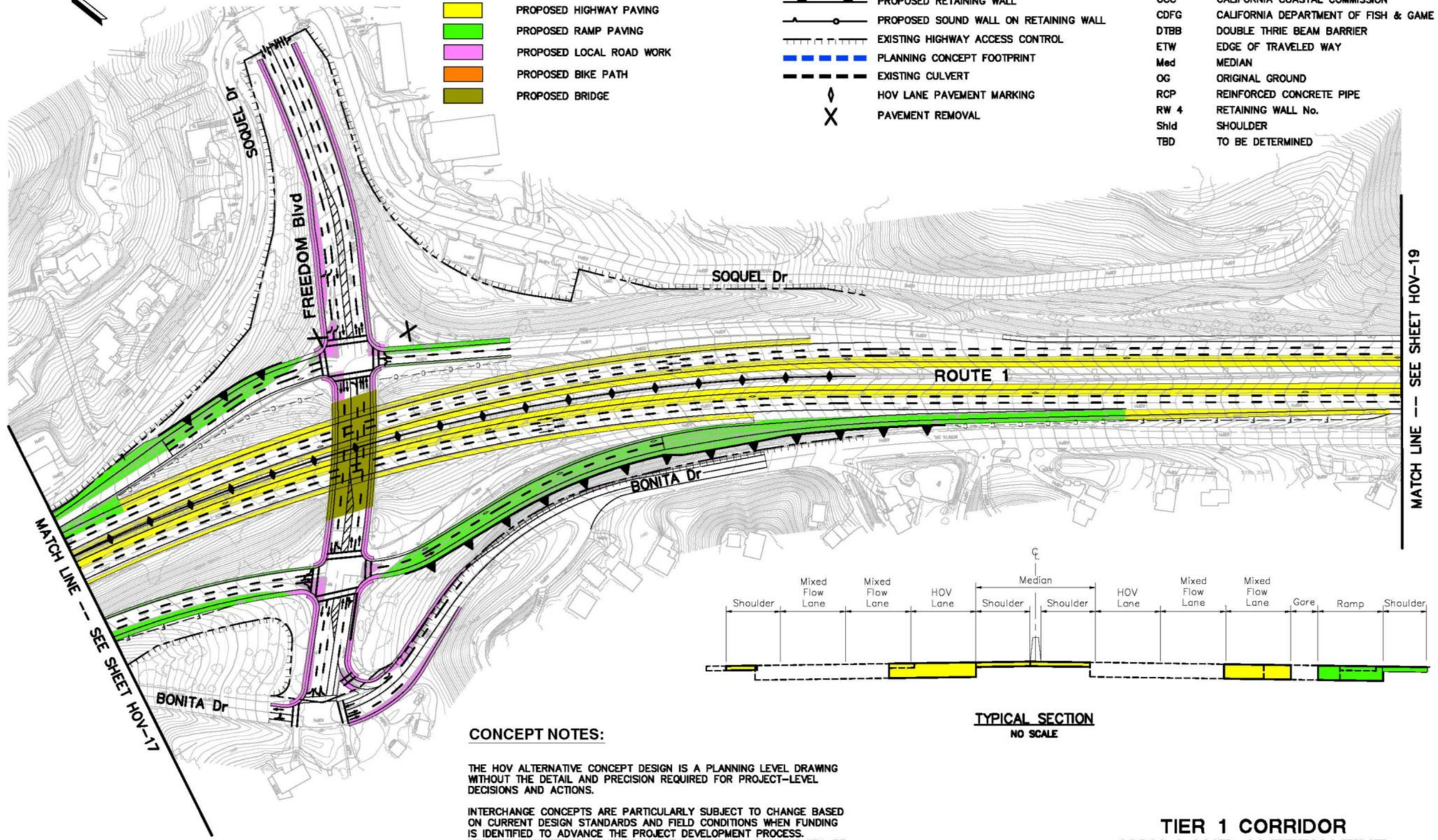
TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-17

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	18	20

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED



TYPICAL SECTION
NO SCALE

CONCEPT NOTES:

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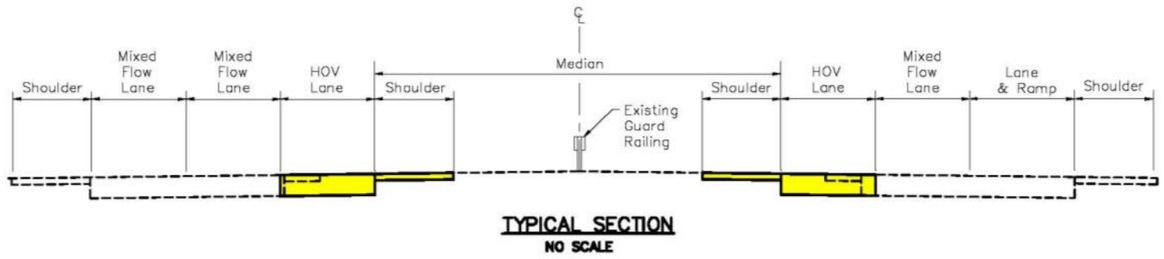
TIER 1 CORRIDOR
HOV LANE ALTERNATIVE

HOV-18

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	19	20



TYPICAL SECTION
NO SCALE

CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

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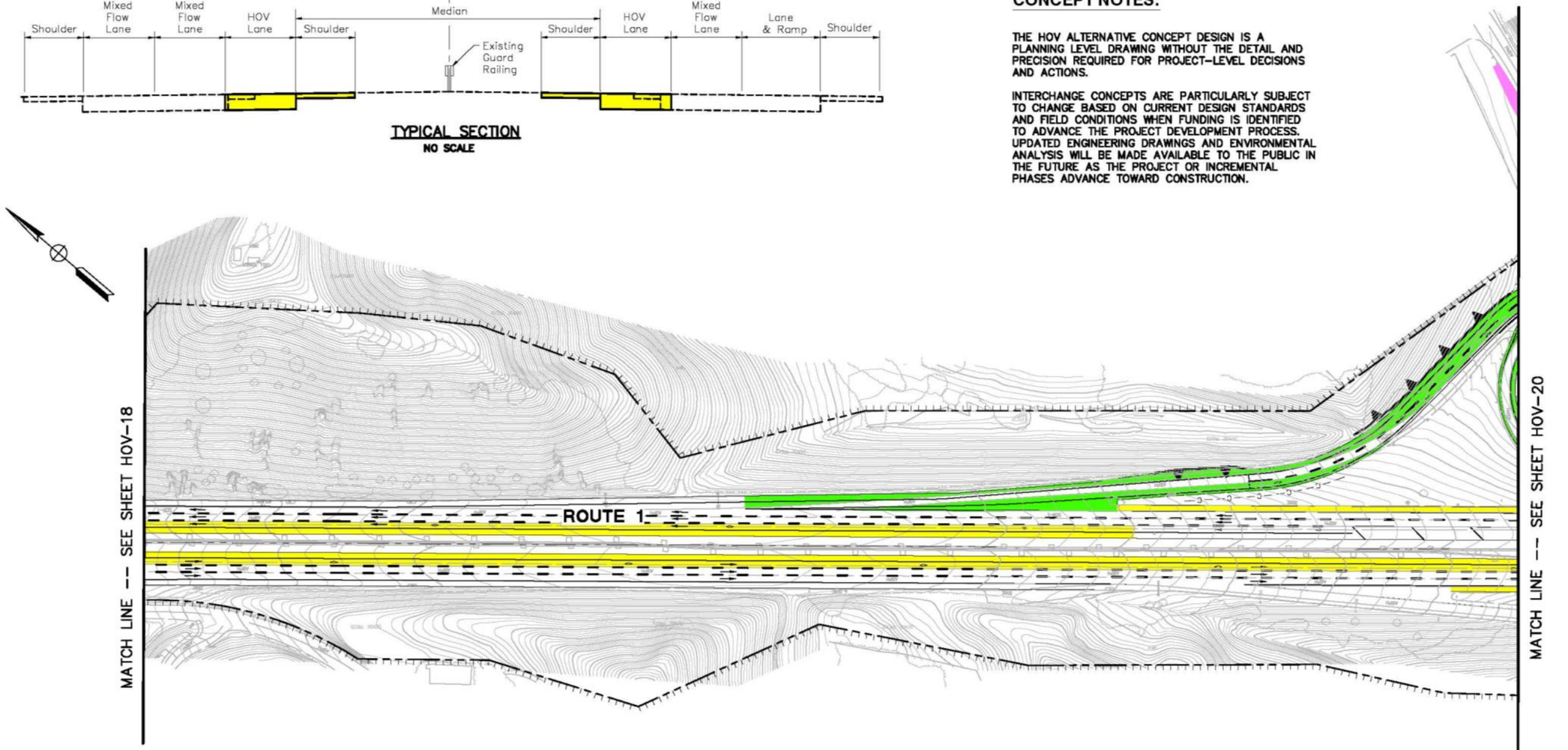

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-19

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	20	20

CONCEPT NOTES:

THE HOV ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT–LEVEL DECISIONS AND ACTIONS.

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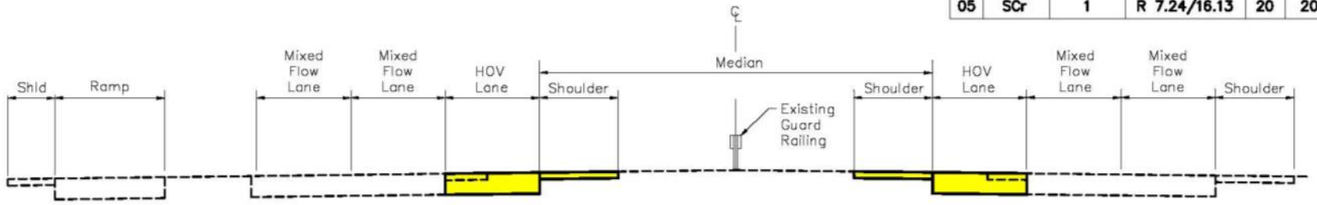
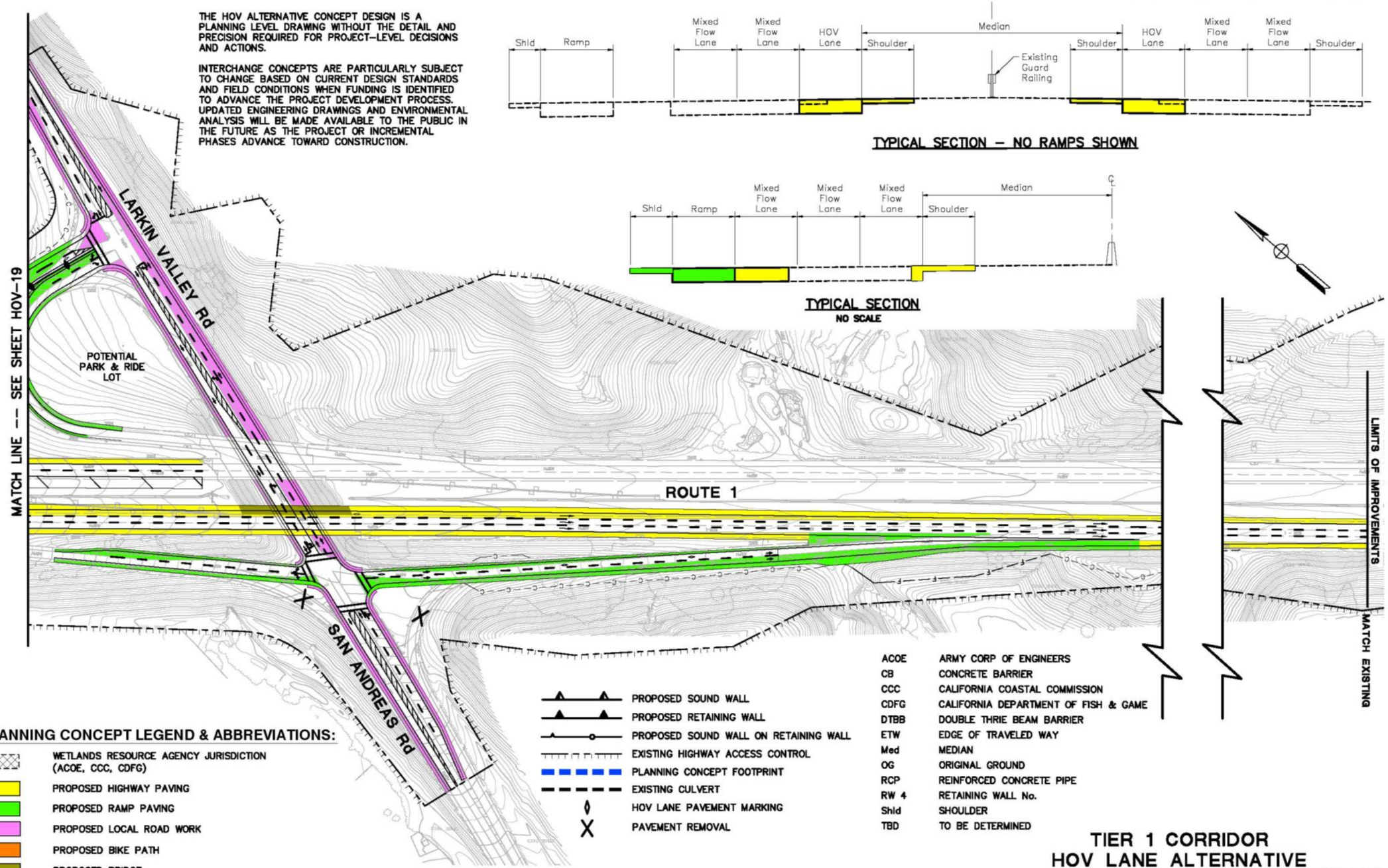


TYPICAL SECTION – NO RAMPS SHOWN

TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR
HOV LANE ALTERNATIVE
HOV-20

Appendix B

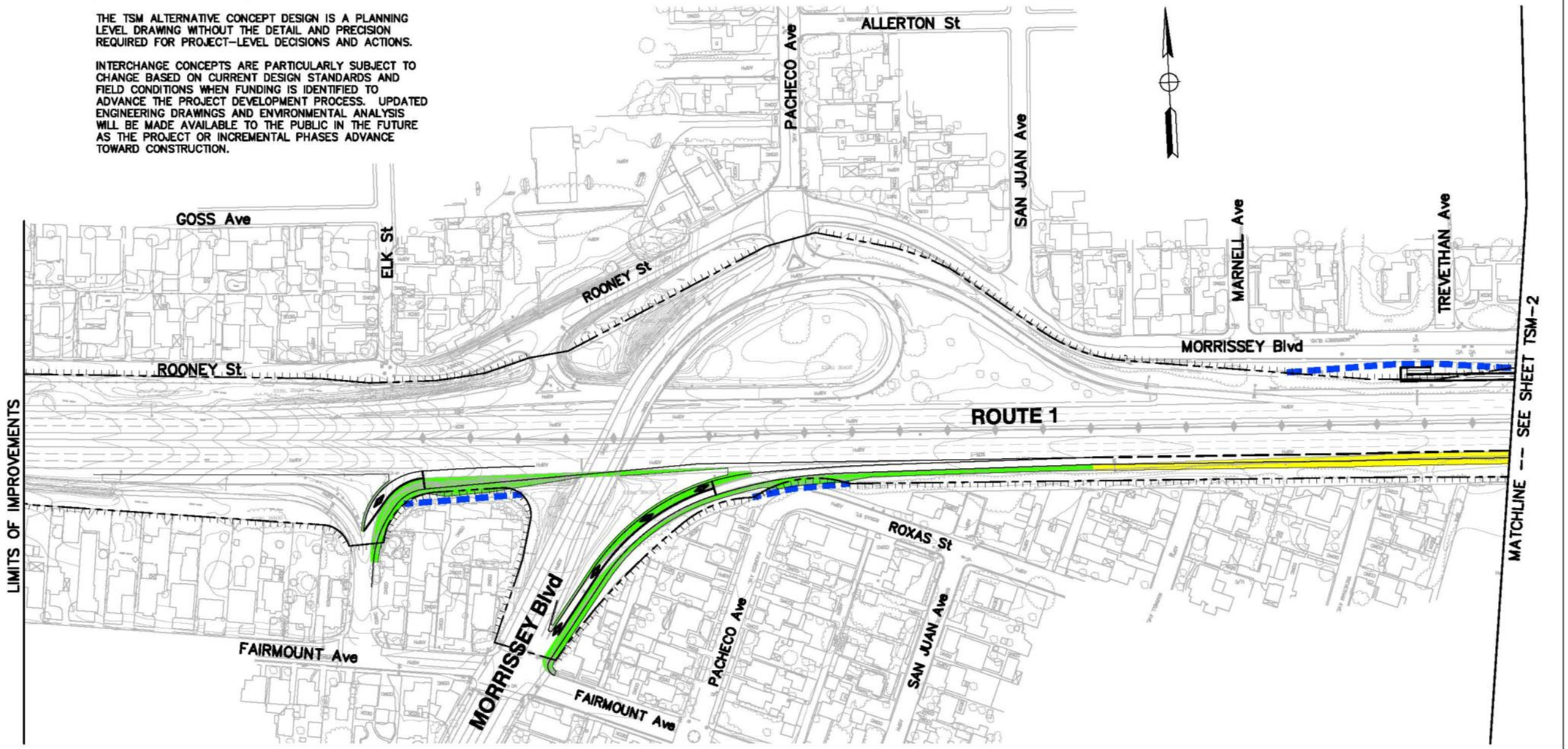
Figure 44: Tier I TSM Alternative Plans

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	1	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT–LEVEL DECISIONS AND ACTIONS.

INTERCHANGE CONCEPTS ARE PARTICULARLY SUBJECT TO CHANGE BASED ON CURRENT DESIGN STANDARDS AND FIELD CONDITIONS WHEN FUNDING IS IDENTIFIED TO ADVANCE THE PROJECT DEVELOPMENT PROCESS. UPDATED ENGINEERING DRAWINGS AND ENVIRONMENTAL ANALYSIS WILL BE MADE AVAILABLE TO THE PUBLIC IN THE FUTURE AS THE PROJECT OR INCREMENTAL PHASES ADVANCE TOWARD CONSTRUCTION.



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-1

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	2	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

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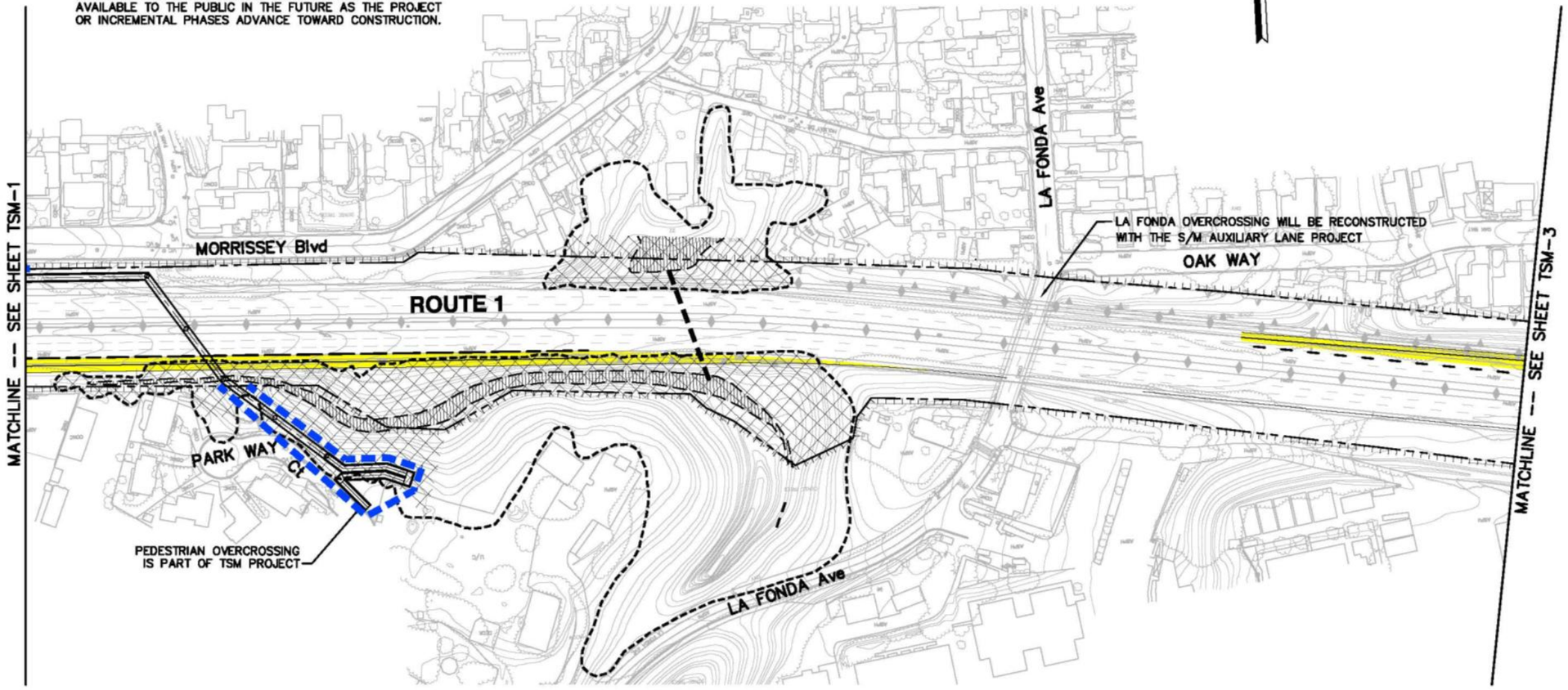


PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- X PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

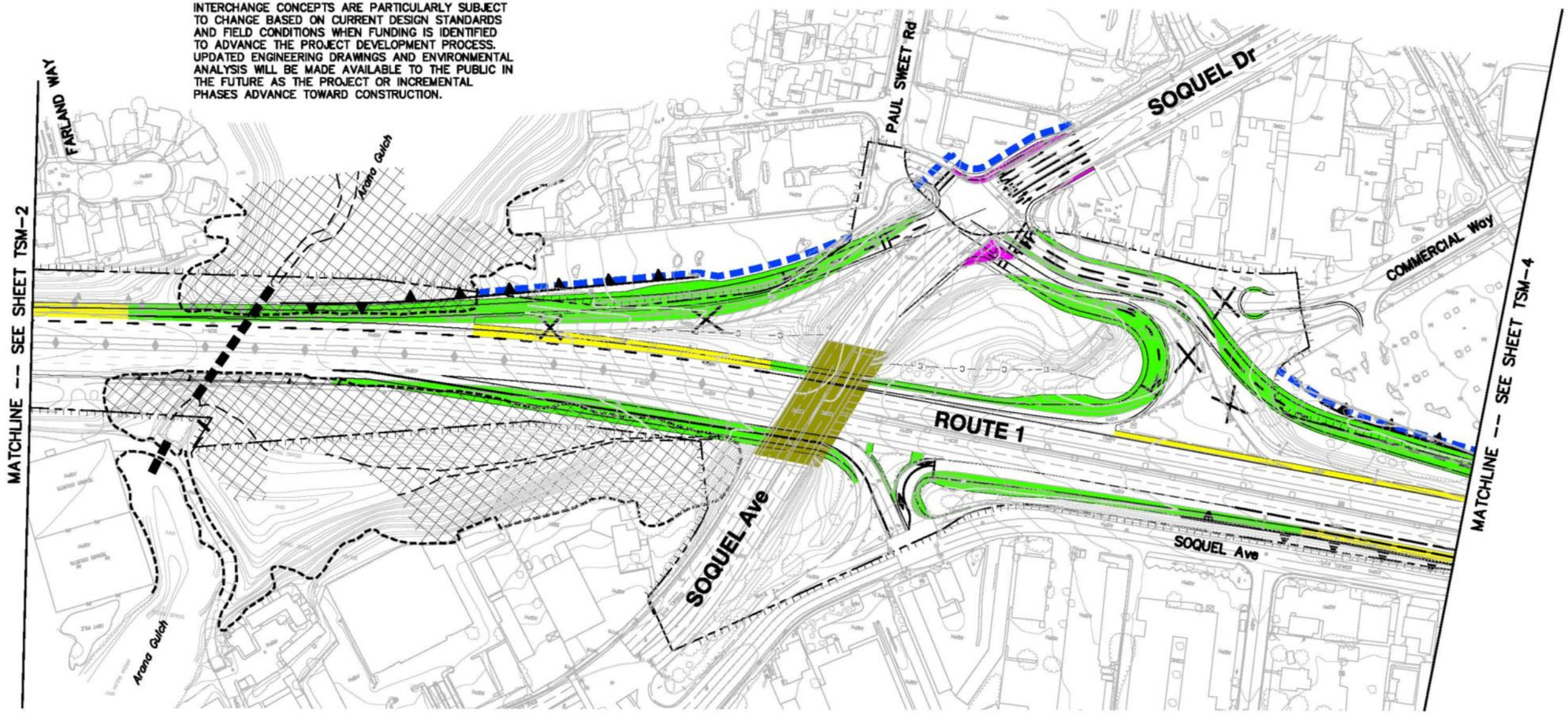
TSM-2

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	3	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

INTERCHANGE CONCEPTS ARE PARTICULARLY SUBJECT TO CHANGE BASED ON CURRENT DESIGN STANDARDS AND FIELD CONDITIONS WHEN FUNDING IS IDENTIFIED TO ADVANCE THE PROJECT DEVELOPMENT PROCESS. UPDATED ENGINEERING DRAWINGS AND ENVIRONMENTAL ANALYSIS WILL BE MADE AVAILABLE TO THE PUBLIC IN THE FUTURE AS THE PROJECT OR INCREMENTAL PHASES ADVANCE TOWARD CONSTRUCTION.



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
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- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
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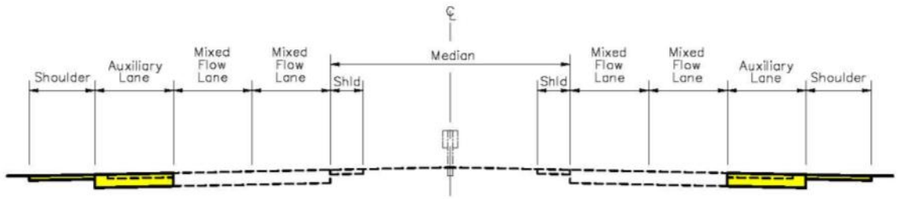
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-3

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	4	20



TYPICAL SECTION
NO SCALE

CONCEPT NOTES:

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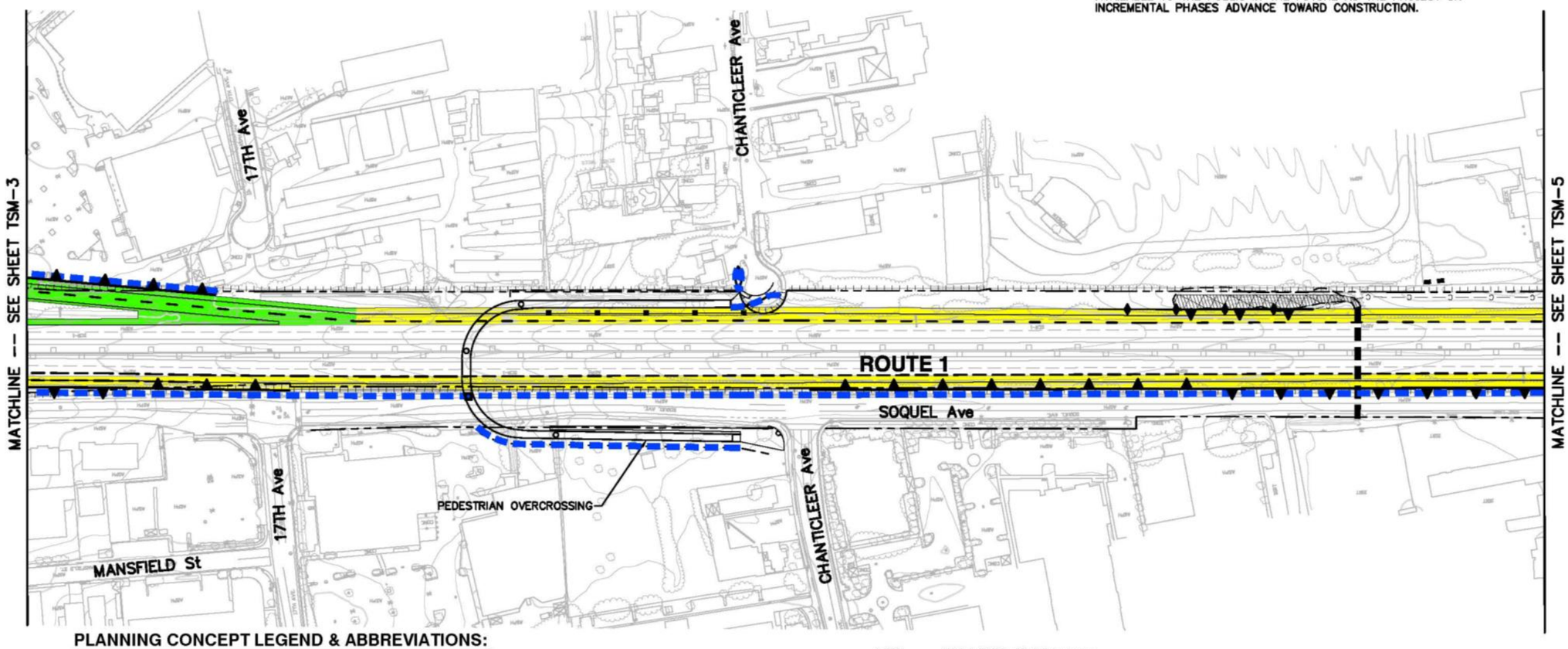

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

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CB	CONCRETE BARRIER
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CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-4

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	5	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

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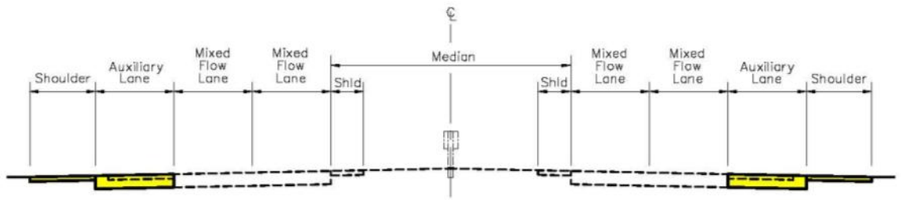
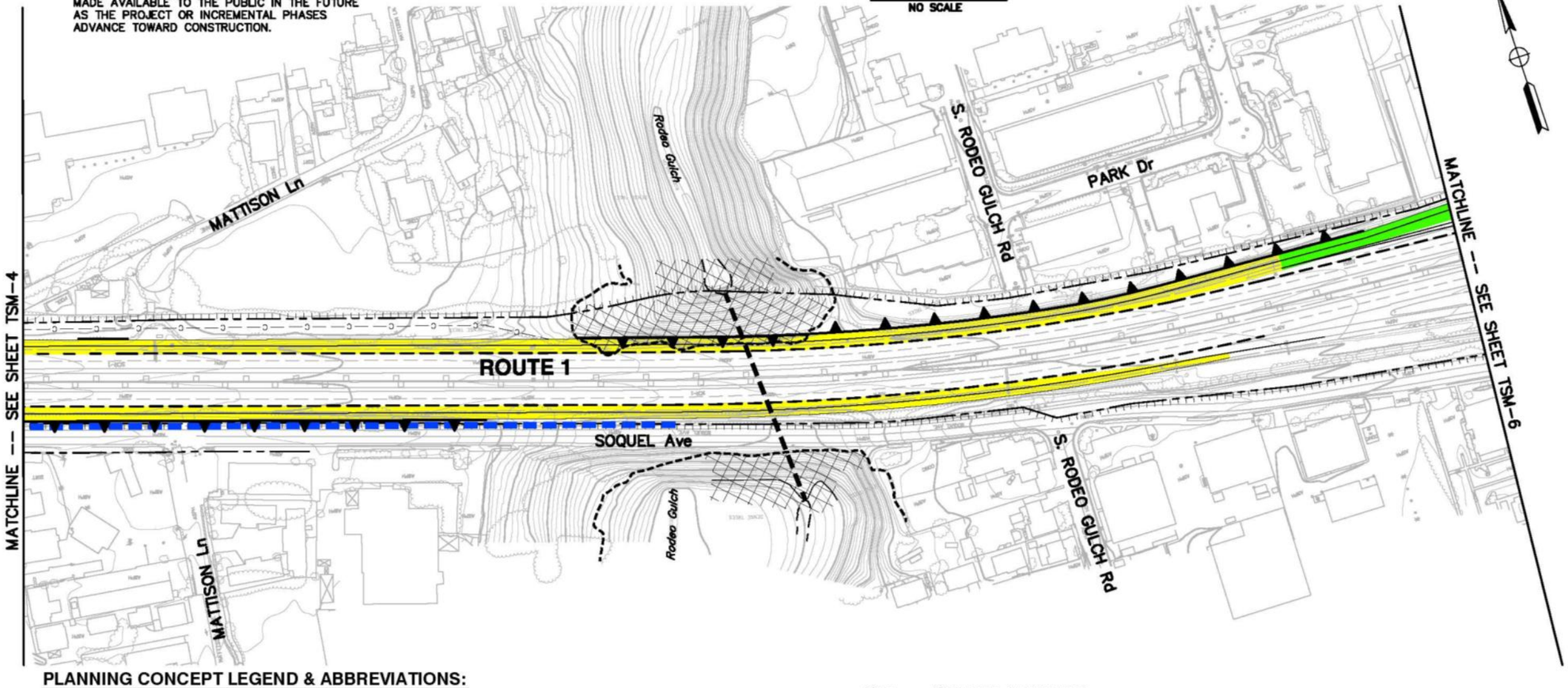


TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

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DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-5

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	6	20

CONCEPT NOTES:

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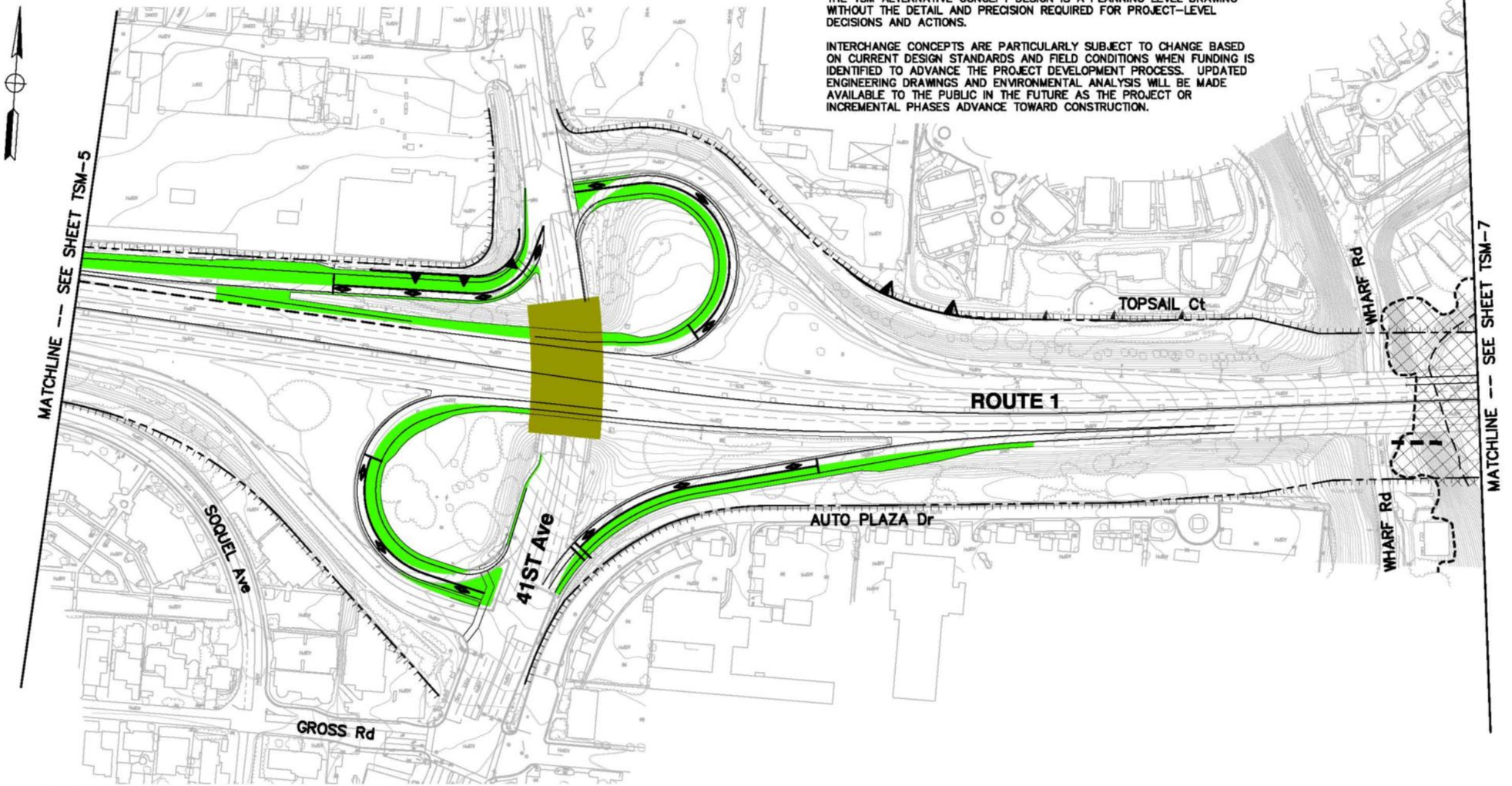

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
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CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-6

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	7	20

CONCEPT NOTES:

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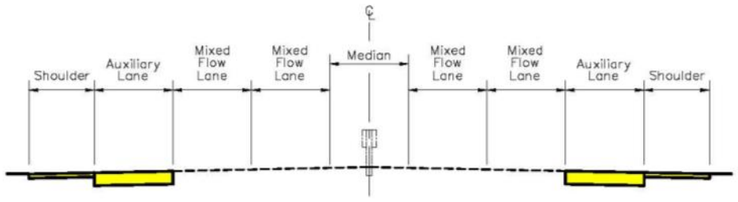
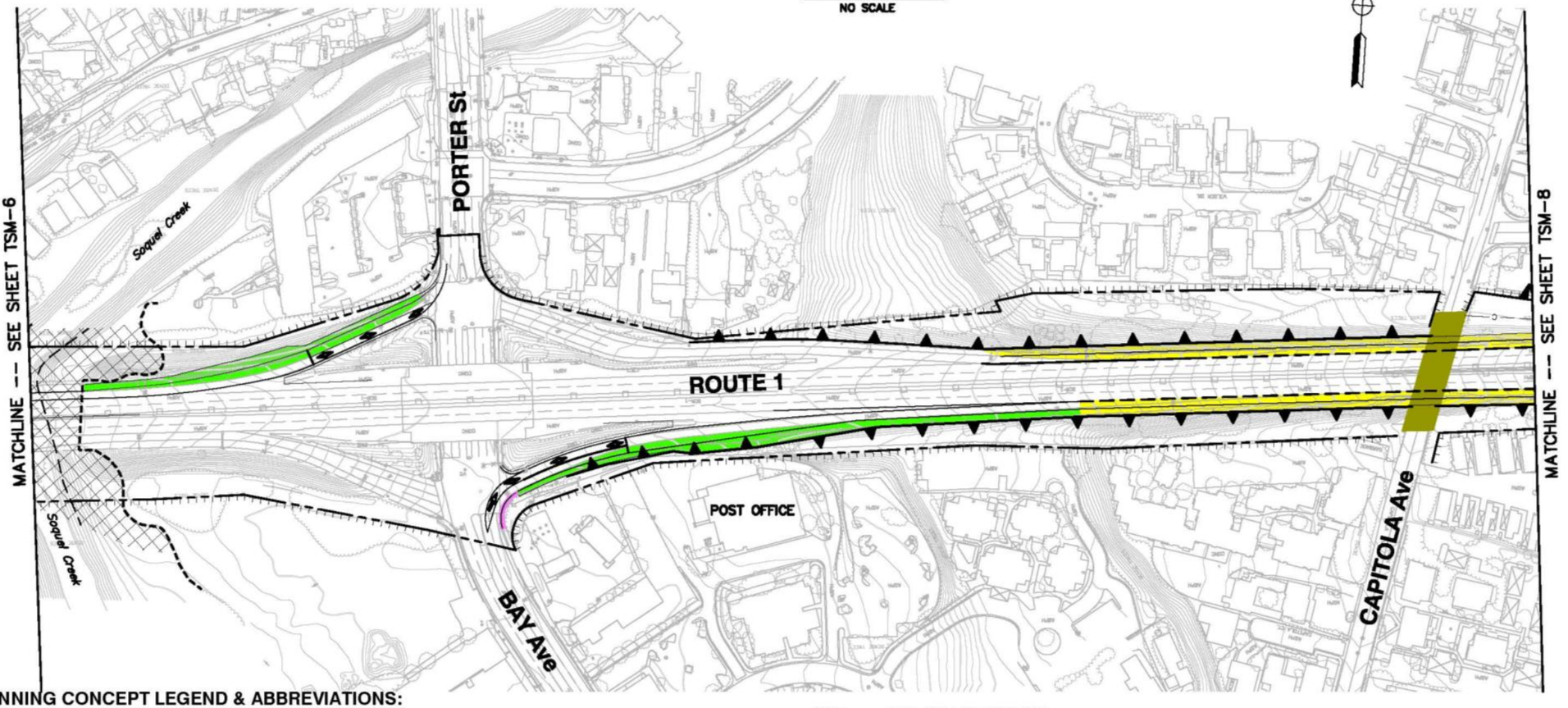


TYPICAL SECTION
NO SCALE



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Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-7

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	8	20

CONCEPT NOTES:

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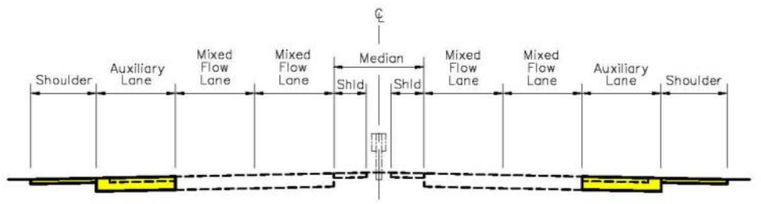

TYPICAL SECTION
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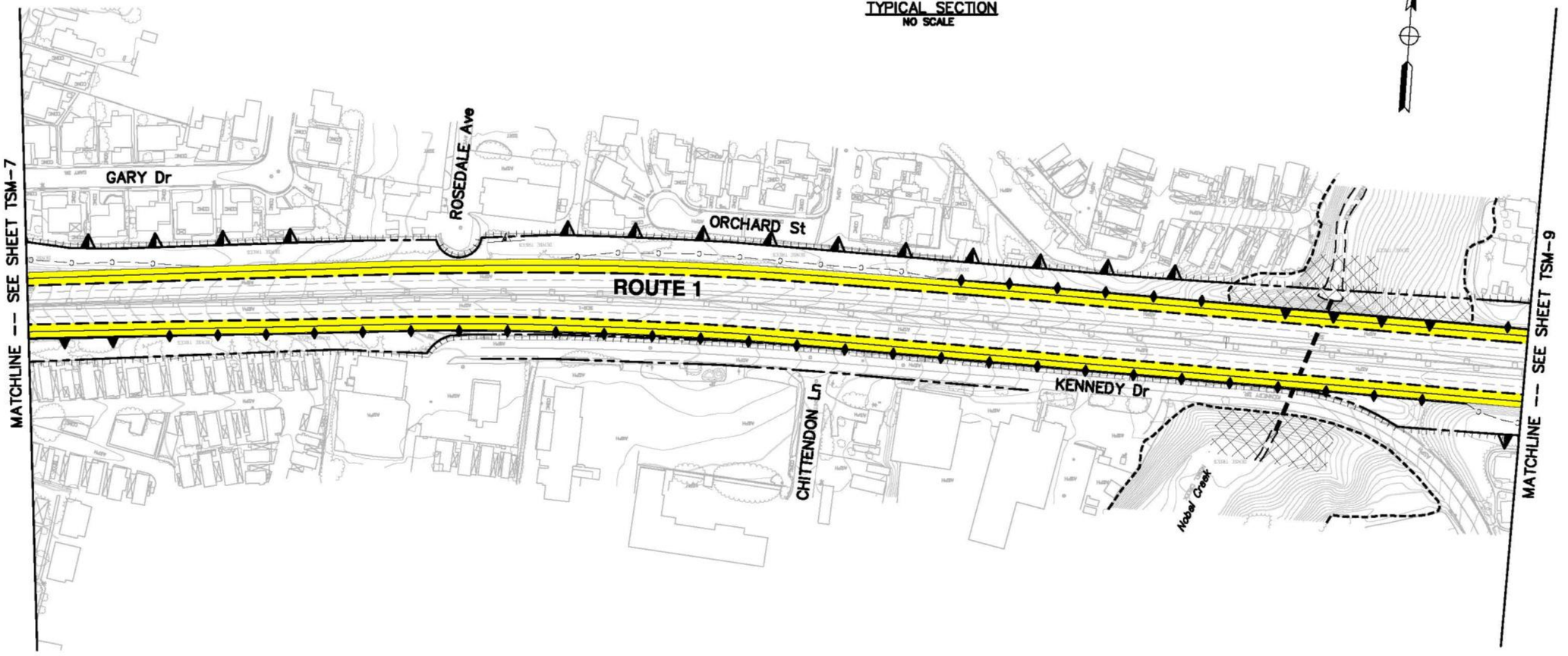

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-8

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	9	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

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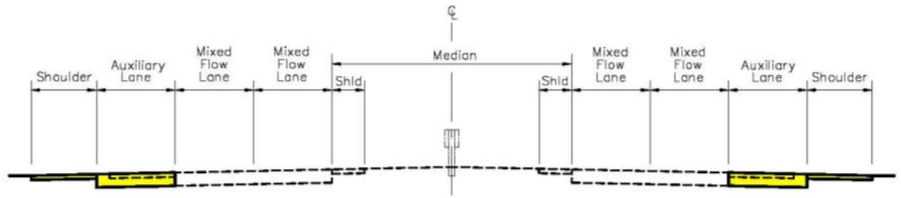
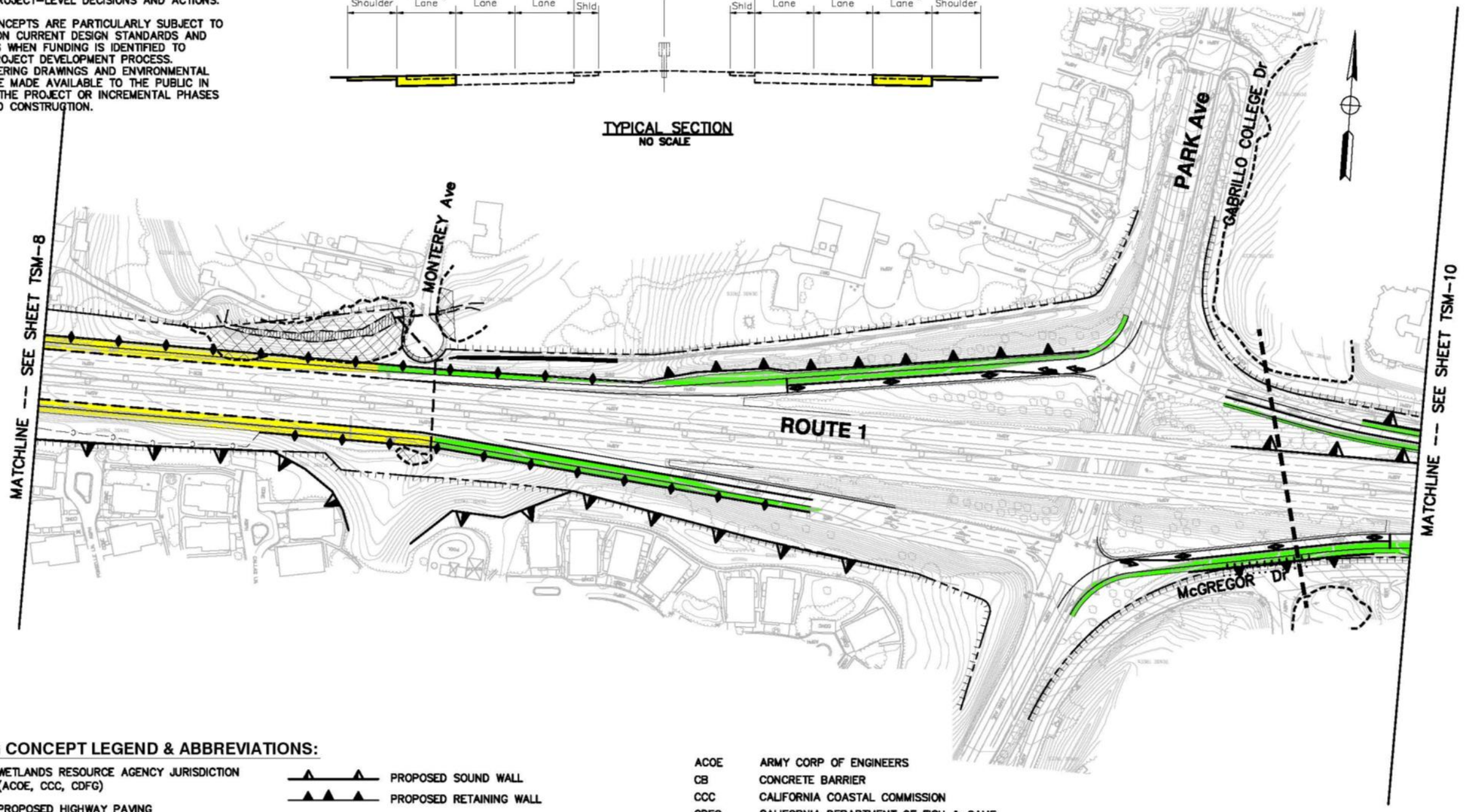


TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
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CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-9

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	10	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT–LEVEL DECISIONS AND ACTIONS.

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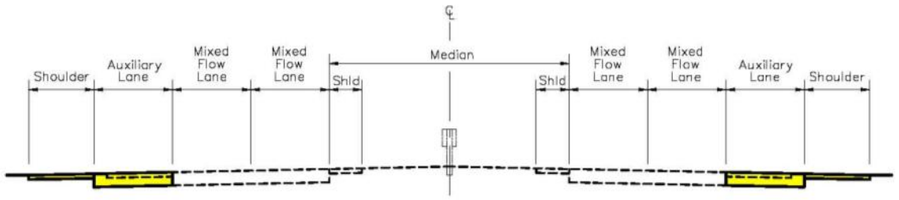
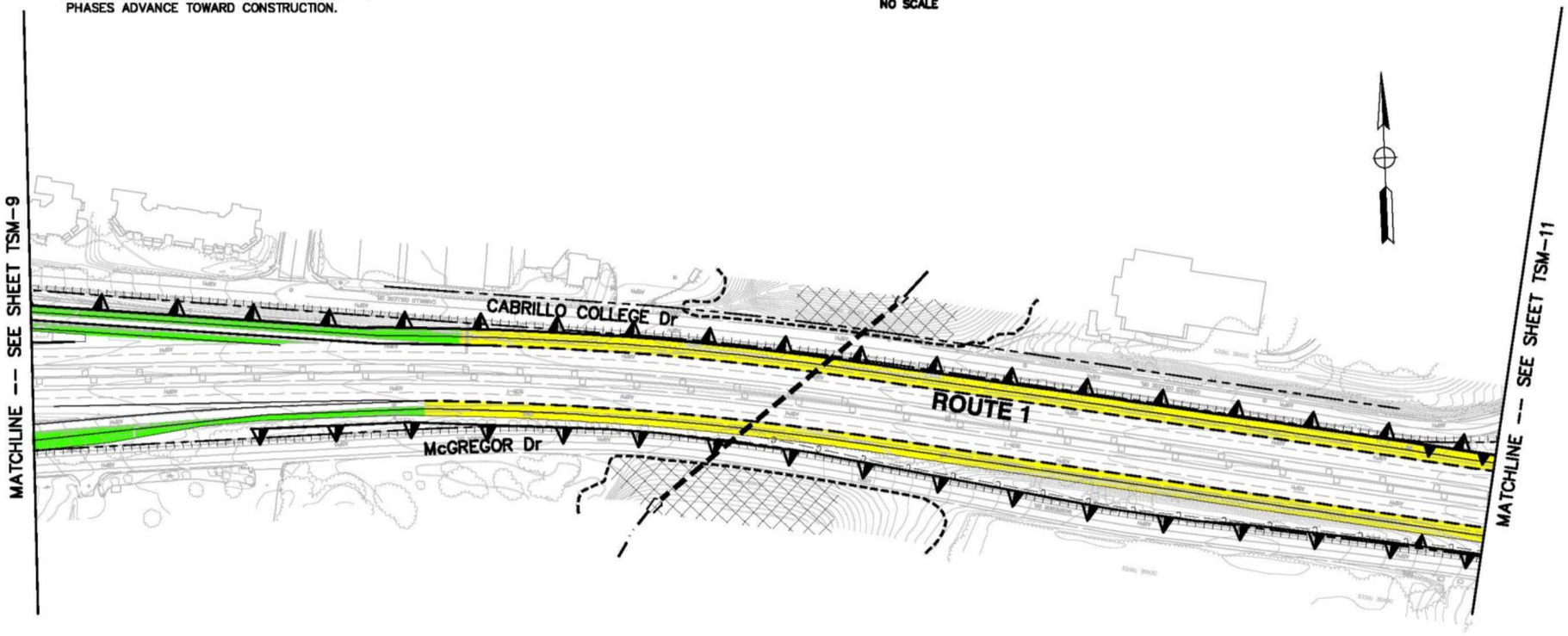


TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
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- PROPOSED BIKE PATH
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ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-10

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	11	20

CONCEPT NOTES:

THE TSM ALTERNATIVE CONCEPT DESIGN IS A PLANNING LEVEL DRAWING WITHOUT THE DETAIL AND PRECISION REQUIRED FOR PROJECT-LEVEL DECISIONS AND ACTIONS.

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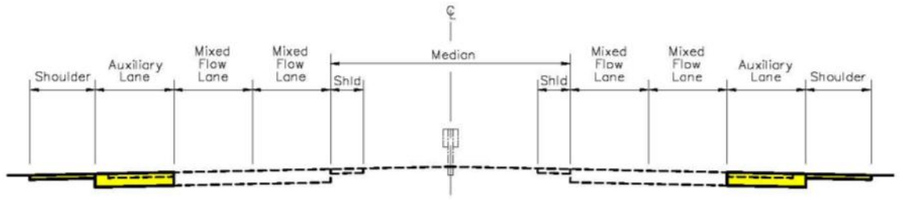
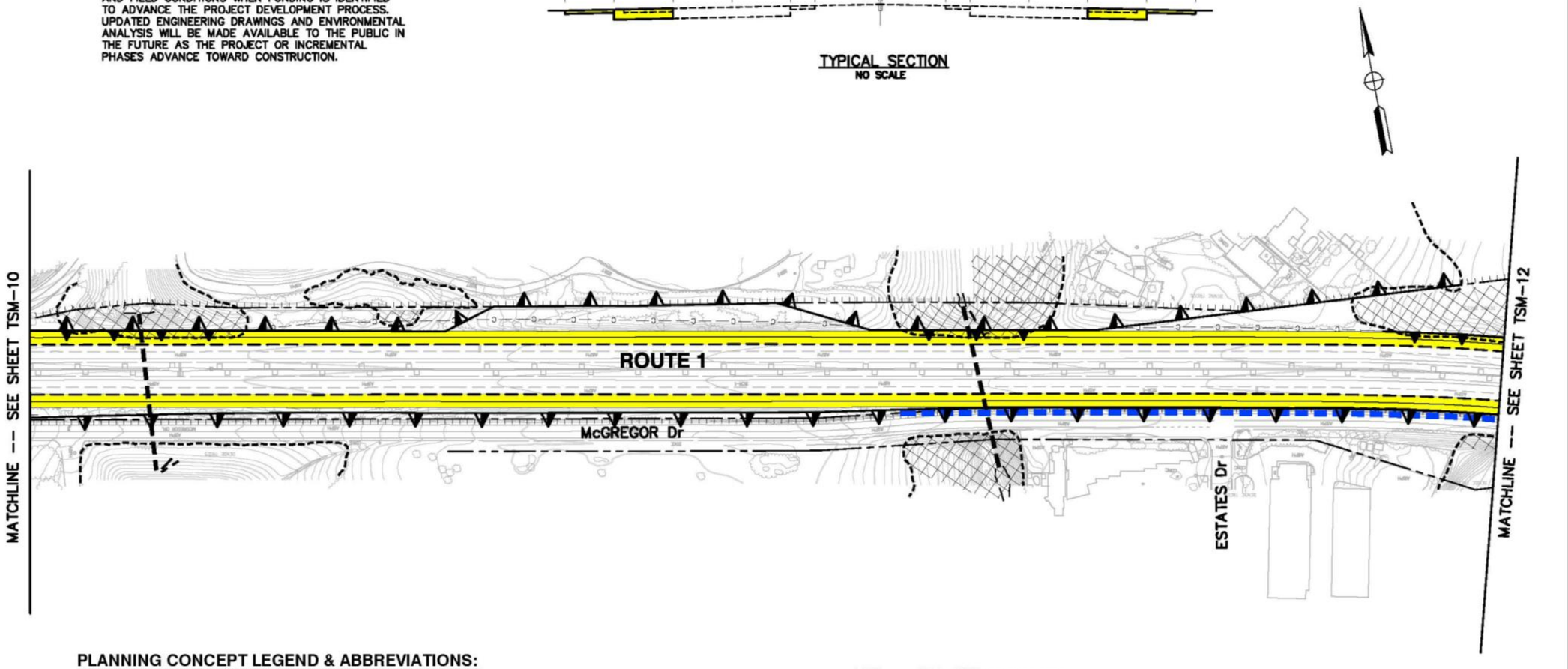


TYPICAL SECTION
NO SCALE



PLANNING CONCEPT LEGEND & ABBREVIATIONS:

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PROPOSED HIGHWAY PAVING
- PROPOSED RAMP PAVING
- PROPOSED LOCAL ROAD WORK
- PROPOSED BIKE PATH
- PROPOSED BRIDGE
- PROPOSED SOUND WALL
- PROPOSED RETAINING WALL
- PROPOSED SOUND WALL ON RETAINING WALL
- EXISTING HIGHWAY ACCESS CONTROL
- PLANNING CONCEPT FOOTPRINT
- EXISTING CULVERT
- HOV LANE PAVEMENT MARKING
- PAVEMENT REMOVAL

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-11

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	12	20

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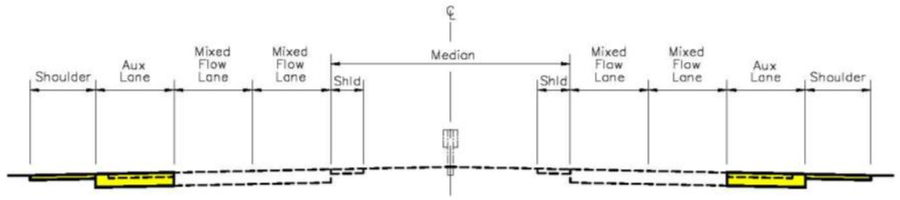
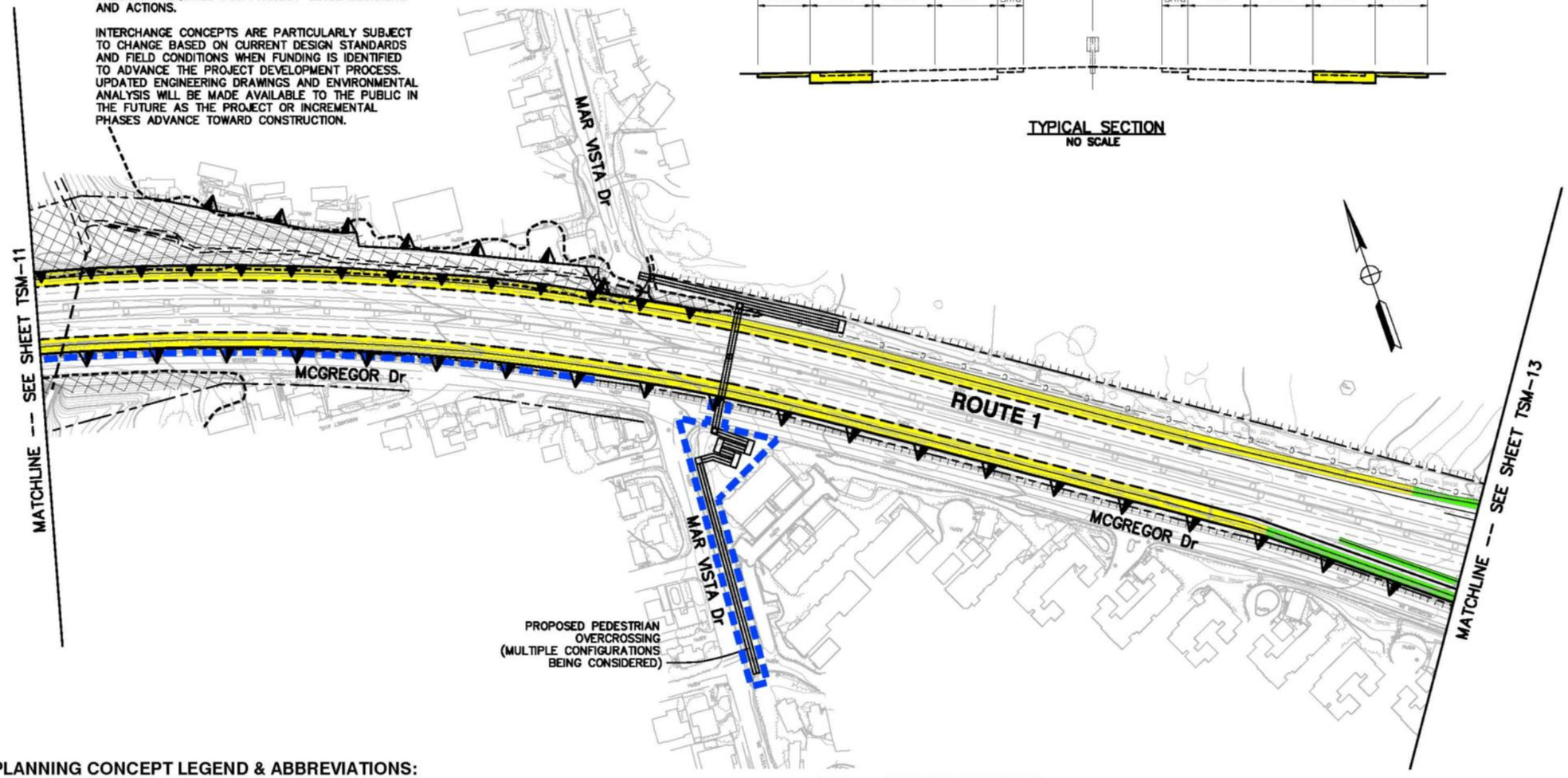


TYPICAL SECTION
NO SCALE



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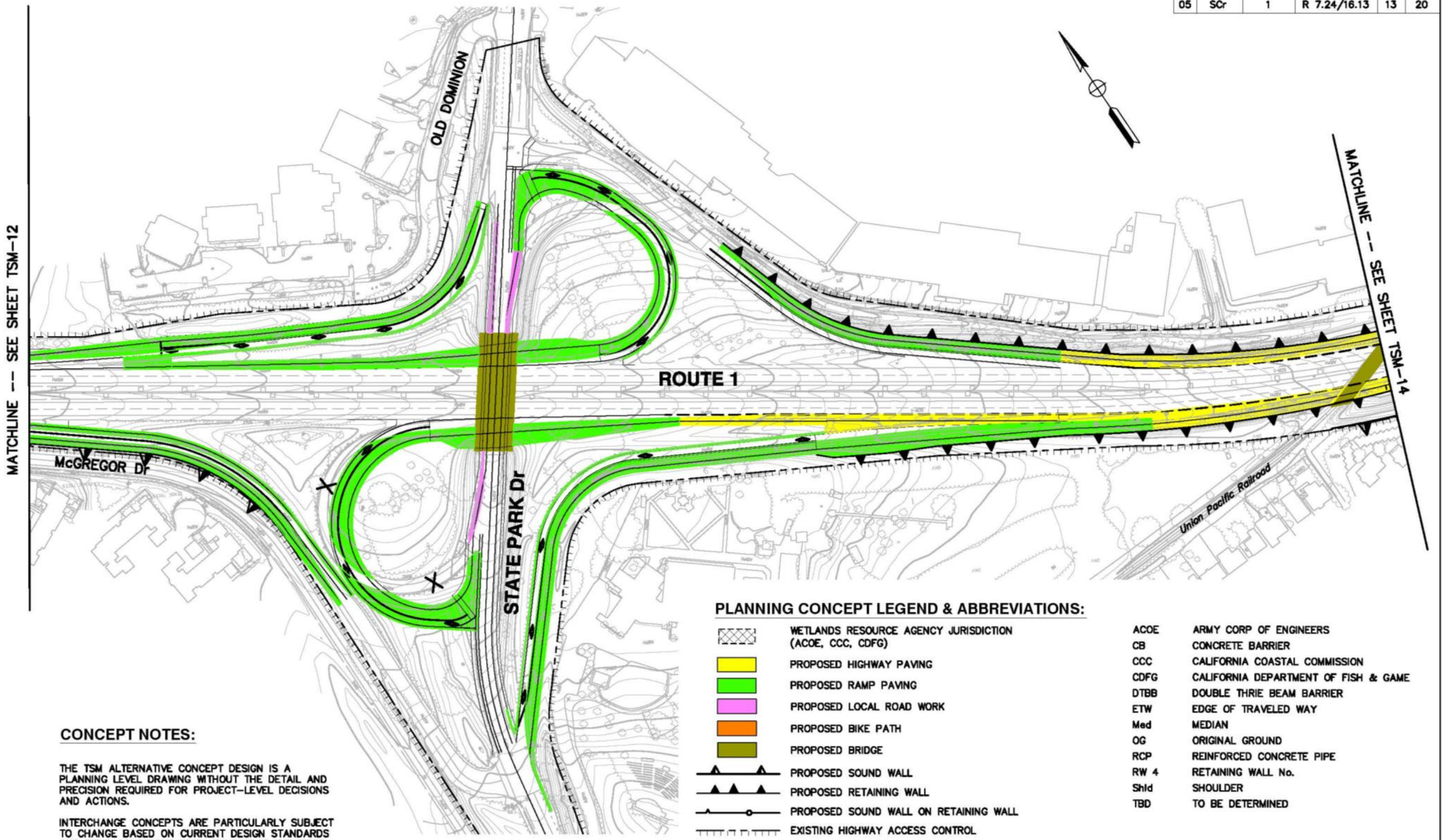
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-12

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	13	20



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CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
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Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-13

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	14	20

CONCEPT NOTES:

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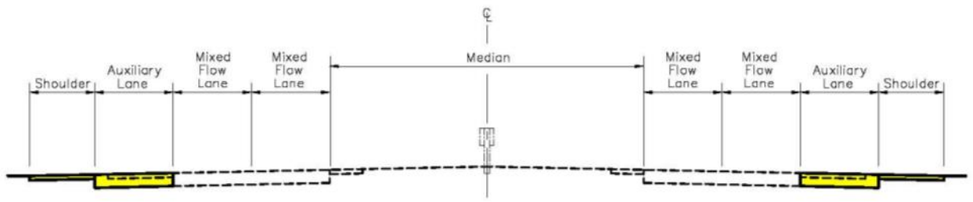
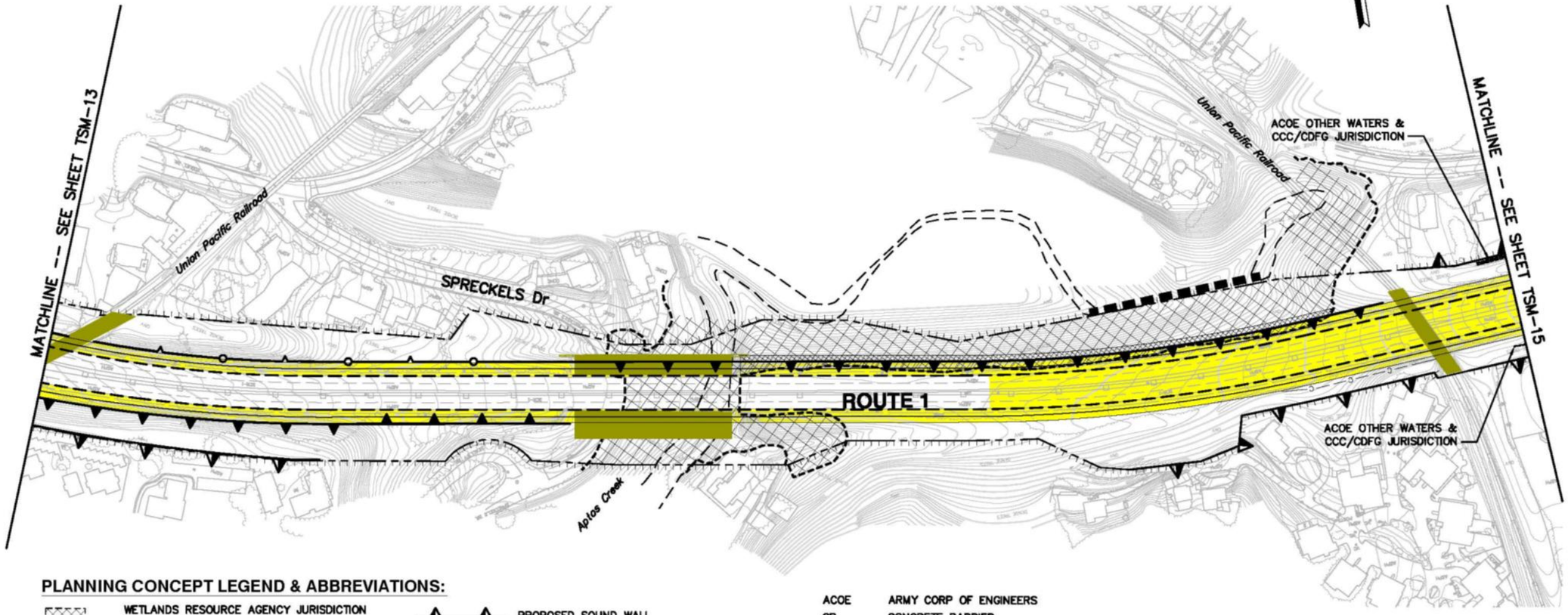


TYPICAL SECTION
NO SCALE



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RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-14

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	15	20

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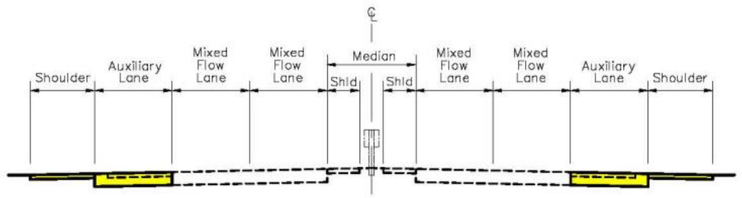

TYPICAL SECTION
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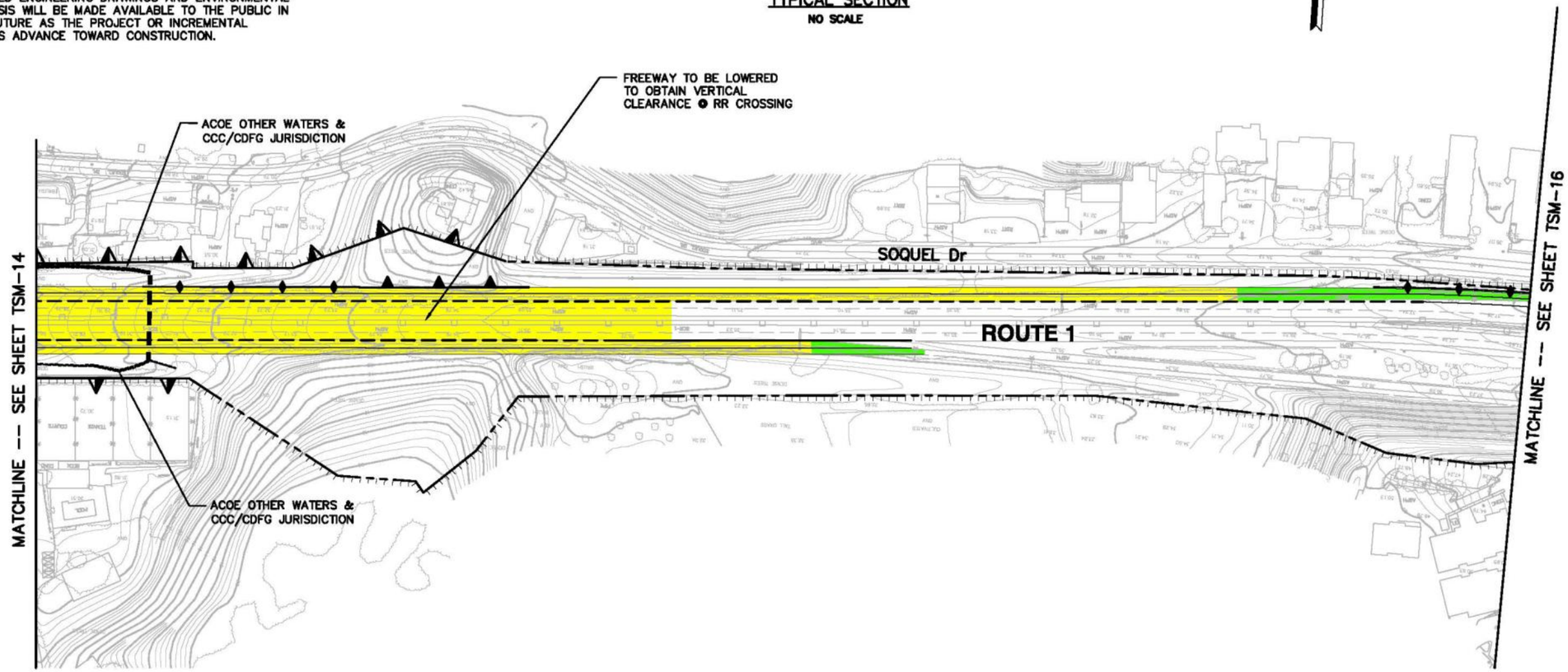

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Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-15

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	16	20

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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- PROPOSED BIKE PATH
- PROPOSED BRIDGE

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ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

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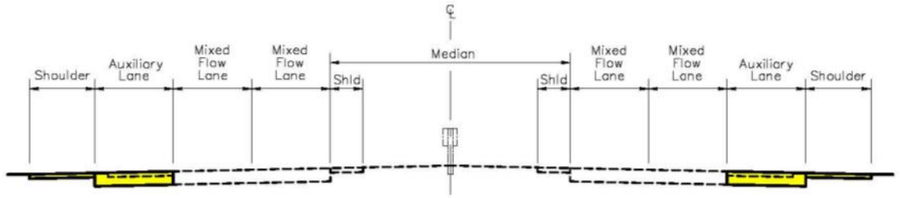
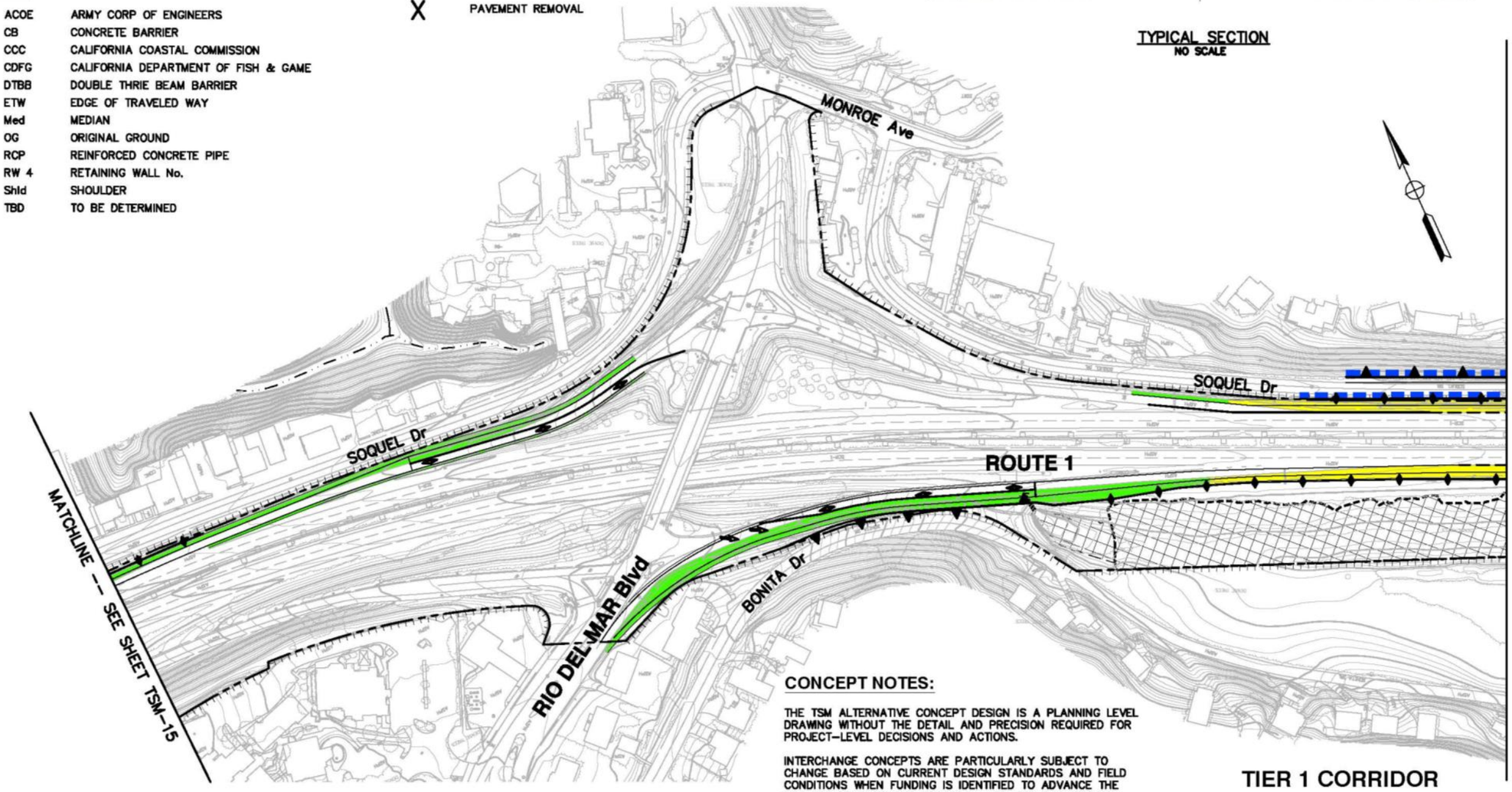


TYPICAL SECTION
NO SCALE



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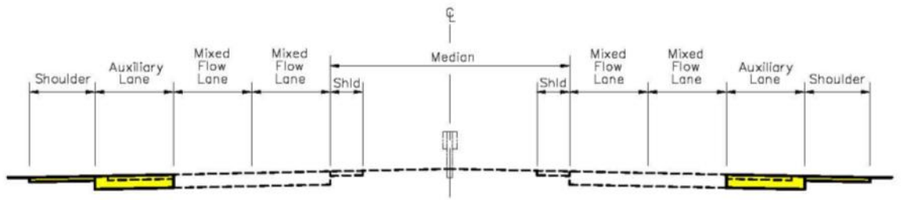
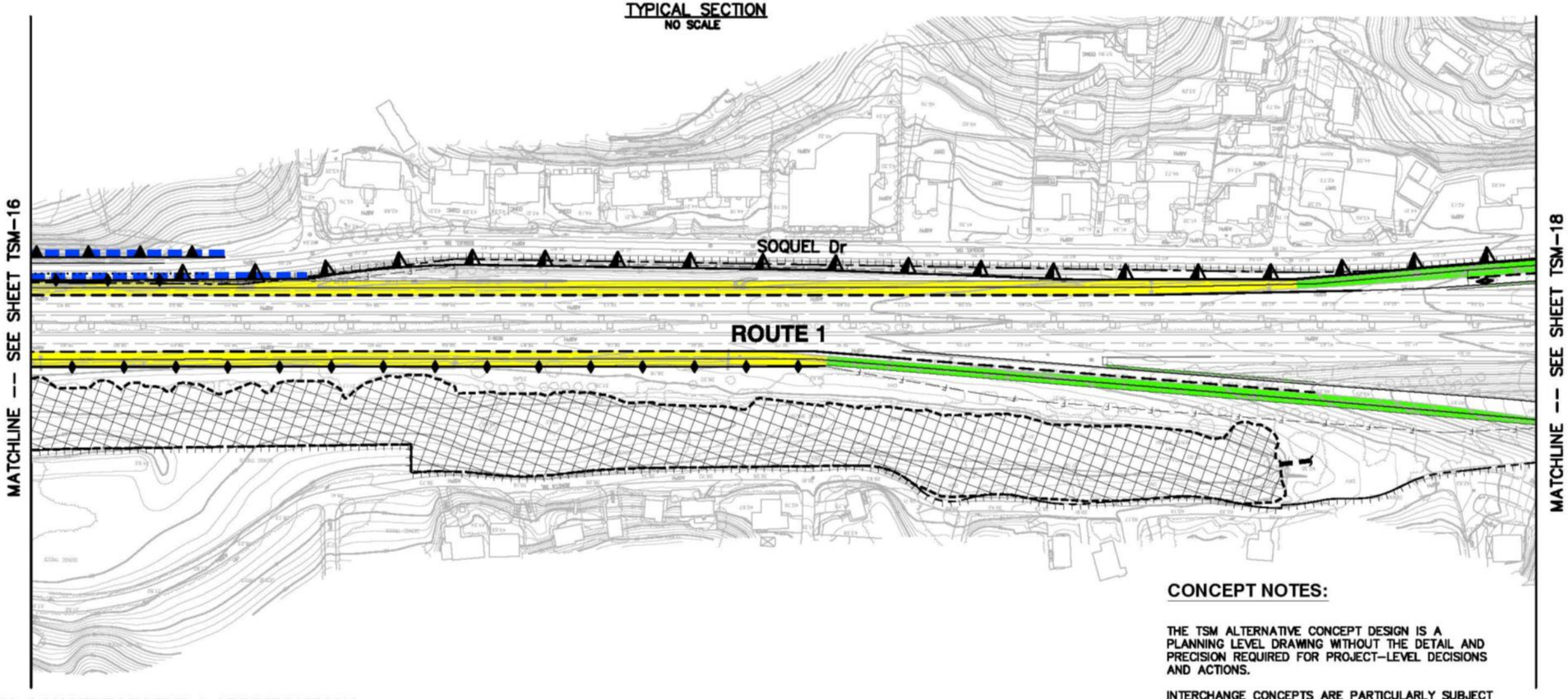
TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-16

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	17	20



TYPICAL SECTION
NO SCALE



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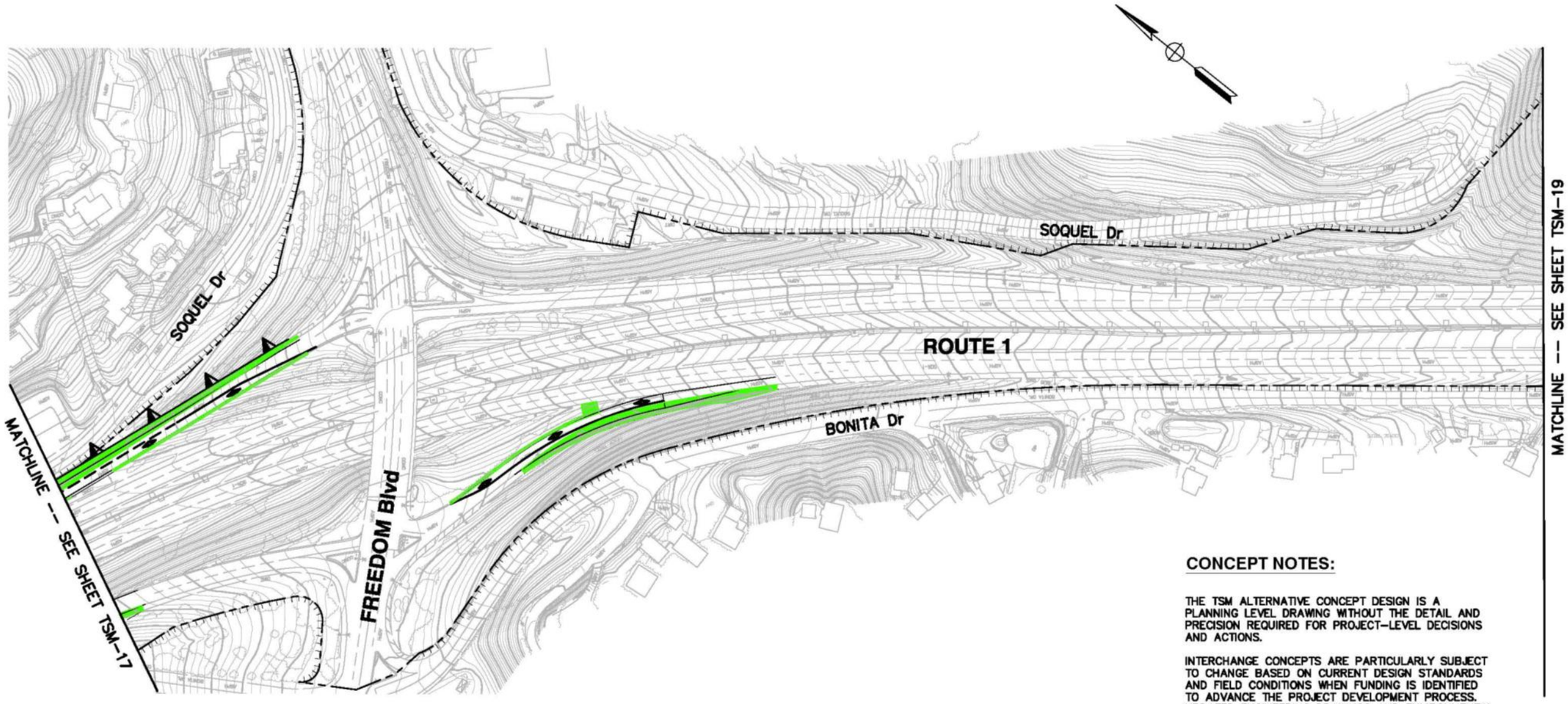
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-17

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	18	20



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RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-18

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	19	20

CONCEPT NOTES:

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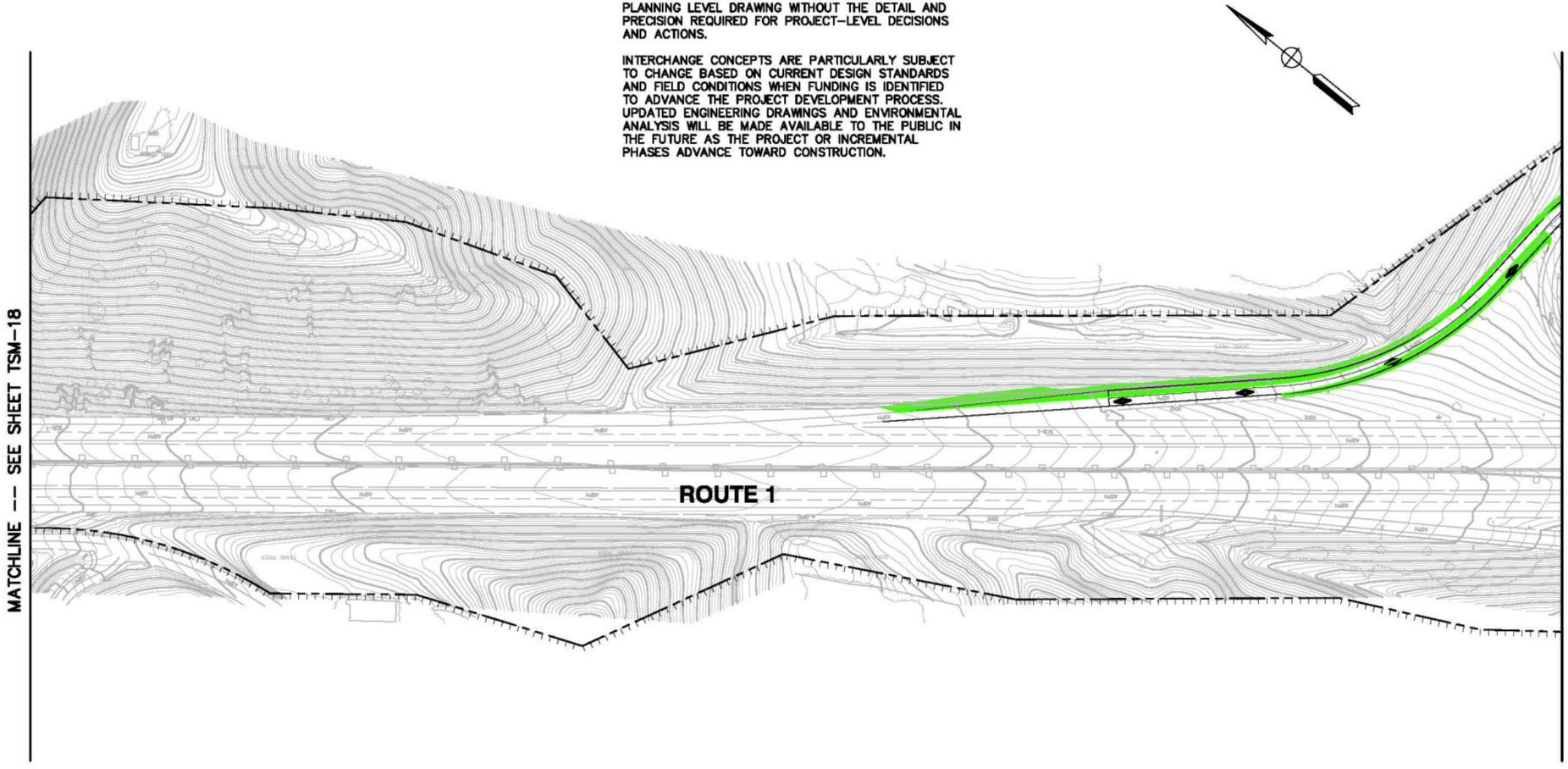

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Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-19

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	R 7.24/16.13	20	20

CONCEPT NOTES:

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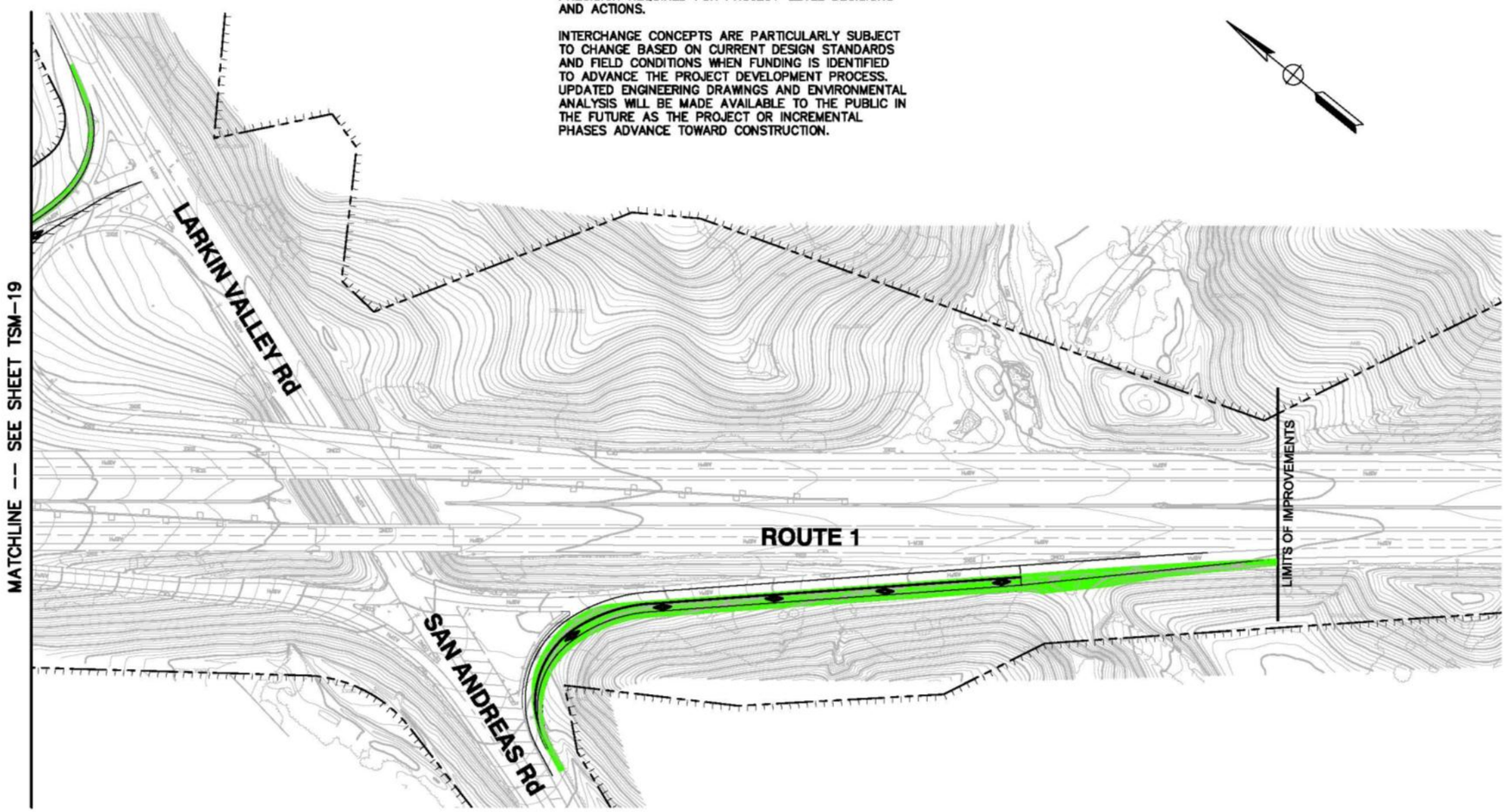

PLANNING CONCEPT LEGEND & ABBREVIATIONS:

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RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 1 CORRIDOR TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

TSM-20

Appendix C

Figure 45: Tier II Auxiliary Lane Alternative Plans

Figure 46: Typical Cross Sections for Tier II Auxiliary Lane Alternative

Figure 47: Chanticleer Pedestrian Bridge Schematic Layout Plan

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	13.5/14.9	1	3

LEGEND & ABBREVIATIONS

- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PERIMETER OF WETLANDS RESOURCE AGENCY JURISDICTION
- RETAINING WALL
- CONCRETE BARRIER
- EXISTING ACCESS CONTROL
- PROPOSED ACCESS CONTROL
- LOCAL PROPERTY LINE
- STORM CULVERT
- DITCH FLOW LINE
- X — EXISTING PAVEMENT TO BE REMOVED
- NEW STRUCTURE
- NEW PAVEMENT
- PROPOSED STORM TREATMENT AREA

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
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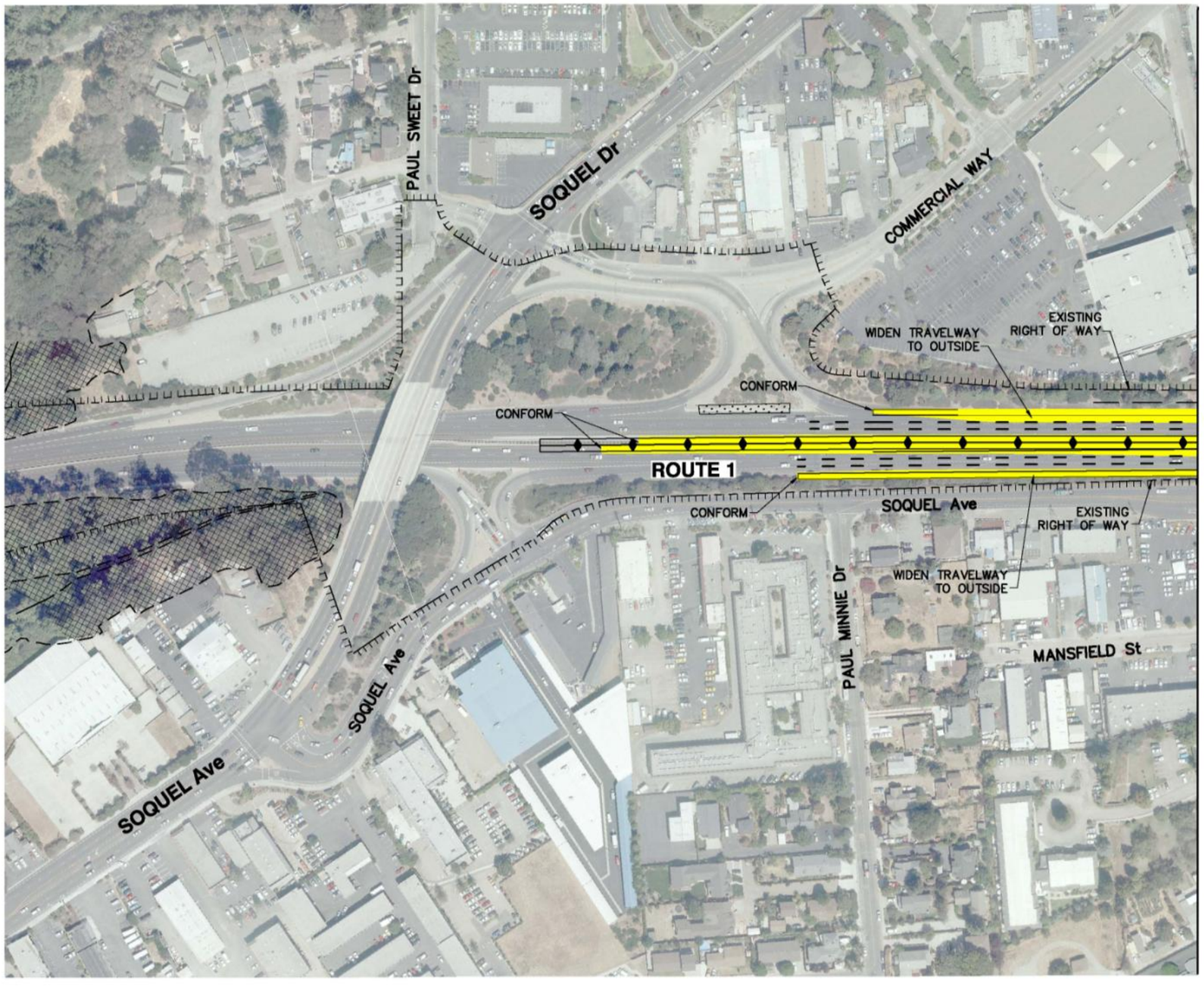
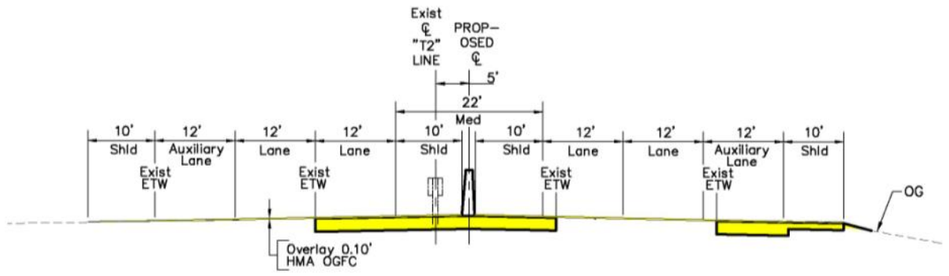
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED



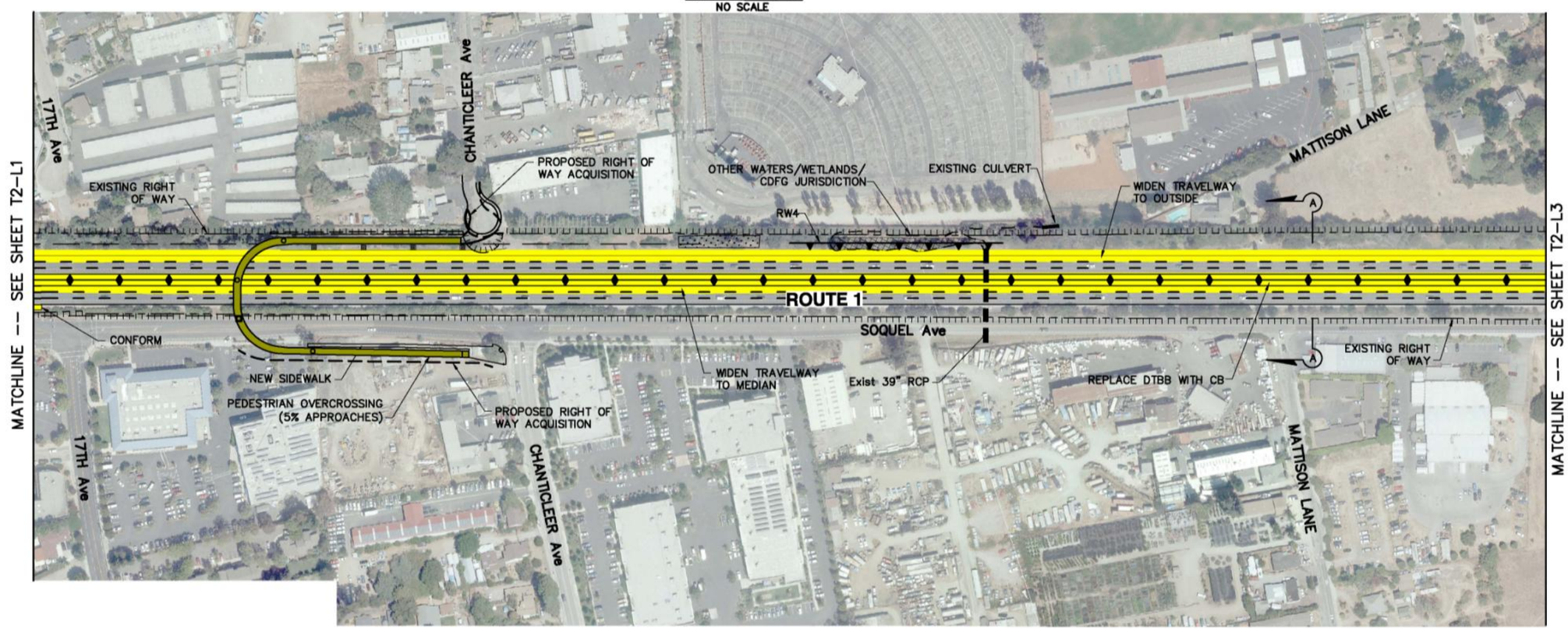
TIER 2
AUXILIARY LANES PROJECT
SOQUEL Ave TO 41st Ave

T2-L1

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	13.5/14.9	2	3



SECTION A–A
NO SCALE



LEGEND & ABBREVIATIONS

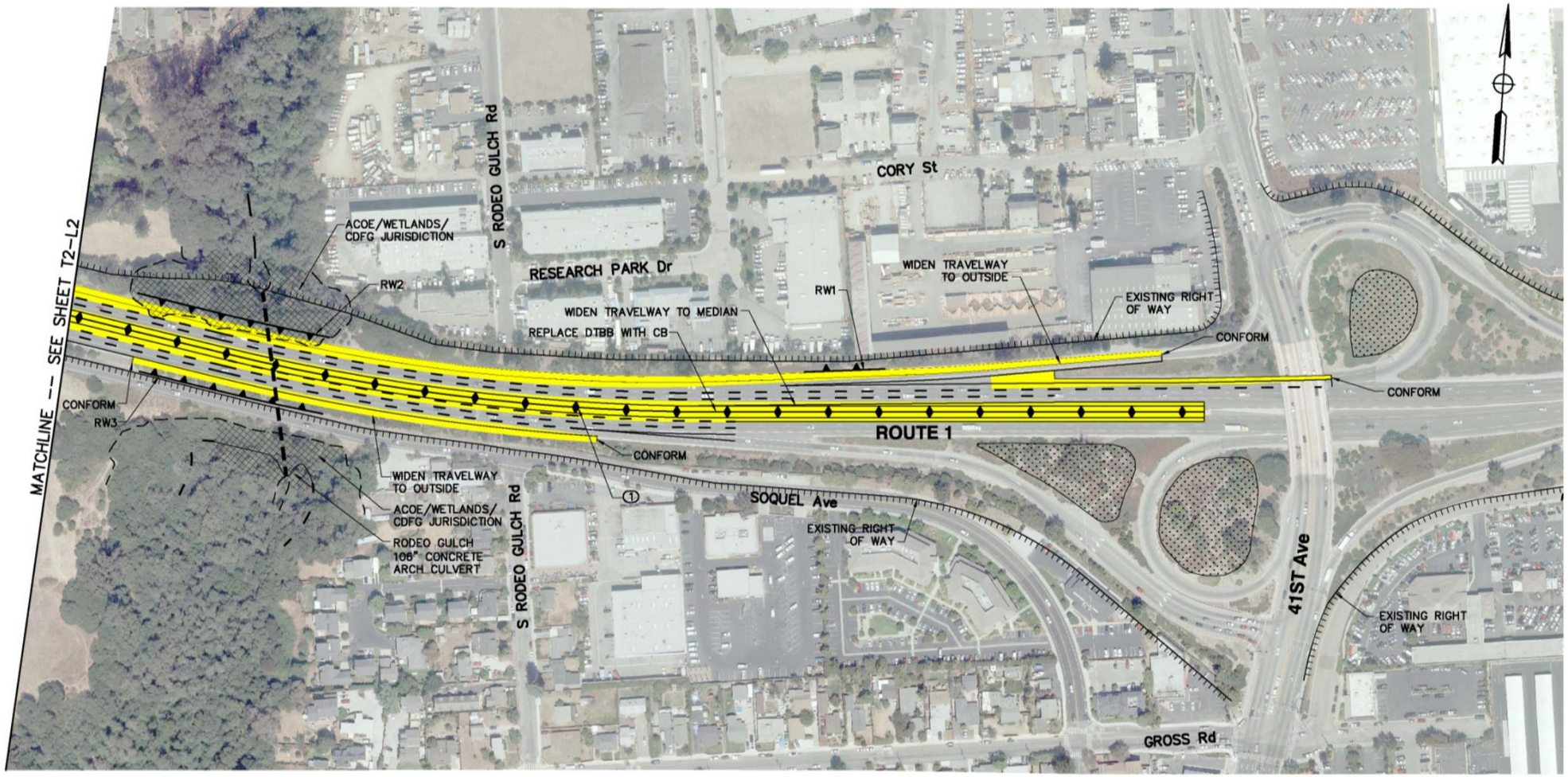
- WETLANDS RESOURCE AGENCY JURISDICTION (ACOE, CCC, CDFG)
- PERIMETER OF WETLANDS RESOURCE AGENCY JURISDICTION
- RETAINING WALL
- CONCRETE BARRIER
- EXISTING ACCESS CONTROL
- PROPOSED ACCESS CONTROL
- LOCAL PROPERTY LINE
- STORM CULVERT
- DITCH FLOW LINE
- X — EXISTING PAVEMENT TO BE REMOVED
- NEW STRUCTURE
- NEW PAVEMENT
- PROPOSED STORM TREATMENT AREA

ACOE	ARMY CORP OF ENGINEERS
CB	CONCRETE BARRIER
CCC	CALIFORNIA COASTAL COMMISSION
CDFG	CALIFORNIA DEPARTMENT OF FISH & GAME
DTBB	DOUBLE THRIE BEAM BARRIER
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 2
AUXILIARY LANES PROJECT
SOQUEL Ave TO 41st Ave

T2-L2

DIST	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SCr	1	13.5/14.9	3	3



LEGEND & ABBREVIATIONS

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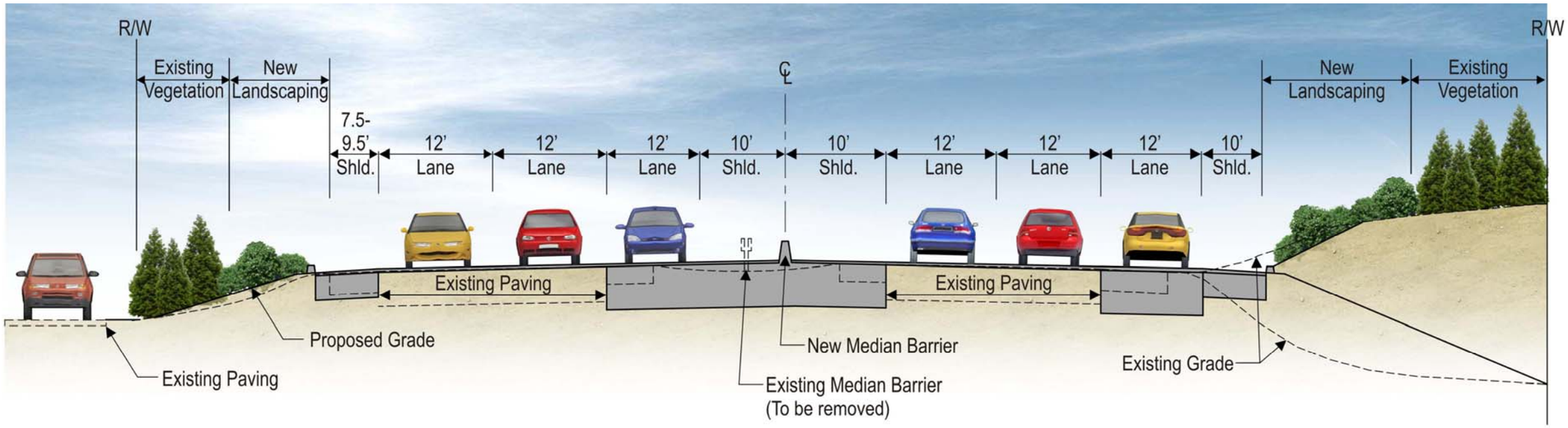
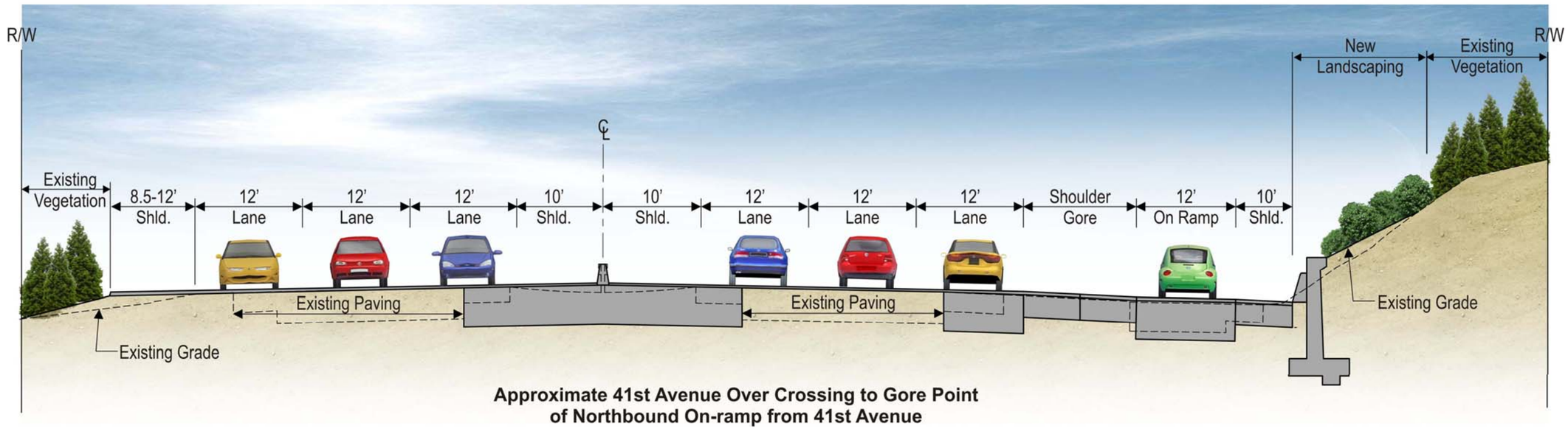
ETW	EDGE OF TRAVELED WAY
Med	MEDIAN
OG	ORIGINAL GROUND
RCP	REINFORCED CONCRETE PIPE
RW 4	RETAINING WALL No.
Shld	SHOULDER
TBD	TO BE DETERMINED

TIER 2
AUXILIARY LANES PROJECT
SOQUEL Ave TO 41st Ave

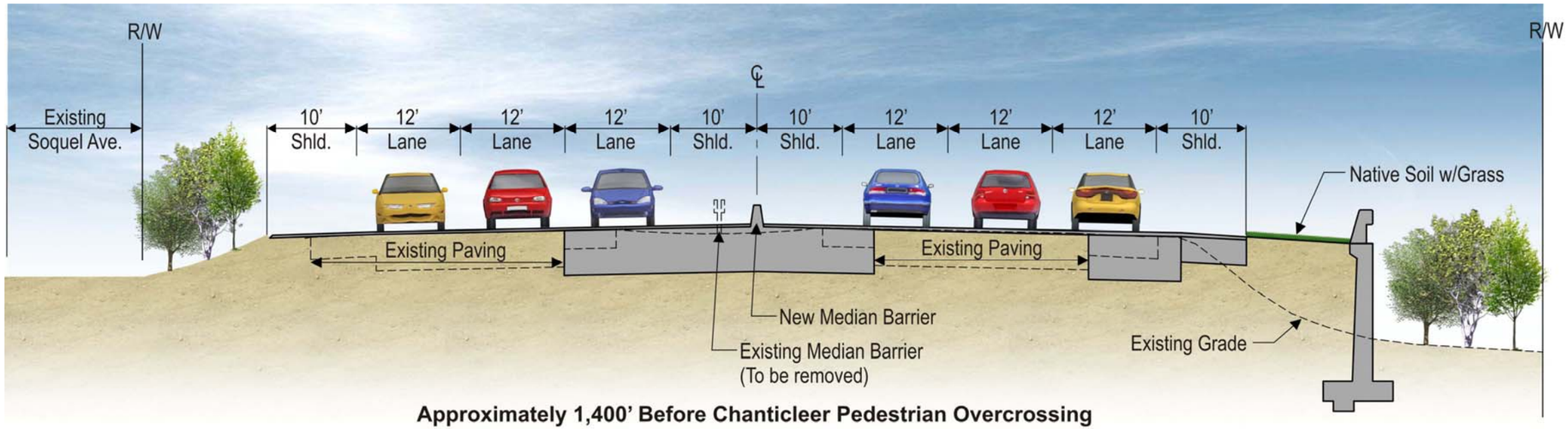
T2-L3



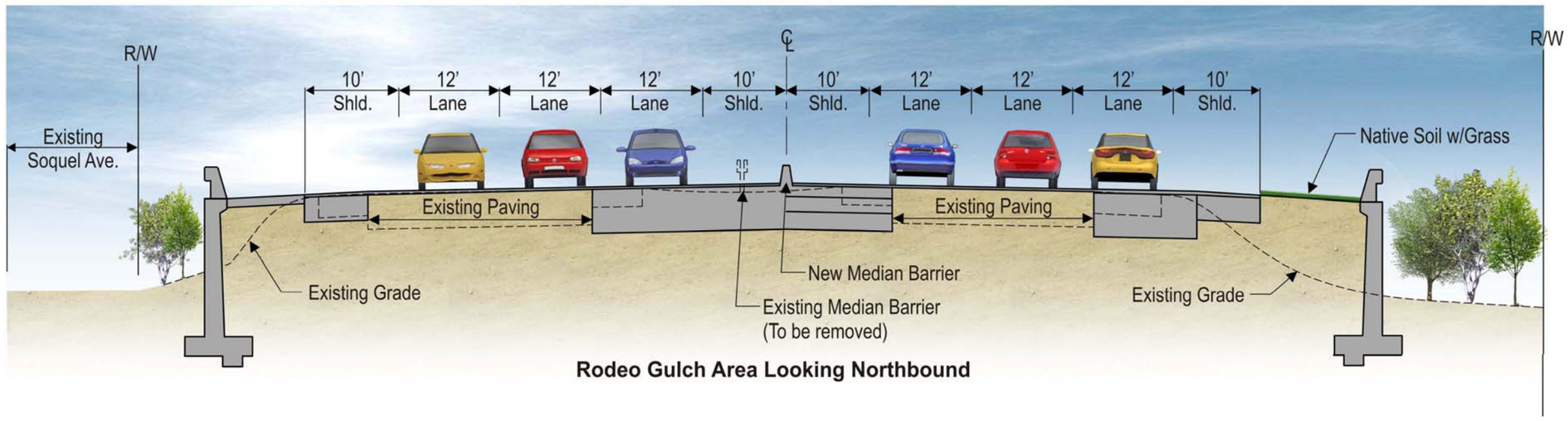
Typical Corridor Cross-Section, looking northbound except as noted (see alternate sections).



Approximate 41st Avenue Over Crossing to Gore Point of Northbound On-ramp from 41st Avenue



Approximately 1,400' Before Chanticleer Pedestrian Overcrossing
Looking Northbound



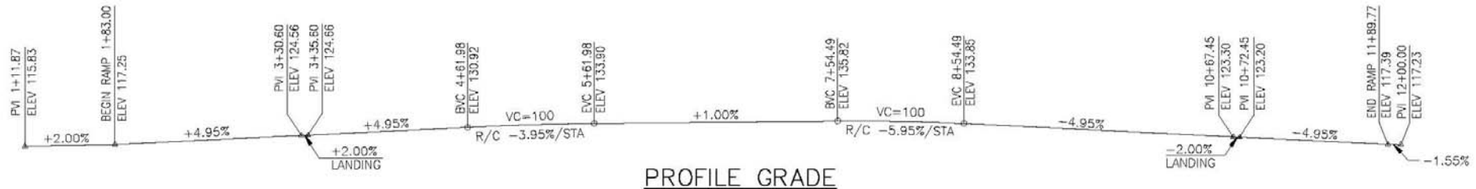
Rodeo Gulch Area Looking Northbound

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

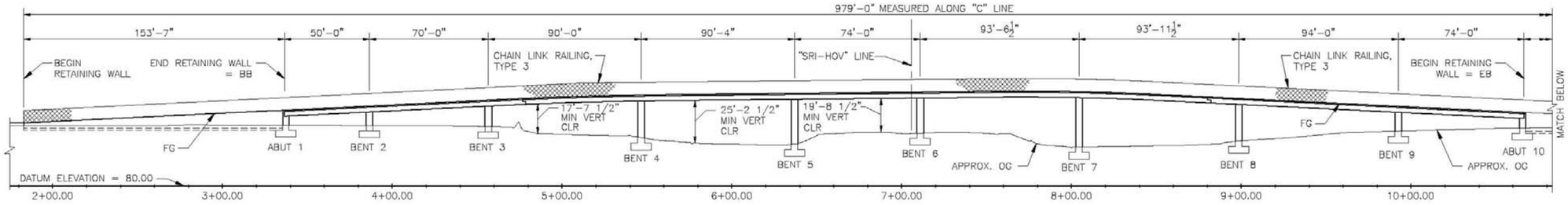
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT
05	SCr	1	21.7/24.0

Santa Cruz County Regional Transportation Commission
1523 Pacific Avenue
Santa Cruz, CA. 95060

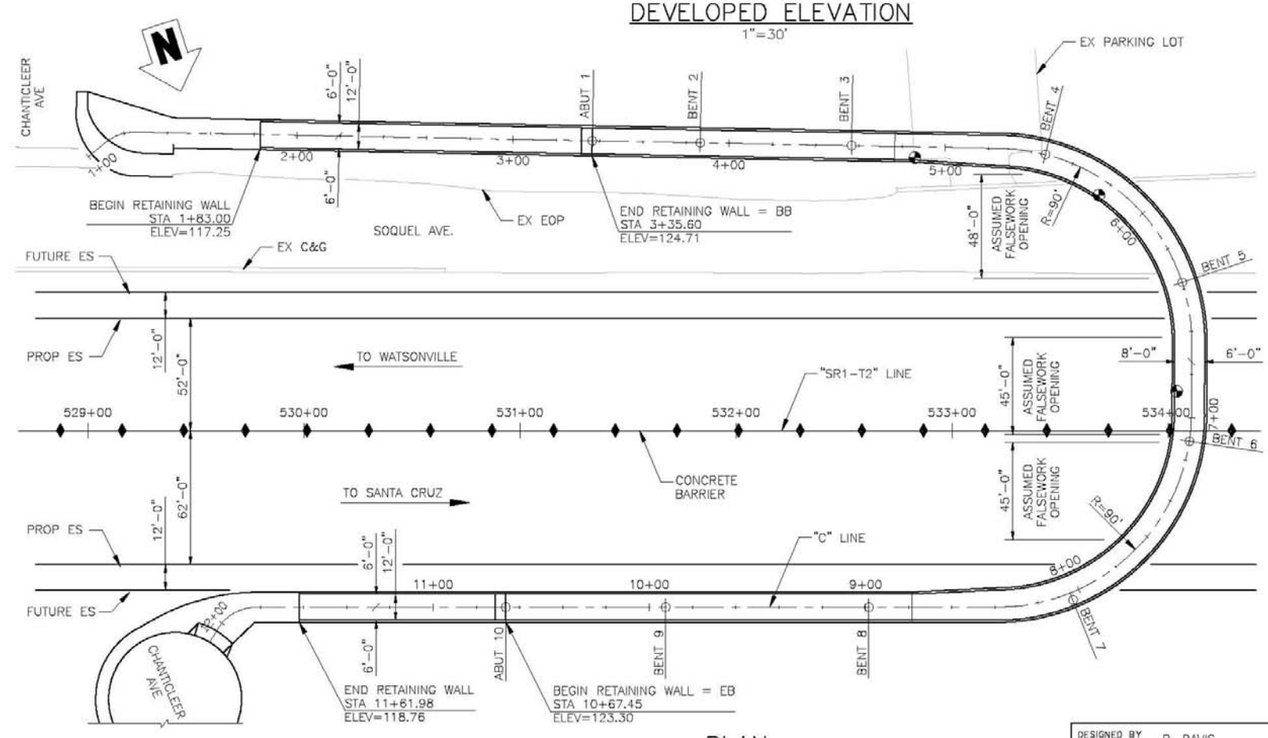
HNTB Corporation
1735 Technology Drive, Suite 650
San Jose, CA. 95110



PROFILE GRADE
NO SCALE

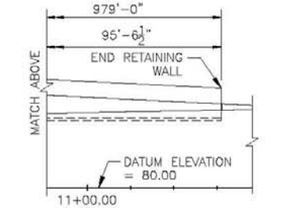


DEVELOPED ELEVATION
1"=30'

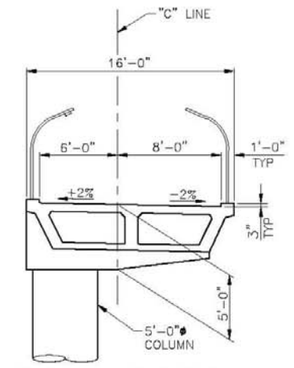


PLAN
1"=30'

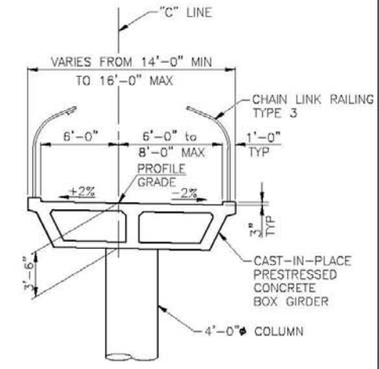
NOTES:
1. TRAFFIC WILL PASS THROUGH CONSTRUCTION SITE ALONG ROUTE 1 AND SOQUEL AVENUE. FALSEWORK OPENING REQUIRED.
2. ⊕ INDICATES POINT OF MINIMUM VERTICAL CLEARANCE.



DEVELOPED ELEVATION
1"=30'



TYPICAL SECTION
1"=5'
(BENT 7)



TYPICAL SECTION
1"=5'
(BENTS 2 THRU 6, 8 & 9)

QUANTITIES

DATE OF ESTIMATE	= 1-29-13
STR. DEPTH	= 3.5 ft
LENGTH	= 979.0 ft
WIDTH	= 16.0 ft
AREA	= 15,664 sq ft
COST/sq ft INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $170.46
TOTAL COST	= $2,670,000.00

DESIGNED BY	R. DAVIS	DATE	1-29-13
DRAWN BY	K. HOLCOMB	DATE	1-29-13
CHECKED BY	K. GO	DATE	1-29-13
APPROVED		DATE	

K. GO
PROJECT ENGINEER

CONCEPTUAL LAYOUT

CHANTICLEER POC

BRIDGE NO.	36-XXXX	CU	
SCALE:	1/4"=1'-0"	EA	05-0C7300

DESIGN OVERSIGHT

SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 6/29/04)

FILE => $REQUEST

DATE PLOTTED => $DATE
TIME PLOTTED => $TIME
USERNAME => $USER