Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes to build high occupancy vehicle (HOV) lanes, also called carpool lanes, on U.S. 101 from 0.2 mile south of Bailard Avenue (post mile 1.4) in the City of Carpinteria to Sycamore Creek (post mile 12.3) in the City of Santa Barbara. Caltrans is the lead agency for the project under the National Environmental Policy Act and the California Environmental Quality Act.

Three build alternatives and a No-Build Alternative have been considered for this project. Each build alternative would add a single HOV lane in both the northbound and southbound directions and rebuild interchanges at Sheffield Drive and Cabrillo Boulevard. The HOV lanes would be reserved for qualifying vehicles during morning and afternoon peak hours of operation each weekday. Qualifying vehicles include those containing two or more people, motorcycles and certain zero-emission vehicles. Outside of the specified peak hours, the HOV lanes would be open to any vehicles.

The proposed project is a joint project by Caltrans and the Federal Highway Administration, along with local partners Santa Barbara County Association of Governments (SBCAG), the Cities of Santa Barbara and Carpinteria, and the County of Santa Barbara. This project is included in the Santa Barbara County Association of Governments 2040 Regional Transportation Plan and Sustainable Communities Strategy, adopted August 15, 2013. The Regional Transportation Plan is a comprehensive, long-range transportation planning document that identifies a 20-year plan of regional transportation needs, goals, and projects that guide public policy decisions on transportation expenditures and financing. The South Coast 101 HOV Lanes project is listed within the financially constrained list of projects in Appendix E-E.1 (under Measure "A" Projects) of the 2040 Regional Transportation Plan and Sustainable Communities Strategy. The project is also included in the 2013 Federal Transportation Improvement Program (FTIP). The Federal Transportation Improvement Program, which is prepared and approved by the SBCAG, identifies all short-term and regionally significant projects that would include federal transportation funding in the coming years. The program of projects identified in the 2013 SBCAG Federal Transportation Improvement Program was incorporated into the Federal Statewide Transportation Improvement Program and subsequently approved by the Federal Highway Administration.

Measure "A" is an additional funding source that was approved by 79 percent of the voters in November 2008. The Measure "A" program will fund over $1 billion in transportation improvement projects in Santa Barbara County. This includes $140 million toward construction of the South Coast 101 HOV Lanes project.

Background

The plan for widening U.S. 101 from four lanes to six lanes from the Ventura County line to Goleta was initiated in 1965. Since then, several segments of the highway have been upgraded in both the city and county of Santa Barbara. In 1988, the six-lane section between Mission Creek and Goleta was completed. In 1992, within the City of Santa Barbara, the Cross Town Freeway project in the vicinity of Chapala Street to Milpas Street removed the last intersections on the route that had traffic signals. In March 1993, Caltrans released a draft environmental document that analyzed the addition of one lane in each direction between the Ventura County line and Milpas Street in the City of Santa Barbara. The widening plan was met with substantial community opposition. A common criticism of the plan was that there were other transportation alternatives, including rail, that were overlooked in the process of moving the expanded highway option forward. Another criticism was that the Caltrans process lacked adequate community outreach. The environmental document was shelved, and the "six-lane" project was suspended.

A series of studies sponsored by the SBCAG, including the U.S. 101 Alternatives Study (1995) and the South Coast U.S. 101 Deficiency Plan (2002), assessed options for relieving congestion in the corridor without the need for freeway widening. The South Coast U.S. 101 Deficiency Plan identified the problems on the highway and proposed short-term strategies aimed at improving transit, managing travel demand, and providing transportation system enhancements.

As a result of the U.S. 101 Deficiency Plan (2002), the SBCAG and the local cities adopted 34 short-term projects aimed at correcting operational deficiencies on both U.S. 101 and adjacent roads. The plan acknowledged that these improvements would not address long-term freeway congestion and that further action on a communitywide basis would be required to address the projected increases in traffic volumes along the corridor. One of the actions required from the U.S. 101 Deficiency Plan was to develop an implementation plan for the adopted projects. The 101 Implementation Plan began in 2004 and evolved into what is now known as *101 In Motion*.

Completed by the SBCAG in July 2006, the two-year corridor study took a multi-modal approach and involved extensive community outreach to develop a vision for long-term mobility along the U.S. 101 corridor. Recommendations by the Steering Committee, Stakeholders Advisory Committee, and Technical Advisory Group for implementation arising out of the *101 In Motion* process included a number of strategies, but the main recommendation to address commuter and goods movement needs was "add a lane and a train" strategy between the Ventura County line and the City of Santa Barbara. The lane portion of the strategy was for the addition of a new lane in each direction, to be defined as an HOV lane. The train portion of the strategy included the development of "commuter friendly" passenger rail service on the Union Pacific Railroad tracks between Oxnard and Goleta. Other elements to improve operations and facilities as needs shift to transit and carpooling were also included. The *101 In Motion* consensus recommendations were approved unanimously by the SBCAG board in October 2005. The consensus recommendations were also approved by the local jurisdictions.

The overall *101 In Motion* consensus package consists of five elements that, together, would implement a multi-modal strategy to accommodate future travel demand while facilitating a modal shift to carpooling, transit, and passenger rail. Without implementation of these elements, *101 In Motion* projected that Level of Service F conditions would exceed 10 hours a day in each direction by 2030. Recommended elements in *101 In Motion* include the following:

- Add a lane and a train (a carpool/HOV lane and commuter rail service)
- Facilitate transit and carpool use
- Use demand management strategies
- Improve operations and communication
- Select operational improvements north of Milpas Street

Each of the five elements includes one or more individual improvements. Since the adoption of *101 In Motion* in 2006, efforts have been made to implement these elements. These efforts include progress in exploring options for commuter rail service, including the Los Angeles-Ventura-Santa Barbara-San Luis Obispo Rail Corridor Agency (LOSSAN) North Strategic Plan expansion of commuter express transit service, implementation of Intelligent Transportation Systems (ITS) solutions, and future U.S. 101 operational improvements.

The South Coast 101 HOV Lanes project is critical to the objective of the first element in the *101 In Motion* list to "add a lane." The South Coast 101 HOV Lanes project is one of four planned project segments that would "add a carpool/HOV lane in both directions south of Milpas Street to Ventura County Line" as stated in *101 In Motion*.

A four-phased approach to widening U.S. 101 began with the Milpas to Hot Springs Operational Improvement Project, completed in 2012 (refer to Figure 1-1). The project widened U.S. 101 from Milpas Street to the Hot Springs/Cabrillo interchange by adding a new northbound lane from the Cabrillo Boulevard on-ramp to the Milpas Street off-ramp and added a third southbound lane from Milpas Street to the Butterfly Lane Pedestrian undercrossing.

Another opportunity to fund a segment of the "add a lane" portion of the *101 In Motion* recommendation came as a result of Proposition 1B being passed by the California voters in 2006. Funding for key transportation corridors was approved, and Caltrans Districts 5 and 7, along with the SBCAG and the Ventura County Transportation Commission, joined efforts to seek funding for an HOV lane addition/facility widening project extending from Mussel Shoals (Ventura County) to Carpinteria Creek. This second phase of the U.S. 101 widening is currently under construction.

The third phase of U.S. 101 widening will occur in Carpinteria with the Linden Avenue and Casitas Pass Interchanges project, slated for construction in 2016. This project would improve operations on U.S. 101 by reconstructing two interchanges—Casitas Pass Road and Linden Avenue, replacing the Carpinteria Creek bridge, and widening to accommodate a third lane on U.S. 101 from Carpinteria Creek Bridge through the Casitas Pass interchange.

Proposition 1B also provided a one-time augmentation in state gas tax dollars, from which the SBCAG programmed environmental phase funding for the South Coast 101 HOV Lanes project. As discussed in this document and planned for in the 2040 Regional Transportation Plan and Sustainable Communities Strategy, the South Coast 101 HOV Lanes project will complete the fourth and final phase for widening U.S. 101 and provide HOV lane continuity in southern Santa Barbara County.

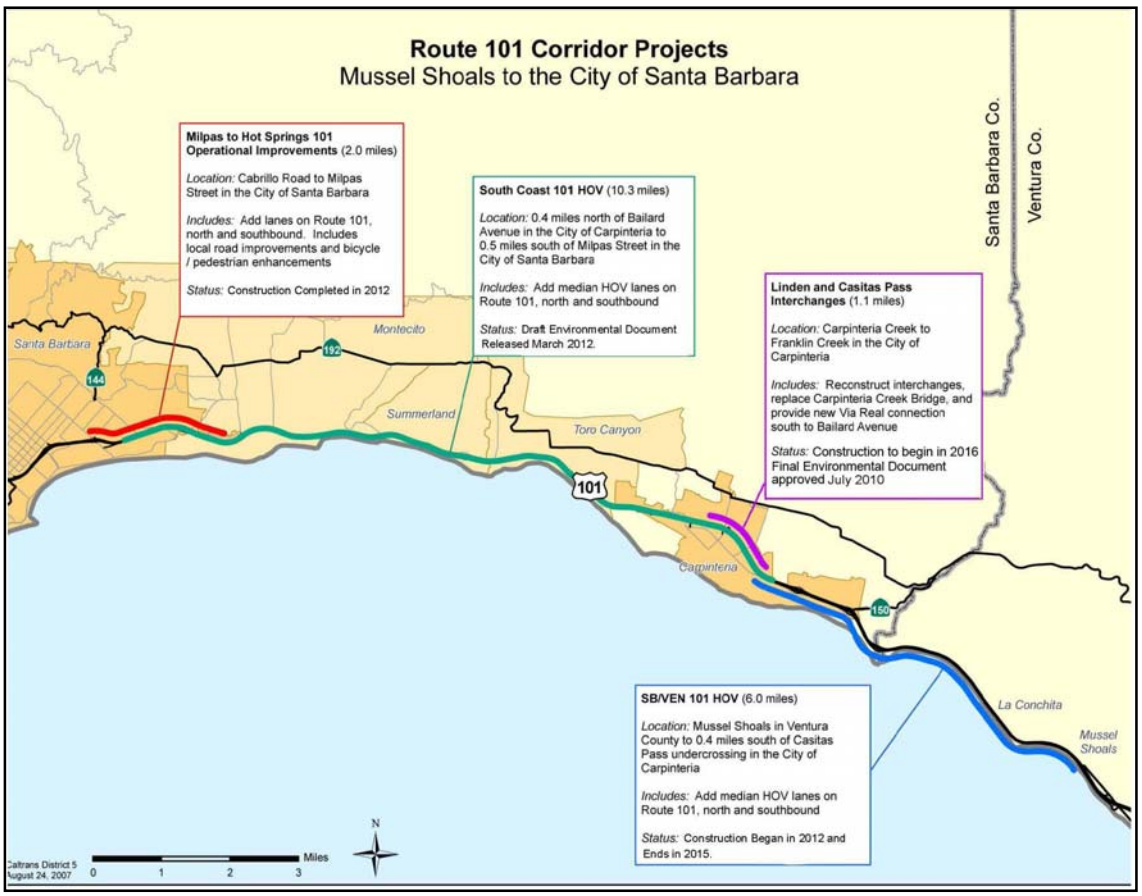


Figure 1-1 U.S. 101 Corridor Projects—Mussel Shoals to the City of Santa Barbara

Measure "A" was approved by 79 percent of the voters in November 2008. Literature promoting the local ballot measure featured the HOV lanes project as the one "off the top" project. The remaining funds were allocated based on a north county/south county split of projects. In total, the Measure "A" program will fund over $1 billion in transportation improvement projects in Santa Barbara County. This includes $140 million toward construction of the South Coast 101 HOV Lanes project in addition to funding for interregional transit, specialized transit for seniors/disabled, carpool and vanpool programs, commuter/passenger rail, and regional bicycle and pedestrian programs among others to meet the objectives established in *101 In Motion*.

The Measure "A" program contains separate priorities for projects and programs in the North County and South Coast that were established by the advisory committees in each of these regions. Within these programs, Measure "A" funds must be spent on projects included in an Investment Plan, which is consistent with the SBCAG Regional

Transportation Plan and developed through extensive public and stakeholder input. The SBCAG, led by a 13-member board, is responsible for administering these funds. Revenues for this program started being collected in April 2010 and will continue until 2040. Some $25 million from the South Coast Measure "A" Commuter and Passenger Rail Program will help fund the "add a train" objective of the "lane and a train" recommendation of *101 In Motion*. Additional funding will be sought from federal grant sources.

In 2008, the LOSSAN Rail Corridor Agency initiated a strategic assessment to develop options to better integrate rail service between San Diego and San Luis Obispo. The corridor was split for planning purposes, and the area between Los Angeles and San Luis Obispo was identified as LOSSAN North. Improving peak hour service between Ventura and Santa Barbara counties was identified as an early action item, which included a proposal to adjust the Pacific Surfliner schedule for two trains (#799 and #798). In February 2011, Metrolink determined that revising the Surfliner schedule was not operationally feasible due to the conflicts it would create with existing southbound Metrolink commuter trains between Ventura and Los Angeles. Other alternatives are currently being explored by representatives of the Santa Barbara County Association of Governments, Caltrans, Metrolink and Union Pacific.

At the same time, Caltrans and the Federal Railroad Administration are preparing a program-level environmental impact report/environmental impact statement for passenger rail improvements in the LOSSAN corridor between Los Angeles Union Station and San Luis Obispo. These environmental documents are required by the Federal Railroad Administration to be eligible for future federal construction funding for identified improvements. The draft environmental impact report and environmental impact statement for LOSSAN is scheduled for release in fall 2014.

The LOSSAN North passenger/commuter improvements include rail siding improvements at Ortega and Seacliff. In January 2010, Caltrans received $950,000 for the Ortega Siding project through a grant from the Federal Railroad Administration's High Speed and Intercity Passenger Rail Program/American Recovery and Reinvestment Act. This funding was matched with $250,000 in local Measure "A" Rail Program funds and will be used to fund preliminary engineering and environmental work to reestablish the Ortega siding, which was destroyed by storm damage in the 1990s. In October 2010, the Seacliff project was awarded $1.2 million in Passenger Rail Investment and Improvement Act funding for environmental clearance and preliminary engineering, which includes $250,000 in Santa Barbara County Measure "A" funds.

Over $18 million in State Transportation Improvement Program funding has become programmed for siding projects in Santa Barbara and Ventura counties, and the Ortega project and a siding extension and realignment project at Seacliff in Ventura County are primary candidates for the money. It should be noted that the proposed project would not conflict with the above siding projects. Although there is a section of railroad that would have needed to be elevated as part of three of the Cabrillo interchange configurations (Configurations J, M and M Modified), this work would have occurred in Santa Barbara between post miles 11.43 and 12.0. The Ortega Siding project, located in Summerland, would occur at approximately post mile 8.2, which is over 3 miles to the south.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of this project is the following:

- Reduce congestion and delay
- Provide capacity for future travel demand
- Improve travel time on U.S. 101 within the project limits
- Provide for high occupancy vehicle lane continuity on U.S. 101 in southern Santa Barbara County, as planned for in the 2040 Regional Transportation Plan and Sustainable Communities Strategy, adopted August 15, 2013
- Encourage a modal shift to transit and carpooling

To achieve the project goals in 2040, on typical weekdays[3] this project should meet the following performance measures:

- Reduce corridor delay by at least 7,000 person-hours daily[4]
- Reduce peak hour peak direction travel time on U.S. 101 in the project area for carpoolers and express bus riders by 25 percent or more on average

[3] Performance measures were derived from *101 In Motion.*

[4] Delay is a measure of time "lost" per person due to travel in congested conditions. Delay occurs on U.S. 101 when vehicles travel at speeds below 55 miles per hour. Total person hours of delay are calculated by multiplying the amount of time lost per person per day during peak hours by the number of vehicles traveling during the congested peak periods in the traffic study area.

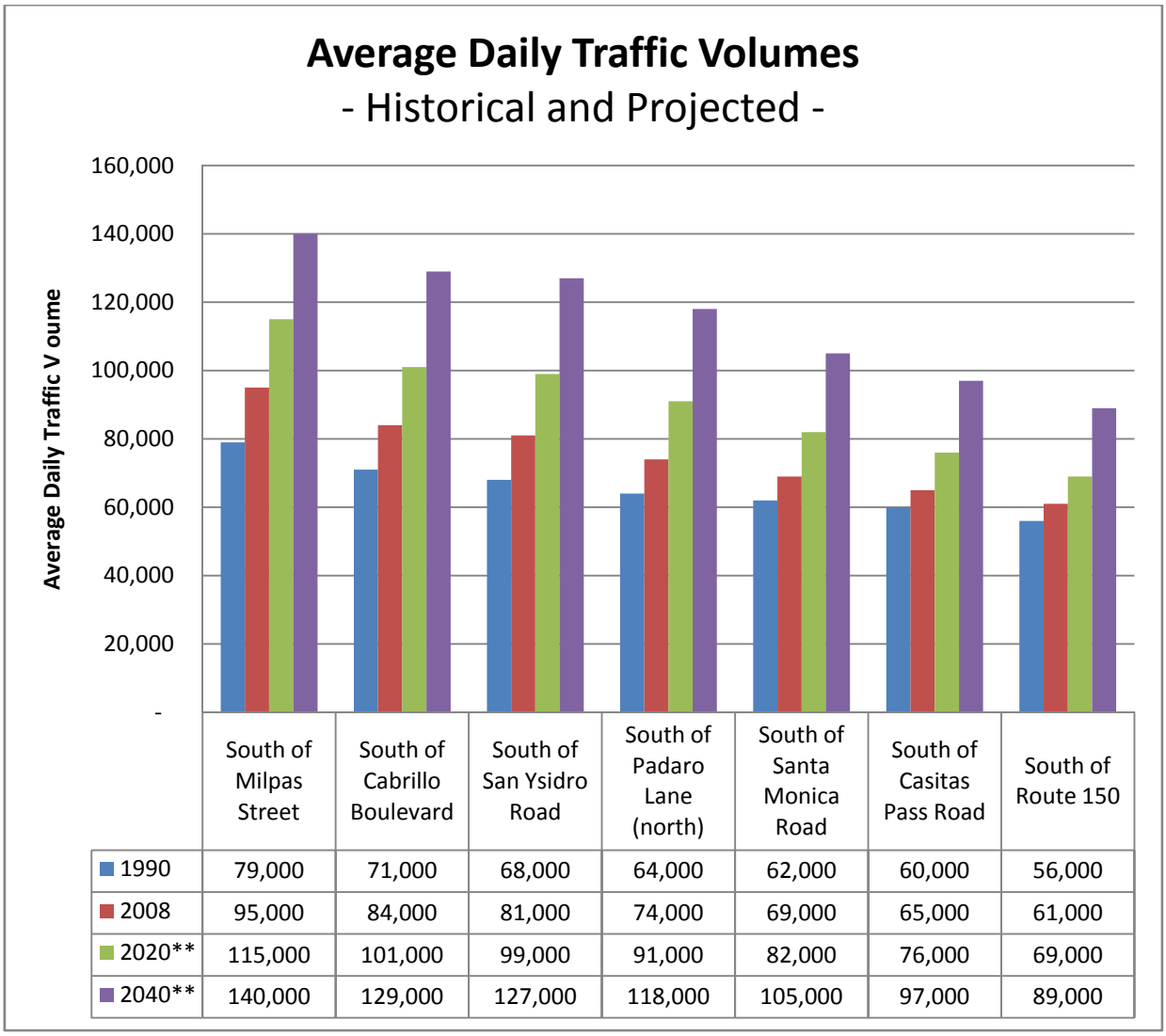
1.2.2 Need

U.S. 101 is the main route for commuters, interregional traffic, and cargo throughout the South Coast area. U.S. 101 serves as the primary connection for vehicle travel between the communities of Goleta, Santa Barbara, Montecito, Summerland, and Carpinteria. It is a major interregional road as part of the national highway system, connecting Northern California and Southern California. U.S. 101 also plays a large role in the state economy by serving as a secondary route to Interstate 5. Local highway travelers rely on U.S. 101 for commuting purposes as well as for travel related to school, personal use, business and leisure. Employment is concentrated at the northern end of the corridor in and near the cities of Santa Barbara and Goleta. The University of California Santa Barbara campus, near Goleta, also attracts a large number of vehicles during the peak commute periods.

The project limits consist of a high-demand stretch of U.S. 101 that is a four-lane section bounded by a six-lane section to the north and the Ventura/Santa Barbara 101 HOV project to the south. Currently under construction and expected to be completed in late 2015, the Ventura/Santa Barbara 101 HOV project is the second phase of the U.S. 101 widening plan for the South Coast area. The Ventura/Santa Barbara 101 HOV project is adding a high occupancy vehicle lane in each direction from Ventura County to the southern limits of the South Coast 101 HOV Lanes project. The completion of the South Coast 101 HOV Lanes project would provide six lanes from the City of Ventura through the City of Goleta (refer to Figure 1-1 for further clarification).

Current demand is exceeding the capacity of U.S. 101 during weekday and weekend peak travel periods. In 2008, average daily traffic counts within the project limits ranged from 65,000 to 95,000 vehicles. By 2020, average daily traffic counts on U.S. 101 are projected to increase by 17 to 21 percent over 2008 volumes. By 2040, the average daily traffic counts on U.S. 101 within the project limits are forecast to increase by 50 percent over 2008 levels. Figure 1-2 shows the growth in average daily traffic volumes within the project limits.

Currently on U.S. 101, traffic congestion occurs during morning and afternoon peak periods within the project limits. Traffic congestion lasts for 2 hours in the morning peak period and 2.5 hours in the afternoon peak period for a total of 4.5 hours of congestion each day. Without roadway improvements in the project limits, congested flow conditions during the peak travel periods are expected to increase to a total of 7.5 hours a day in 2020 and over 11 hours a day in 2040.



	South of Milpas Street	South of Cabrillo Boulevard	South of San Ysidro Road	South of Padaro Lane (north)	South of Santa Monica Road	South of Casitas Pass Road	South of Route 150
1990	79,000	71,000	68,000	64,000	62,000	60,000	56,000
2008	95,000	84,000	81,000	74,000	69,000	65,000	61,000
2020**	115,000	101,000	99,000	91,000	82,000	76,000	69,000
2040**	140,000	129,000	127,000	118,000	105,000	97,000	89,000

* *2008 year volumes are based on counts obtained as part of the project.*
** *2020 and 2040 volumes reflect forecasted corridor travel demand.*

Figure 1-2 U.S. 101 Corridor Traffic Volume Summary

Table 1.1 shows forecasted travel conditions in 2020 and 2040 without the proposed South Coast 101 HOV lanes project. This forecast assumes that other approved highway projects such as the Milpas to Hot Springs improvement project and the Ventura/Santa Barbara 101 HOV project, as well as Measure "A" funded improvements, have been built.

Table 1.1 Forecast Travel Conditions on U.S. 101 (No-Build Alternative)

Category	2008	2020	2040
Duration of Congested Conditions*	4.5 hours	7.5 hours	11 hours
Delay—Vehicle Hours (per day)**	2,280	6,000	18,400
Delay—Person Hours (per day)**	3,050	8,400	25,700

Notes:
** At one or more locations associated with conditions within the project limits*
*** For trips traveling between the Ventura County line and Northern Goleta (post miles 0.0 to 27.5)*
Person delay is based on observed average vehicle occupancy of 1.27 people northbound in the morning and and 1.29 southbound in the afternoon multiplied by the number of vehicle hours of delay.

The expected rise in traffic volumes, congestion, and delay results from several factors, including increased long-distance commuting from Ventura County; internal population growth, which is forecast to rise 10 percent by 2020 in Santa Barbara County (Santa Barbara County Association of Governments Regional Growth Forecast, 2007); and interregional traffic growth, including goods movement. Without improvements on U.S. 101 in the project limits, vehicle-hour delay on U.S. 101 in the corridor is expected to exceed 6,000 vehicle hours total per day in 2020. By 2040, the delay would exceed 18,000 vehicle hours per day (see Table 1.1). Vehicle delay is calculated based on the length of time it takes for a vehicle to complete a travel trip.

In addition to population growth, long-distance commuting has escalated. The SBCAG "2007 Commute Profile" indicates that, although 92 percent of Santa Barbara County commuters both live and work in Santa Barbara County, 10 percent of respondents reported moving a farther distance from work in the past four years in order to obtain more affordable housing. This trend has contributed to an increased number of people commuting from Ventura County to Santa Barbara County. Although recent gas prices have contributed to a decrease in single-occupied vehicles as more people begin to carpool, use mass transit, or walk and bike, the reduction in traffic congestion is not noticeable during the peak travel periods. The coastal location, natural amenities, and temperate weather have also made this area a popular tourist destination, resulting in temporary traffic increases on weekends and during the summer months.

Ongoing congestion on U.S. 101 creates a spillover effect on the adjacent local street system as some drivers try to avoid the congestion by using the local street system for through trips. This in turn affects local street travel conditions for local transit, bicycle, pedestrian, and vehicle users. As travel demands grow in this corridor over time,

without improvements to address through traffic needs on U.S. 101, this effect on the local street system travel will continue to increase.

Traffic count data were collected to measure vehicle counts on a typical weekday to determine when the northbound and southbound peak traffic periods occur. Traffic counts were taken on a Thursday in March 2008. (Note: It was important to complete traffic counts prior to start of construction of the Milpas to Hot Springs Operational Improvement project on U.S. 101.) The results are shown in Figure 1-3 below. The study concluded the northbound peak morning period is 6:00 a.m. to 8:00 a.m., and the southbound peak afternoon period is 3:00 p.m. to 5:00 p.m., as shown in Figure 1-3.

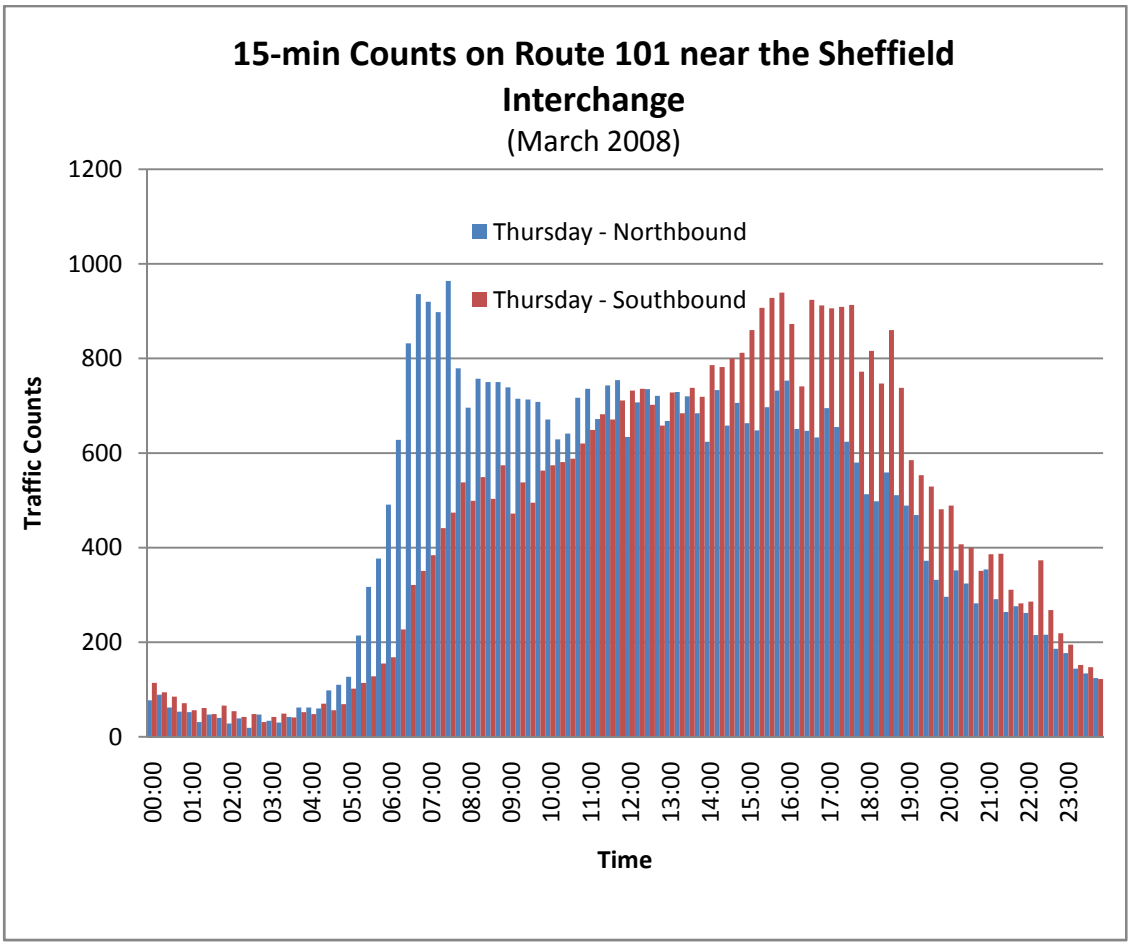


Figure 1-3 Distribution of Daily Traffic on U.S. 101 in the Project Limits

1.3 Alternatives

The Project Development Team (Caltrans staff, together with representatives from the Santa Barbara County Association of Governments, City of Santa Barbara, Santa Barbara County, and City of Carpinteria) considered many alternatives in determining how best to accommodate an HOV lane in both the northbound and southbound directions on U.S.101. The team met over the course of two years to analyze the opportunities as well as the physical barriers (including the railroad, ocean, and existing development) of such a project. The project was designed to conform with standards that apply to lane and shoulder width, ramp slopes, and other safety-related features. A number of design exceptions were approved to minimize impacts as part of the project, where adequate justification existed for approval.

The project proposes widening U.S. 101 (where necessary) from four lanes to six lanes (three lanes in each direction) from 0.22 mile south of Bailard Avenue (post mile 1.4) in the City of Carpinteria to Sycamore Creek (post mile 12.3) in the City of Santa Barbara (see Figures 1-4 and 1-5). Each build alternative would add a part-time HOV lane in both the northbound and southbound direction from Carpinteria Creek in the City of Carpinteria to Cabrillo Boulevard in the City of Santa Barbara. To accommodate the new lanes, two interchanges—Sheffield Drive and Cabrillo Boulevard/Hot Springs Road—would need to be reconstructed. Three build alternatives and a No-Build Alternative were considered (see Figures 1-4 and 1-5).

1.3.1 Build Alternatives

Three build alternatives—Alternatives 1, 2, and 3—and a No-Build Alternative were considered for this project. Alternative 1 (the preferred alternative) would widen to the median in some locations and widen to the outside in other locations to balance impacts to resources such as wetlands and mature vegetation located both in the median and on the shoulder. Alternative 2 would widen to the outside to maximize available areas for median landscaping. Alternative 3 would widen to the inside, which means building all new paved lanes within the existing available median. All build alternatives would be built mainly within the existing public right-of-way with only slight variations between the three. All build alternatives would satisfy the project goals, be cost effective, and have minimal encroachments beyond the state right-of-way. The minimal encroachments are necessary for temporary construction easements and permanent subsurface footing easements for walls. The three build alternatives would result in a part-time HOV lane in each direction within the project limits. A number of design configurations for the Cabrillo Boulevard interchange were also evaluated.

Projected costs for each build alternative vary and depend on which configuration is selected for the Cabrillo Boulevard interchange. Anticipated costs for the alternatives with the various Cabrillo Boulevard interchange configurations range from $285 million to $325 million. The preferred alternative (Alternative 1) with the F Modified configuration for the Cabrillo Boulevard interchange is currently estimated to cost $302 million.

The Project Development Team recommended removal of some soundwalls due to blockage of prime ocean views and the addition of several soundwall segments that were initially found to not be financially reasonable when evaluated as longer walls. These shorter segments were located near areas of dense residential development and were found to be financially reasonable for shorter-length segments. Also, Federal Emergency Management Agency (FEMA) floodway mapping was revised after a resident (in the vicinity of Oak and Romero creeks) applied for a Letter of Map Revision, which was approved by FEMA on December 4, 2012. The revised mapping allowed for extending a portion of soundwall S464 to the revised floodway limit, provided design features are added to avoid raising base flood elevations. Refer to Section 2.2.7 (Noise) and Figures 2.21 to 2.31 (recommended soundwalls). Soundwall recommendations are the same for all three build alternatives.

Given the magnitude and length of the proposed project, it is anticipated that construction would be divided and carried out in separate contracts along separate road segments over a period of approximately 10 years. The timing and sequence of the phased construction are still unknown; these decisions will depend on factors such as available funding, other nearby highway construction projects, railroad involvement, utility relocation needs, and the Coastal Development Permit process.

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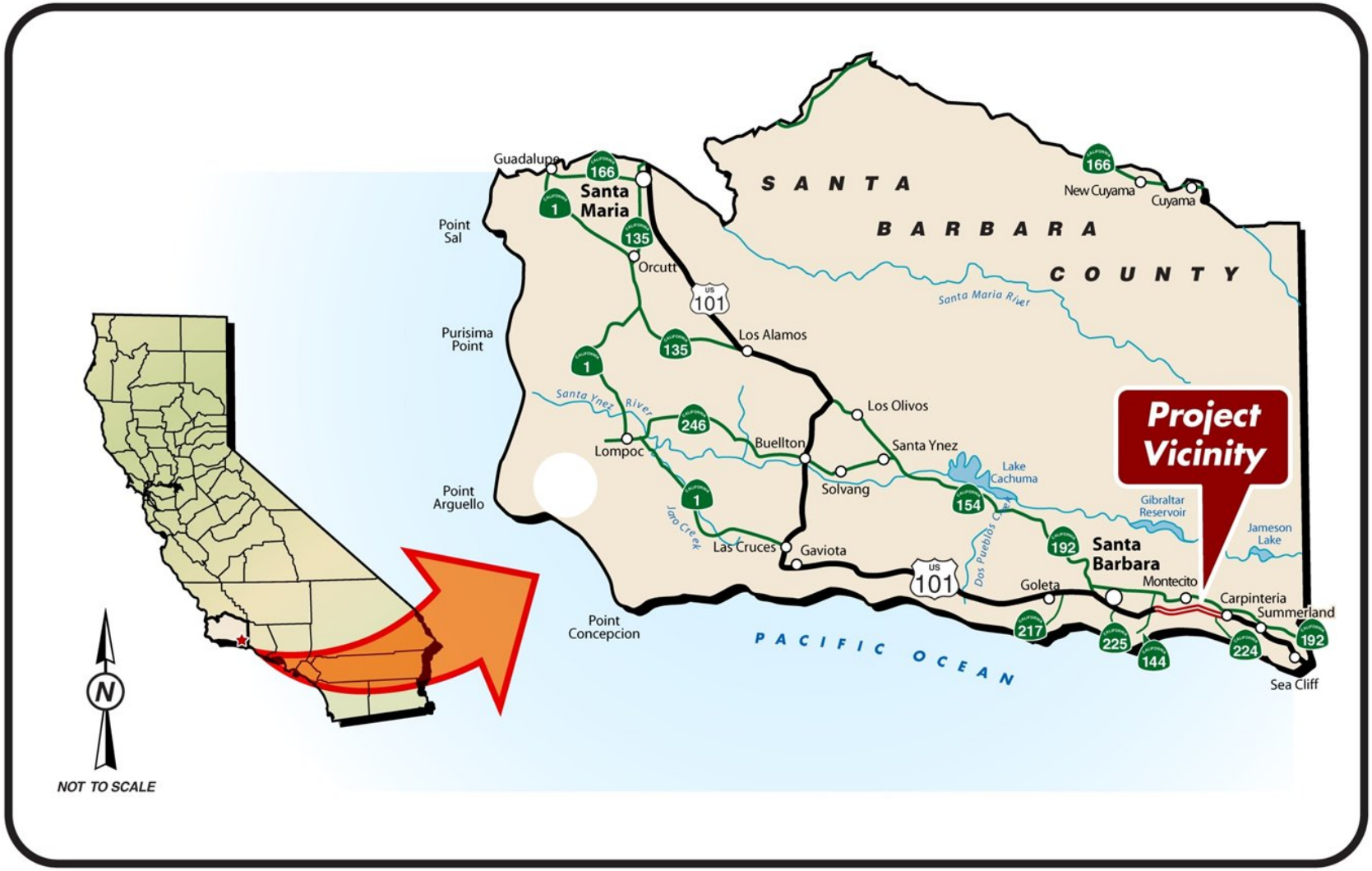

Figure 1-4 Project Vicinity Map

Figure 1-5 Project Location Map

Common Design Features of the Build Alternatives

Alternatives 1, 2, and 3 would include the following (see Appendix H):

- Add pavement width in each direction on U.S. 101 to provide for a six-lane facility within the project limits.
- Add a part-time, continuous access HOV lane in each direction on U.S. 101 extending from Carpinteria Creek in the City of Carpinteria to Cabrillo Boulevard in the City of Santa Barbara.
- Improve the southbound shoulder ditches near the Bailard Avenue interchange to provide graded, flat-bottom swales to be used for storm water treatment.
- Replace bridge structures at Arroyo Paredon (Parida), Toro Canyon, Romero (Picay), Oak, and San Ysidro creeks.
- Widen bridge structures at Franklin and Santa Monica creeks.
- Widen traffic undercrossing structures at South Padaro Lane and Evans Avenue.
- Build a southbound auxiliary lane between the Sheffield Drive on-ramp and the Evans Avenue off-ramp.
- Reconstruct the highway to remove a localized rise in the roadway north of Sheffield Drive near the Romero (Picay) Creek bridge that causes drivers to have somewhat limited visibility of the freeway ahead of them. The freeway profile would be lowered a maximum of 2 feet to flatten the roadway.
- Reconstruct the interchange at Sheffield Drive, including reconfiguring the southbound highway lanes and ramps. Note that a change to the interchange was made for Alternative 1 (preferred alternative).
- Rebuild the interchange at Cabrillo Boulevard/Hot Springs. Five configurations, as described later in this section, were considered for this interchange.
- Install traffic signals where warranted.
- Provide median landscaping from 0.4 mile south of Carpinteria Creek to 0.3 mile north of Carpinteria Creek (this is the only location where median planting is the same for all alternatives).
- Install replacement planting where appropriate.

- Build soundwalls for noise abatement where appropriate.
- Build retaining walls where necessary. Each alternative and interchange configuration differs on the number of walls proposed.
- Provide noise-attenuating pavement surfacing on all mainline travel lanes through the limits of the HOV improvements. The current proposal is to use continuously reinforced concrete instead of asphalt concrete pavement. Because pavement strategies are evolving, the final decision for type of treatment would be determined during the design phase.
- Relocate underground and aboveground utilities as needed.
- Lengthen cross culverts to accommodate additional pavement width.
- Build maintenance vehicle pullout areas.
- Incorporate permanent storm water treatment best management practices, with an emphasis on vegetated bio-filtration type best management practices
- Incorporate measures that preserve the pre-construction runoff rates.

Unique Design Features

Alternative 1 (Preferred Alternative)—Widen inside and outside (goal: balance impacts to inside and outside resources such as wetlands and mature vegetation)

- Selectively widen inside and outside within available right-of-way. This alternative was developed to maximize opportunities to retain and enhance high value resources including scenic views, wetlands and median/outside landscaping.
- Add median landscaping, where appropriate: from Carpinteria Creek to Linden Avenue; near the South Padaro Lane interchange; Nidever Road to Garapato Creek; and near the North Padaro Lane interchange.

Alternative 2—Widen to the outside (goal: maximize median planting)

- Add a lane to the outside to maximize median landscaping in the median where right-of-way is available.

- Provide median landscaping, where appropriate: from Carpinteria Creek to Reynolds Avenue; and from Santa Monica Road to the Evans Avenue interchange.
- Build three additional retaining walls to maximize median planting: one on the southbound shoulder at the right-of-way line ending at the Santa Claus Lane southbound on-ramp (500 feet in length); one on the northbound shoulder near Greenwell Creek (700 feet in length); and one on the northbound shoulder near the northbound off-ramp to Summerland (300 feet in length).

Alternative 3—Widen to the inside (goal: maximize retention of outside planting)

- Build all new paved lanes within the existing available median.
- Provide a single barrier in the median, separating the two inside paved shoulders, between Carpinteria Creek and Olive Mill Road. This largely retains the existing outside edge of pavement within these areas.

Cabrillo Boulevard Interchange

The Cabrillo Boulevard interchange would be rebuilt under all three build alternatives. Five mutually exclusive interchange configurations—F, F Modified, J, M, and M Modified—were considered under each of the three build alternatives. Two of the five configurations (F Modified and M Modified) would provide northbound access largely in the same way that it exists now with two northbound exits. One of the configurations would remove the off-ramp at Hermosillo Road (configuration M), and two configurations would consolidate the northbound off-ramp traffic at the Hermosillo Road off-ramp (configurations F and J). Each configuration is described below and shown in more detail with mapping in Figure 1-6 and Appendix H.

The estimated costs of the five Cabrillo Boulevard interchange configurations include all work from 0.1 mile south of the Hermosillo Road Exit (PM 10.9) to the northern project limit. The configuration costs are as follows: configuration F is about $40 million; configuration F Modified is about $45 million; configuration J is about $85 million; and configurations M and M Modified are each about $90 million. Interchange concepts that include railroad involvement (configurations J, M, and M Modified) are estimated to cost from $40 million to $50 million more than those that do not (configurations F and F Modified).

Configuration F—Existing Northbound Right-Side Ramps/Southbound Half Diamond

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard and the Los Patos Way off-ramp.
- Improve the northbound Hermosillo Drive off-ramp and the northbound Cabrillo Boulevard on-ramp.
- Acquire access control for 50 feet beyond the end of the southeast return of the reconstructed Hermosillo Road northbound off-ramp. Install access control fencing along the frontage of the existing gas station up to the first gas station driveway.
- Build new southbound on- and off- ramps to intersect at Cabrillo Boulevard immediately adjacent and to the right of the southbound freeway lanes.
- Install traffic signals when warranted at Hermosillo Road at Coast Village Road and at the Cabrillo Boulevard southbound ramps.
- Build a total of three retaining walls—two in the southbound direction at the outside shoulders of the southbound ramps and one at the outside shoulder of the northbound on-ramp.

Configuration F Modified—Northbound Half Diamond with Hermosillo Drive Off-Ramp and Southbound Half Diamond

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard and the Los Patos Way off-ramp.
- Add a northbound right-side off-ramp at Cabrillo Boulevard.
- Improve the northbound Cabrillo Boulevard on-ramp.
- Retain the northbound Hermosillo Drive off-ramp. No additional access control is necessary.
- Construct new southbound on- and off-ramps to intersect at Cabrillo Boulevard immediately adjacent and to the right of the southbound freeway lanes.
- Build a total of six retaining walls—two at the outside shoulders of the southbound ramps, two in the southbound direction between the mainline and

southbound ramps, one at the outside shoulder of the northbound on-ramp, and one in the northbound direction between the mainline and northbound off-ramp.

Configuration J—Existing Northbound Right-Side Ramps and Southbound Los Patos Ramps

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard.
- Improve the northbound Hermosillo Drive off-ramp and the northbound Cabrillo Boulevard on-ramp.
- Improve the southbound Los Patos Way off-ramp and add a new southbound Los Patos Way on-ramp.
- Install a traffic signal when warranted at the intersection of Hermosillo Road and Coast Village Road.
- Raise the existing railroad profile by about 4 feet for 0.67 mile to allow southbound ramps at Los Patos Way to have standard vertical clearance.
- The Hermosillo Drive off-ramp would require the placement of access control fencing up to the first gas station driveway. The Los Patos Way ramp would also require the placement of access control fencing for a distance of 170 feet (just before the maintenance gate at the Andrée Clark Bird Refuge).
- Build a total of six retaining walls—two at the outside shoulders of the southbound ramps, one in the southbound direction at the outside edge of shoulder south of Cabrillo Boulevard and one at the outside shoulder of the northbound on-ramp. Two additional retaining walls are required on the ocean side of the railroad right-of-way for the new railroad bridge location.

Configuration M—Northbound Half Diamond/Southbound Los Patos Ramps

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard and the northbound Hermosillo Drive off-ramp.
- Add a northbound Cabrillo Boulevard off-ramp and improve the northbound Cabrillo Boulevard on-ramp.
- Improve the southbound Los Patos Way off-ramp and add a new southbound Los Patos Way on-ramp. The Los Patos Way ramp would require the

placement of access control fencing for a distance of 170 feet (just before the maintenance gate at the Andrée Clark Bird Refuge).

- Raise the existing railroad profile by about 4 feet for 0.67 of a mile to allow southbound ramps at Los Patos Way to have standard vertical clearance.
- Install a traffic signal when warranted at the Cabrillo Boulevard northbound ramps.
- Build a total of seven retaining walls—two at the outside shoulders of the southbound ramps, one in the southbound direction at the outside edge of shoulder south of Cabrillo Boulevard, one at the outside shoulder of the northbound on-ramp, and one in the northbound direction between the main line and northbound off-ramp. Two additional retaining walls are required on the ocean side of the railroad right-of-way for the new railroad bridge location.
- No additional access control is necessary because the existing Hermosillo Road off-ramp would remain with no improvements.

Configuration M Modified—Northbound Half Diamond with Hermosillo Drive Off-Ramp and Southbound Los Patos Ramps

This configuration would do the following:

- Close both median off-ramps at Cabrillo Boulevard.
- Add a northbound right-side off-ramp at Cabrillo Boulevard and improve the northbound Cabrillo Boulevard on-ramp.
- Retain the northbound Hermosillo Drive off-ramp. No additional access control is necessary.
- Improve the southbound Los Patos Way off-ramp and add a new southbound Los Patos Way on-ramp.
- Raise the existing railroad profile by about 4 feet for 0.67 mile to allow southbound ramps at Los Patos Way to have standard vertical clearance.
- Build a total of seven retaining walls—two at the outside shoulders of the southbound ramps, one in the southbound direction at the outside edge of shoulder south of Cabrillo Boulevard, one at the outside shoulder of the northbound on-ramp, and one in the northbound direction between the main line and northbound off-ramp. Two additional retaining walls are required on the ocean side of the railroad right-of-way for the new railroad bridge location.

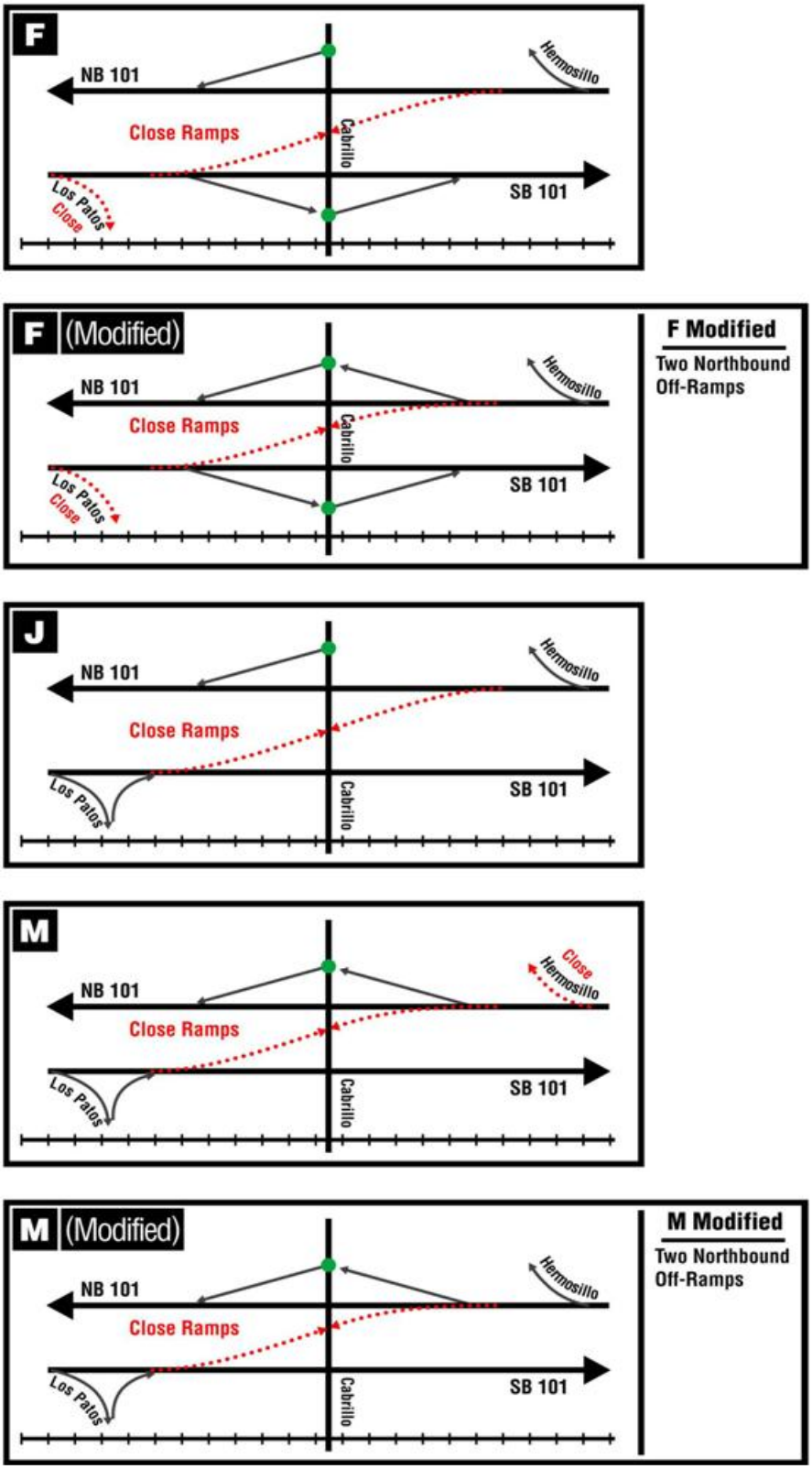

Figure 1-6 Schematic of 5 Configurations for the Proposed Cabrillo Boulevard Interchange

1.3.2 No-Build Alternative

The No-Build Alternative would not add HOV lanes to this stretch of highway and would not reduce congestion or encourage carpooling and transit. The interchanges and structures that are part of the proposed project would not be changed. No planting from the shoulders or median would be removed, and there would be no noise-attenuating pavement installed or noise barriers added. The No-Build Alternative would not provide continuity with the proposed Ventura/Santa Barbara HOV project to the south and the existing six-lane section of highway to the north.

1.3.3 Transportation System Management and Transportation Demand Management Alternative

All three build alternatives propose to use part-time continuous access, HOV lanes that would provide connectivity with the Ventura/Santa Barbara 101 HOV project, currently under construction. The Ventura/Santa Barbara 101 HOV project is adding 6 miles of part-time HOV lanes; the South Coast 101 HOV Lanes project would add another 9.5 miles. Both projects combined would add over 15 continuous miles of HOV lanes in each direction on U.S. 101 from northern Ventura County to southern Santa Barbara County.

North of the project limits, the highway consists of six lanes that extend through Goleta. No HOV lanes exist, however, and none are currently proposed. The project promotes increased multi-modal travel between Ventura County and southern Santa Barbara County. The project is consistent with the results of the *101 In Motion* study that concluded the HOV lane proposal would meet the established performance measures over other alternatives, such as rail options. No stand-alone rail components are included in the project as they are being addressed as part of the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency North proposal (also known as LOSSAN).

1.3.4 Comparison of Alternatives

Caltrans, with input from the City of Carpinteria, the City of Santa Barbara, the County of Santa Barbara, and the Santa Barbara County Association of Governments, developed a range of alternatives based on the project purpose and need, cost, and environmental considerations. Along with these factors, the team used the following list of guiding principles when developing the range of alternatives to be studied:

- Project design is to be compatible with existing community character while addressing user and maintenance worker safety.
- Visual and coastal resources are to be preserved and/or mitigated to the greatest extent feasible.
- Adverse impacts to historical and cultural resources are to be avoided or mitigated to the greatest extent feasible.
- Acquisition of private property is to be minimized.
- Financial viability is a key constraint; alternatives under consideration should be feasible within the anticipated long-term funding stream for the project.
- Input from stakeholders and the public will be provided throughout the project development process.
- Corridor delay is to be reduced daily by at least 7,000 person-hours.[5]
- Peak hour peak direction travel time is to be reduced on U.S. 101 in the project area for carpoolers and express bus riders by 25 percent or more on average.

After an initial assessment of six build approaches early in the environmental phase (refer to Section 1.3.5), three alternatives were selected by the Project Development Team for evaluation in the environmental document. Alternatives 1, 2, and 3 vary only by the locations of specific widening to handle the HOV lanes. Widening would occur either to the outside of existing pavement or to the inside within the existing median. Locations for widening on Alternative 1 were selected based on whether mature landscaping would be retained, as well as other competing resources.

Figure 1-7 is a map showing where the three build alternatives are similar. Soundwalls and retaining walls are part of all build alternatives. Congestion relief would be the same for all three build alternatives because they all add a lane.

For sections of the highway where Alternatives 1 and/or 2 are the same as Alternative 3, widening to the inside is proposed. Where Alternatives 1 and 2 are the same, widening is proposed to the outside.

[5] Delay is a measure of time "lost" per person due to travel in congested conditions. Delay occurs on U.S. 101 when vehicles travel at speeds below 55 miles per hour. Total person hours of delay are calculated by multiplying the amount of time lost per person per day during peak hours by the number of vehicles traveling during the congested peak periods.

Environmentally Preferred Alternative: Alternative 1 was determined to be the environmentally preferred alternative when comparing the three build alternatives. Alternative 1 is a combination of inside and outside widening that was designed to maximize opportunities for retaining and refining high-value resources including scenic views, wetlands, and landscaping.

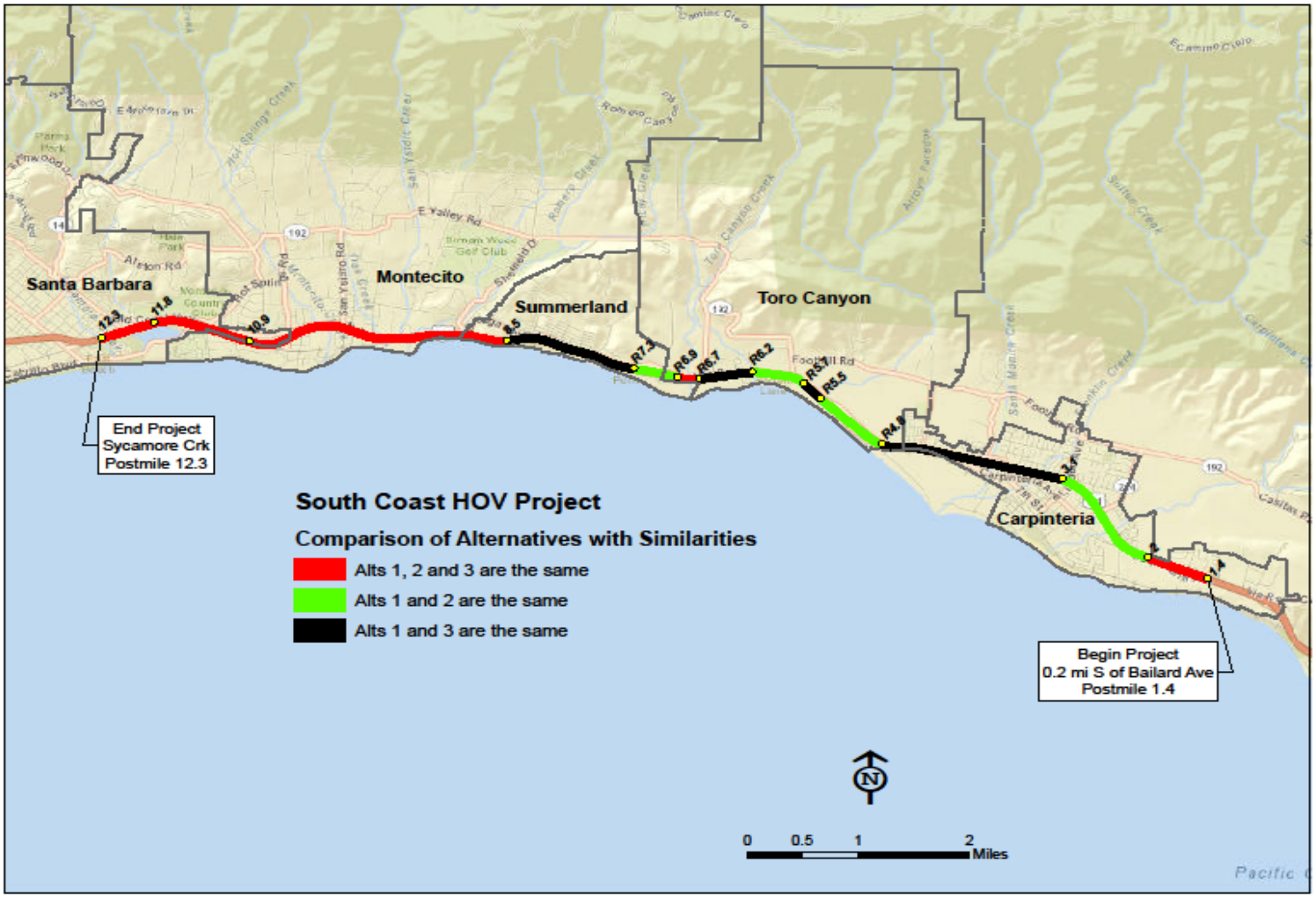

Figure 1-7 Comparison of Alternatives in Similar Locations

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1.3.5 Identification of the Preferred Alternative

Caltrans has identified Alternative 1 as the preferred alternative (widening to the median in some locations and widening to the outside in other locations) with the F Modified configuration for the Cabrillo Boulevard/Hot Springs Road interchange (see Section 1.3 for description of the F Modified configuration). Identification of the preferred alternative came after consideration of public input received on the draft environmental document. Input was received from individuals, community groups, state and local agencies, and elected officials. The team also considered project funding, schedule, right-of-way constraints, and feasibility of project alternatives.

While all three viable build alternatives studied in the draft environmental document would satisfy the purpose and need, Alternative 1 would maximize opportunities to retain and enhance high-value resources including scenic views, wetlands and median/outside landscaping. Although Alternative 3 has the smallest construction footprint and minimizes impacts to wetlands, it provides no opportunities for median landscaping. Alternative 2 provides the greatest opportunity for median landscaping, but would also have the largest construction footprint.

Five changes were made to Alternative 1 (preferred alternative) since the Draft Environmental Impact Report/Environmental Assessment was released:

1) By using a single median barrier instead of retaining enough room for a planted median from South Padaro Lane to the Carpinteria Marsh (post miles 4.7 to 5.3), the originally proposed retaining wall in this area is no longer needed, making it more compatible with the County of Santa Barbara's proposal for Santa Claus Lane parking and beach access.
2) The construction footprint would be reduced by narrowing the inside shoulder width in the northbound direction in the vicinity of the Via Real Redeposited Midden.
3) A realignment and separation will be accommodated in the northbound and southbound mainlines at the Sheffield Drive interchange (post miles 8.9 to 9.1) to provide a wider median. The new alignment was in response to comments from local agencies that expressed the desire for keeping a wider median, if possible. The change requires two additional retaining walls along the southbound mainline shoulder edge.
4) The proposed structural section for the highway is currently proposed to be continuously reinforced concrete pavement instead of asphalt concrete pavement, which could improve

noise attenuation and extends the service life (from the previous estimate of 20 years) to 40 years.

5) Cabrillo Boulevard Interchange Concept F Modified is to be revised to have a lane added to Cabrillo Boulevard between the northbound and southbound ramp connections to provide for two eastbound lanes. The originally proposed median will be shifted north one lane width to provide for a continuation of two eastbound lanes to the roundabout. There will be only one Cabrillo Boulevard westbound right-turn lane into the northbound on-ramp instead of two.

1.3.6 Alternatives Considered but Eliminated from Further Discussion Prior to Draft Environmental Impact Report/Environmental Assessment

Mixed-Use Lanes

Based on the project traffic studies, freeway operations would improve under both the HOV-Build and mixed-use scenarios as compared to the no-build scenario. However, the HOV option promotes higher vehicle occupancies, resulting in the potential for more people travelling through the project area relative to a mixed-use condition.

The HOV lane strategy focuses on increasing the number of people instead of the number of vehicles. With proper HOV operating hours and vehicle occupancy restrictions, freeway operation can be significantly improved within the project limits. Based on the recommended operating hours, substantial gains in peak hour and peak person mobility would be achieved. Therefore, the HOV lane proposal best meets the performance measures established in the project development team's guiding principles as well as the purpose and need.

In addition, local and state agencies have requested that an emphasis be placed on multi-modal strategies if a third lane is added to U.S. 101. Local support for higher occupancy travel within this corridor includes Transportation Demand Management (TDM) incentives and Express Bus Services supported through *101 In Motion* and funded through Measure "A." The South Coast 101 part-time HOV lanes project is listed as a high priority in the 2040 Regional Transportation Plan. The project is also consistent with the Ventura/Santa Barbara 101 HOV project that is currently under construction south of the proposed project limits.

Minimum Build Alternative and the Full Standard Build Alternative

In 2007, the Project Study Report prepared for this project described two designs: Full Standard and Minimum Build. The Full Standard Build Alternative added the HOV lanes by widening to the outside of the existing roadway and preserved the landscaped median. It corrected all non-standard highway features. The Full Standard Build Alternative included

standard lane and shoulder widths, replaced overpass structures where vertical clearance was too low, lengthened merge distances, and standardized spacing between interchanges. Acquisition of a substantial number of private properties would have been needed to relocate interchanges and intersections, and to widen the highway corridor to provide area for a landscaped median.

The Minimum Build Alternative was designed to stay within the existing state right-of-way and add the new HOV lanes within the existing median. The Project Study Report documented the conceptual approval needed for existing nonstandard features.

Based on these two build scenarios, Caltrans looked at six build alternatives—Alternatives A through F—early in the environmental phase.

Alternatives A and B

Alternatives A and B would build lanes within the existing median and existing right-of-way. Alternative A represented the Project Study Report Minimum Build Alternative. Alternative B was the Minimum Build Alternative with auxiliary lanes in key locations. Both options would allow for the new lanes to be accommodated under the existing overcrossings. Both alternatives proposed to change the Cabrillo and Sheffield interchanges to remove the median ramps. Costs for the two alternatives were estimated to range between $329 and $531 million. These two alternatives were eliminated because they were combined to become Alternative 3.

Alternatives C and D

Both Alternatives C and D would build all improvements within the existing right-of-way. Both would build lanes to the outside of the existing lanes while providing a landscaped median where existing right-of-way widths would allow. Where existing right-of-way is not wide enough for outside pavement widening, widening would occur within the existing median and the median landscaping would be removed. Alternative D was the same as Alternative C, but with auxiliary lanes added in key locations. Both options allowed for the new lanes to be accommodated under the existing overcrossings. Both alternatives would change the Cabrillo and Sheffield interchanges to remove the median ramps. Costs for the two alternatives were estimated to range between $329 and $531 million. These two alternatives were eliminated because they were combined to become Alternative 2.

Alternatives E and F

Both Alternatives E and F would retain a landscaped median for the entire length of the project. The overpasses would be rebuilt to accommodate the proposed standard roadway width. Alternative E would replace overpasses and bridges to accommodate a landscaped median and standard width lanes and shoulders, but would not correct the distances between interchanges. Alternative F, the Full Standard Build Alternative, would widen to the outside and retain the median, plus relocate and rebuild interchanges and intersections to provide standard spacing along the highway corridor. Costs for Alternative E were estimated to be between $730 and $857 million. Costs for Alternative F were estimated to be between $1.2 and $1.3 billion.

Evaluation of the Six Alternatives

Alternatives A through F were subjected to a preliminary evaluation to determine the feasibility of each. Rebuilding the overpasses either in place or in a new location, as proposed in Alternatives E and F, would each require a substantially larger project budget than Alternatives A through D whose costs ranged from $329 million to $531 million. In contrast, the costs for Alternatives E and F were estimated at $730 to $857 million and $1.2 to $1.3 billion, respectively.

Aside from cost, other substantial differences were found in construction time, right-of-way acquisition, and the number of local roads that would require modification and relocation. Community impacts were assessed by determining the amount of private property needed for each alternative. Estimates of private property needs were calculated for Alternatives E and F, and were estimated to be 57 and 106 parcels, respectively. Preliminary studies also revealed potential conflicts with cultural and biological resources (including wetlands), plus water quality impacts, which would increase as the project footprint became larger. The estimated number of historic properties that would be affected by Alternatives E and F would be 14 and 15, respectively. Visual impacts, one of the most sensitive issues in the corridor, were also assessed as part of the early screening process.

The Project Development Team rejected Alternatives E and F from further study for these reasons: excessive costs that were not in line with the available funding stream, lengthier construction time, the number of privately owned properties to be acquired, and the expected conflicts with sensitive species, sensitive habitat, mature landscaping, and cultural resources.

Sheffield Interchange Variations

Additional details have been added for this interchange to explain what had previously been considered at this location. With limited flexibility for reconstruction due to an extremely restrictive right-of-way and topography, the project design team considered several configurations for the Sheffield interchange. Options considered but rejected included retention of existing left-side ramps, removal of one or more southbound ramp(s), or full closure of all interchange ramps. Once options were considered, only a tight diamond interchange was determined viable.

The option involving retention of improved left-side ramps would have required acquiring property from Union Pacific Railroad; removal of southbound ramps would have resulted in a nonstandard partial interchange. After thorough consideration it was also determined that retaining the left-side ramps is infeasible taking into account factors including: current state and federal highway design standards, driver expectations, cost, historical accident rates and collision reports at the specific interchanges, future safety issues with the 6-lane configuration, and congestion relief benefits and traffic operational issues (see Appendix K).

Caltrans also assessed the impacts of constructing partial or full ramp closures at the Sheffield interchange. These assessments concluded that existing access for adjacent landowners could be altered and traffic volumes would be diverted onto nearby local streets such as North Jameson. Substantial changes would be required at the San Ysidro interchange to accommodate the added traffic. The changes would have required acquiring right-of-way from two properties listed on the National Register of Historic Places at the North Jameson/San Ysidro intersection. As these impacts could be avoided through reconstruction of the Sheffield interchange, full or partial ramp closure options were dismissed.

Eliminated Cabrillo Boulevard Interchange Variations

Two design configurations for this interchange were in the Project Study Report prepared in 2007.

One configuration included construction of hook ramps in the northbound direction, connecting to Old Coast Highway about one-quarter-mile north of the existing roundabout at Hot Springs Road. The southbound ramps were proposed in a half-diamond configuration connecting to Cabrillo Boulevard between the southbound freeway lanes and the existing railroad.

A second configuration would retain the existing northbound ramps to build new southbound ramps (considered a half-diamond configuration) that would connect to Cabrillo Boulevard between the southbound freeway lanes and the existing railroad (later identified as Configuration F). The interchange configuration with hook ramps in the northbound direction was subsequently eliminated due to the need for substantial right-of-way acquisition from a private golf course.

A thorough study was done by the project engineers for potential interchange configurations for Cabrillo Boulevard to ensure that no possibilities were overlooked that could be built without the purchase of additional privately-owned right-of-way. These interchange concepts were assessed for geometrics, traffic operations, accident history and consistency with the Local Coastal Plans. A matrix was developed to inventory all possible combinations of ramp types. The information was presented to the Project Development Team.

Table 1.2 lists the configurations that were evaluated and eliminated by the engineers and Project Development Team. Five configurations—F, F Modified, J, M, and M Modified—moved forward as mutually exclusive options that could be associated with each build alternative.

Table 1.2 Eliminated Cabrillo Boulevard Interchange Configurations

Configuration	Description	Reason for Removal
A	Retain all existing ramp connections at Los Patos Way, Hermosillo Drive and Cabrillo Boulevard, maintaining the existing geometry of median lanes.	This configuration was not viable for geometric reasons because the median off-ramps do not provide vertical stopping sight distance necessary for ramps serving a 65 mph freeway facility. Furthermore, the addition of a third northbound mainline lane physically moves into the space of the existing ramps.
B	Retain the existing ramp connection at Los Patos Way and Cabrillo Boulevard, but close the Hermosillo ramp connection.	This configuration could not accommodate ramp geometry for the standard departure angles from the freeway, the connection angles to Cabrillo Boulevard, and appropriate stopping sight distance along the median ramp profiles.
C	Retain and improve existing ramp connections at Los Patos Way, Hermosillo Drive and Cabrillo Boulevard. The one exception would be the closure of the northbound median off-ramp at Cabrillo Boulevard.	The existing right-of-way width could not accommodate ramp geometry for the standard departure angle from the freeway, the connection angle to Cabrillo Boulevard, and appropriate stopping sight distance along the median off-ramp profile. It would also be problematic because it would create a newly isolated southbound off-ramp.

Configuration	Description	Reason for Removal
D	Retain by improving the southbound median off-ramp, the southbound off-ramp at Los Patos Way, and the northbound on-ramp at Cabrillo Boulevard. Close the northbound median off-ramp and the northbound off-ramp at Hermosillo Drive. Build a new northbound off-ramp at Cabrillo Boulevard.	The existing right-of-way width could not accommodate ramp geometry for the standard departure angle from the freeway, the connection angle to Cabrillo Boulevard, and appropriate stopping sight distance along the median off-ramp profile. The proposed northbound off-ramp would not accommodate right-turning traffic for most commercial vehicles due to the constrained geometry of the ramp end at Cabrillo Boulevard. It would also be problematic because it would create a newly isolated southbound off-ramp.
E	Close both median off-ramps at Cabrillo Boulevard; improve the northbound Hermosillo Drive off-ramp and northbound Cabrillo Boulevard on-ramp. Construct a new southbound off-ramp to intersect at Cabrillo Boulevard, immediately adjacent and to the right of the mainline lanes.	This option was found extremely expensive and also inadequate due to the lack of a southbound on-ramp. Therefore, it would be a partial interchange due to the loss of a southbound on-ramp. The team formally rejected this configuration on May 17, 2010.
G	Close all existing off-ramps, including the Los Patos Way and Hermosillo Drive ramps. Build new northbound on- and off-ramps, and a new southbound off-ramp, to intersect at Cabrillo Boulevard immediately adjacent and to the right of the freeway lanes.	The team rejected this configuration because it was not viable without a southbound on-ramp since it would be left as a partial interchange. The team also recognized the configuration was not viable because the proposed northbound off-ramp would be unable to accommodate right-turning truck traffic due to the constrained geometry of the ramp end at Cabrillo Boulevard.
H	Identical to configuration "G" except for the addition of a southbound Cabrillo Boulevard on-ramp. Close all existing off-ramps, including the Los Patos Way and Hermosillo Drive ramps. Improve the northbound on-ramp. Build a new northbound off-ramp and new southbound on- and off-ramps, to intersect at Cabrillo Boulevard immediately adjacent and to the right of freeway lanes. Add southbound on-ramp at Cabrillo Blvd.	Although this option was geometrically a full access interchange, it was rejected by the team on October 18, 2010 based on the recognition that the configuration was not viable because the proposed northbound off-ramp would be unable to accommodate right-turning truck traffic due to the constrained geometry of the ramp end at Cabrillo Boulevard. In addition, the team recognized that the narrow landscaped median would not be consistent with local policies, which could be problematic during the permit process.
I	Close both median off-ramps at Cabrillo Boulevard; improve the northbound Hermosillo Drive off-ramp, the southbound Los Patos Way off-ramp, and the northbound Cabrillo Boulevard on-ramp.	Although this option was geometrically feasible, it was rejected by the team on October 18, 2010 due to the lack of a southbound on-ramp, which creates a partial interchange.
J Modified	Retain the northbound Hermosillo Drive off-ramp and the northbound Cabrillo Boulevard on-ramp. Close the southbound Los Patos Way off-ramp and construct a new southbound Los Patos Way on-ramp. Retain both median left-side off-ramps.	Both left-side median off-ramps would remain and a southbound on-ramp at Los Patos Way would be added. This scenario was determined to be geometrically infeasible—left-side ramps cannot be retained due to their accident history, short stopping sight distance and driver expectation problems. Caltrans cannot justify retention of left-side ramps required for the design exception process (refer to Appendix J *Left-side Ramps Fact Sheet* and discussion below).
K	Retain by improving all existing ramp connections at Los Patos Way and Hermosillo Drive. Retain the northbound on-	This option was geometrically feasible, but rejected by the team on May 17, 2010 on the basis that the narrow landscaped median would have visual/

Configuration	Description	Reason for Removal
	ramp at Cabrillo Boulevard, but close all median left off-ramps. Build a new southbound on-ramp at Cabrillo Boulevard.	aesthetic impacts and not be consistent with local design policies. Therefore, this option would not be desirable from a permitting perspective.
L	Close northbound and southbound median off-ramps at Cabrillo Boulevard and close the northbound Hermosillo Drive off-ramp. Add a southbound Cabrillo Boulevard off-ramp. Improve the southbound Los Patos Way off-ramp and the northbound Cabrillo Boulevard on-ramps.	This option was geometrically feasible but was rejected by the team on October 18, 2010 due to the lack of a southbound on-ramp, which would be problematic since it would create an isolated southbound off-ramp.
N	Retain by improving the existing ramp connection at Los Patos Way. Retain the northbound on-ramp at Cabrillo Boulevard, but close all median left off-ramps. Close the ramp at Hermosillo Drive, and build a new northbound off-ramp and a new southbound on-ramp at Cabrillo Boulevard.	This option was geometrically feasible, but rejected by the team on May 17, 2010 on the basis that the narrow landscaped median would create visual impacts and not be consistent with local design policies. Therefore, this option would not be desirable from a permitting perspective.
O	Retain by improving the existing ramp connections at Cabrillo Boulevard, but close the ramp connections at Hermosillo Drive and Los Patos Way.	This option was geometrically infeasible. The existing right-of-way width would not accommodate ramp geometry for the standard departure angles from the freeway, the connection angles to Cabrillo Boulevard, and appropriate stopping sight distance along the median ramp profiles. This configuration would also not include a southbound on-ramp.
P	Retain by improving the existing ramp connections at Hermosillo Drive and Cabrillo Boulevard, but close the ramp connection at Los Patos Way.	This option was geometrically infeasible. The existing right-of-way width was unable to accommodate ramp geometry for the standard departure angles from the freeway, the connection angles to Cabrillo Boulevard, and appropriate stopping sight distance along the median ramp profiles. In addition, this configuration would not include a southbound on-ramp.
Q	Close the Los Patos southbound off-ramp, the northbound and southbound median off-ramps at Cabrillo Boulevard, and the northbound on-ramp at Cabrillo Boulevard. Build a new Cabrillo Boulevard southbound right-side off-ramp that would undercross three southbound freeway lanes and a new northbound right-side on-ramp that would undercross three northbound freeway lanes. Both would join at the existing median ramp intersections at Cabrillo Boulevard. Also improve the northbound Hermosillo Drive off-ramp.	This option was geometrically feasible, but rejected by the team on October 18, 2010. The team determined that this configuration was inadequate due to the lack of space within the existing right-of-way for a future southbound on-ramp. Also the extensive ramp tunnels underneath the freeway mainline would not be consistent with the character of the area or the local design policies. Therefore, this option would not be desirable from a permitting perspective.
R	Identical to configuration "S" with the addition of a southbound Los Patos Way on-ramp. Close both median off-ramps at Cabrillo Boulevard. Improve the southbound Los Patos Way off-ramp and the northbound Cabrillo Boulevard on-ramp. Close the northbound Hermosillo Drive off-ramp, and build a new northbound off-ramp ending within the existing roundabout. Build a new southbound on-ramp at Los Patos Way.	This option is geometrically infeasible without relocating the roundabout. The distance and position of the existing roundabout with regard to the freeway was inadequate to accommodate ramp geometry for the new northbound off-ramp. In addition to the roundabout not being geometrically laid out to accept a fifth leg. Reconstructing the roundabout farther from the freeway could not occur without causing substantial right-of-way impacts.

Configuration	Description	Reason for Removal
S	Similar to configuration "R" except that there was no provision for a southbound on-ramp.	This option is geometrically infeasible without relocating the roundabout. The distance and position of the existing roundabout with regard to the freeway were inadequate to accommodate ramp geometry for the new northbound off-ramp. In addition to the roundabout not being geometrically laid out to accept a fifth leg. Reconstructing the roundabout farther from the freeway could not occur without causing substantial right-of-way impacts.

During public review of the draft environmental document, a comment received from the Montecito Association requested consideration of the association's proposal for the Cabrillo Boulevard/Hot Springs Road interchange and ideas for variations to the Sheffield interchange (see previous discussion under Sheffield Interchange). Two Montecito Association variations are similar to configuration J Modified and configuration P. Both variations would retain left-side ramps. To clarify the situation involving left-side ramps, a fact sheet was prepared by Caltrans. The fact sheet is titled *Left-Side Ramp Fact Sheet* and was made part of the final environmental document as Appendix J. The compiled information was designed to provide data about common safety and operational problems with exiting from or merging onto the highway using left-side ramps. This sheet was prepared after the draft environmental document was released, in response to public comment raised by the Montecito Association and others.

In addition, Appendix I provides a summary of two presentations Caltrans made to the SBCAG board in January 2014 and May 2013. The May 2013 presentation addressed two proposals made by the Montecito Association for the Cabrillo Boulevard interchange. The *Left-Side Ramp Fact Sheet* (Appendix J) was also included as part of the presentation. The January 2014 presentation summarized the conclusions from circulation and safety studies related to left-hand ramps. Chapter 4 provides a summary of coordination efforts between various agencies and organizations. Lastly, Appendix M contains specific responses to comments from Montecito Association and others.

1.4 Permits and Approvals Needed

Table 1.3 shows the permits, reviews, and approvals that would be required for project construction.

Table 1.3 Permits and Approval Required for Proposed Project

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service National Oceanic Atmospheric Administration Agency (NOAA) Marine Fisheries	Formal Section 7 Consultation with the U.S. Fish and Wildlife is required for the tidewater goby and associated proposed critical habitat Formal Section 7 Consultation with National Oceanic Atmospheric Administration National Marine Fisheries Service is required for the steelhead trout and its critical habitat	Biological Opinion was received from USFWS on August 6, 2012 Biological Opinion was received from NOAA- National Marine Fisheries on August 26, 2013 The formal Section 7 consultation process is satisfied
U.S. Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the U.S. in the following creeks: Franklin, Santa Monica, Arroyo Paredon, Toro Canyon, Greenwell, Romero (Picay), San Ysidro and Oak creeks	Permit application will be submitted during final design phase
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Permit application will be submitted during final design phase
Regional Water Quality Control Board	Section 401 Certification	Permit application will be submitted during final design phase
Santa Barbara County	Local Coastal Program (LCP) Amendment Coastal Development Permit	Coordination for the LCP amendment and CDP would be initiated after releasing the final environmental document
City of Carpinteria	Local Coastal Program Amendment Coastal Development Permit and Conditional Use Permit	Early consultation has occurred for LCP amendment. Requests for the CDP and Conditional Use Permit would be submitted during the design phase
City of Santa Barbara	Coastal Development Permit Design review approvals from the Historic Landmarks Commission and Architectural Board of Review	The CDP application and any other reviews and permit applications will be submitted during final design phase
Union Pacific Railroad	A Railroad Agreement is required for project features affecting the railroad right-of-way	With selection of the F Modified configuration, pavement widening on Cabrillo Boulevard requires an encroachment permit. The Sheffield interchange requires a permanent subsurface footing easement for retaining walls.