

Chapter 1
Proposed Project

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans; Department), in cooperation with the City of San Juan Capistrano (City), proposes to improve the existing Interstate 5 (I-5) “San Diego Freeway”/State Route 74 “Ortega Highway” (SR-74) Interchange. Figures 1-1 and 1-2 display the general location and vicinity of the project site. The I-5/Ortega Highway Interchange Project (the project) is intended to facilitate traffic flows and ease congestion along Ortega Highway and the I-5 freeway on-/off-ramps, accommodate an expected increase in regional traffic, and accommodate increased traffic generated by planned development to the east of the interchange along Ortega Highway.

The preliminary engineering and environmental study phase of the project is included in the Fiscal Year (FY) 2004 Federal Statewide Transportation Improvement Program (FSTIP), as amended, and is proposed for federal funding from the Interstate Maintenance Discretionary (IMD) program. Potential funding for final design and construction of the project is being sought from several sources. The project is expected to be funded with the State Transportation Improvement Program (STIP), the Regional Improvement Program (RIP), and local developer fees. These funds would become available at a later stage under Program Code Local 20.10.400 and 20.10.075. The project is included in the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP).

1.1.1 Project Setting

The existing I-5/Ortega Highway interchange is located in an urbanized area of the City, just east of its downtown area, and it provides the primary entrance to the City. The area surrounding the interchange is characterized by commercial, retail, hotel, and community facility uses, including San Juan Elementary School located adjacent to the I-5 southbound off-ramp as it approaches Ortega Highway. The boundaries of the project site on I-5 are between Post Mile (PM) 9.36 and PM 9.88, and on Ortega Highway between El Camino Real (PM 0.0) and 393.7 feet (120 meters (m)) east of Los Cerritos Avenue (PM 0.20). Figures 1-1 and 1-2 display the general location and vicinity of the project site.

The existing I-5/Ortega Highway interchange is a compact diamond (Type L-1) interchange consisting of the Ortega Highway/I-5 separation (Bridge No. 55-0229), I-5, Ortega Highway, associated on- and off-ramps, a concrete-lined channel (Horno Creek), and Del Obispo Street. Ortega Highway consists of two westbound and two eastbound lanes from the I-5 freeway to Via Cordova, with additional turn lanes for the I-5 on- and off-ramps. There is currently a dedicated right-turn lane on each side of the highway between the I-5 freeway northbound ramps and Rancho Viejo Road.

1.1.2 Scope of Analysis in this Document

This joint Final Environmental Impact Report/Environmental Assessment (EIR/EA) examines potential environmental impacts of the proposed build and no build alternatives that are being considered for the proposed project located in the City. This document has been prepared by the Department, as assigned by the Federal Highway Administration (FHWA), in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] 4321 et seq.); the Council on Environmental Quality (CEQ) Regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508); and the California Environmental Quality Act of 1970 (CEQA) (Public Resources Code [PRC] 21000 et seq., as amended) and implementing guidelines (California Code of Regulations, Title 14, Section 15000 et seq.).

A total of sixteen conceptual designs were originally developed for the project, and five build alternatives (Alternatives 1 through 5) were carried forward for evaluation in the now-completed Project Study Report (Project Development Support) [PSR(PDS)] phase of the project. After the PSR(PDS) phase was completed, two of the alternatives (Alternatives 3 and 5) were recommended for detailed environmental analysis, based on design and operational considerations and the evaluation of Alternatives 3 and 5 is documented within this EIR/EA. Based upon technical studies and recommendations completed after the PSR(PDS) phase, the remaining project Alternatives 1, 2, and 4 from the PSR(PDS) phase have been deemed “non-viable” or infeasible and are not treated as project build alternatives in the scope of this EIR/EA. This chapter provides descriptions of the previous project studies and outreach conducted to date, the current project alternatives under consideration, and the project alternatives previously considered but eliminated.



FIGURE 1-1

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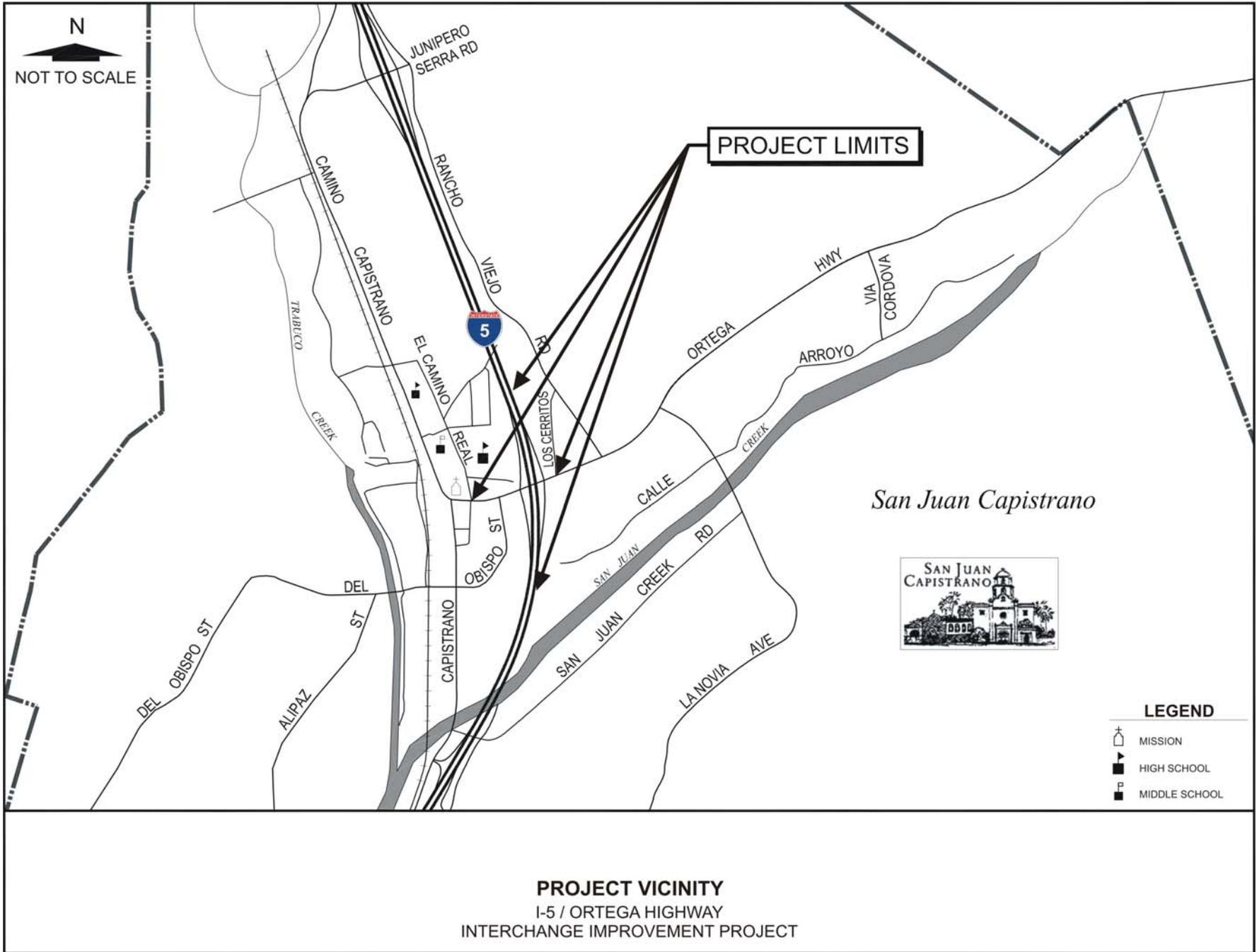


FIGURE 1-2

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1.2 Purpose and Need

Ortega Highway at the I-5 interchange has been identified by the Department and the Orange County Transportation Authority (OCTA) as a “Choke Point” in Orange County’s Choke Point Program, which is a cooperative effort between OCTA and Caltrans to eliminate more than forty freeway traffic congestion chokepoints in Orange County. Under the Choke Point Program, a chokepoint is defined as a “bottleneck” or location where lack of adequate traffic volume capacity and operational deficiencies result in increased traffic congestion. The existing I-5/Ortega Highway interchange experiences congestion during the morning and afternoon peak periods and has traffic operational deficiencies including inadequate traffic queue lengths which exceed available vehicle storage space at traffic signal approaches, causing blockage to upstream intersections. The existing traffic congestion levels and operational deficiencies result in unacceptable traffic level of service (LOS)¹ F conditions. Without any improvements, the interchange will experience worsening congestion, which would further degrade traffic operations at the interchange. Improvements to the I-5/Ortega Highway interchange are necessary to alleviate existing and future traffic congestion and delays within the interchange.

1.2.1 Purpose of the Project

The purpose of the proposed project is:

- To provide congestion relief to improve traffic flow on the local and regional transportation system
- To relieve the existing traffic congestion chokepoint at the I-5/Ortega Highway Interchange
- To improve traffic safety and operations at the I-5/Ortega Highway interchange
- To eliminate existing geometric deficiencies
- To transfer through-vehicle trips to the regional highway system
- To be consistent with existing and planned local development
- To help achieve the objectives of the SCAG RTP and the San Juan Capistrano Strategic Transportation Plan

1.2.2 Need for the Project

Currently, the I-5/Ortega Highway interchange experiences heavy peak-hour congestion and traffic delays due to high traffic volumes, chokepoints, and geometric deficiencies related to inadequate signal queue distances. High traffic volumes, chokepoints, and

¹ Level of Service (LOS) is defined as a ratio between the volume of vehicles and the vehicular capacity of a roadway segment or intersection. The quality of traffic flow can be defined in terms of LOS, from A to F. LOS range from A (free traffic flow with low volumes and high speeds resulting in low densities) to LOS F (traffic volumes exceed capacity and result in forced flow operations at low speeds resulting in low densities).

geometric deficiencies have affected both traffic operations and safety in the project area. Specific information about the existing deficiencies of the I-5/Ortega Highway interchange and associated need for the project is described below.

Capacity, Transportation Demand, and Safety

- The daily number of vehicles traveling through the interchange is forecast to increase over time, which will increase traffic congestion in the project area. The current configuration of the interchange does not have the capacity to carry projected future traffic volumes. Currently, 99,000 vehicles per day (vpd) travel through the I-5/Ortega Highway interchange.

As demonstrated in Table 1-1, much of the projected population and employment increase in the project area is related to anticipated future growth to the east of the I-5/Ortega Highway interchange. With the current and projected future development to the east of the project area, year 2030 traffic at the I-5/Ortega Highway interchange is projected to reach approximately 121,000 vpd. Without any improvements, the interchange will experience more congestion, which will further degrade traffic operations.

**Table 1-1
Traffic Study Area Demographic Projections**

CAAs within RSA C-43 and RSA D-40	Year 2005	Year 2030	Growth
CAAs 59 and 70 (EAST Side of I-5)			
Population	100,322	150,660	50.2%
Employment	17,477	30,820	76.4%
CAA 64 (WEST Side of I-5)			
Population	64,784	69,129	10.1%
Employment	15,049	16,953	12.7%

Notes:

CAA – Community Analysis Area

RSA – Regional Statistical Area

Sources:

Austin-Foust Associates, Inc., 2007b

California State University, Fullerton Center for Demographic Research

- Sections of Ortega Highway within the interchange area currently operate at unacceptable LOS F conditions. Without any improvements to the interchange, traffic congestion would increase and LOS would further degrade in the future.

Table 1-2 shows the existing (year 2006) peak-hour performance of the I-5/Ortega Highway interchange. As noted in the footnote to the table, current operational deficiencies within the interchange area prevent the theoretical calculated LOS values noted in the table from actually being achieved. Although the calculated theoretical LOS values listed in the table range from LOS A through LOS E, the

actual delays currently experienced in the project study area are equivalent to LOS F conditions due to traffic operational problems resulting from closely spaced intersections (i.e., traffic queue blockage between intersections). Such operational deficiencies are apparent from the existing traffic queue lengths, which exceed the available vehicle storage space for various turning movements within the interchange area. With these operational deficiencies, volume to capacity (V/C) ratios for the I-5 freeway ramps were not calculated, since they would not give an accurate representation of actual ramp performance conditions currently experienced within the interchange area.

**Table 1-2
 Peak-Hour Traffic Performance – Existing Conditions (Year 2006)**

I. INTERSECTION PERFORMANCE								
Intersection	ICU				HCM Delay (secs)			
	AM	LOS	PM	LOS	AM	LOS	PM	LOS
Del Obispo & Ortega	0.54	A	0.57	A*	13.8	B*	11.2	B*
I-5 SB Ramps & Ortega	0.79	C*	0.87	D*	44.2	D*	71.3	E*
I-5 NB Ramps & Ortega	0.86	D*	0.74	C*	69.5	E*	16.2	B*
II. CRITICAL QUEUING DISTANCES								
Intersection	Movement	AM/PM	Traffic Queue Length (feet)	Available Storage Length (feet)				
Del Obispo & Ortega	EBT/R**	PM	519**	425				
I-5 SB Ramp & Ortega	EBT**	AM	384**	310				
	EBT**	PM	418**	310				
	WBT**	PM	545**	325				
I-5 NB Ramp & Ortega	WBT**	AM	1,282**	900				
<p><u>Notes:</u></p> <p>* Operational problems due to closely spaced intersections prevent these theoretical LOS conditions from being achieved. The actual delays currently experienced are equivalent to LOS F due to traffic queue blockage between intersections.</p> <p>** For the movements listed here, traffic queue length exceeds available storage length, causing blockage to upstream intersections.</p> <p>EBT – eastbound through HCM – Highway Capacity Manual LOS – level of service SB – southbound</p> <p>EBT/R – eastbound through/right ICU – Intersection Capacity Utilization NB – northbound WBT – westbound through</p> <p>Source: Austin-Foust Associates, Inc., 2007a</p>								

Table 1-3 presents the projected future year 2030 LOS values for the intersections and traffic performance data for the existing I-5/Ortega Highway interchange configuration. As noted in the footnote to the table, the operational deficiencies present within the interchange area prevent the theoretical calculated LOS values

The year 2030 traffic performance data indicate significant traffic delays and queuing problems for the interchange such that the number of vehicles that can be accommodated through the network is less than the demand. The traffic queue lengths exceed the available vehicle storage space for various turning movements within the interchange area. Many movements would fail because of insufficient storage, leading to prolonged periods throughout the day when severe delays would occur. With these operational deficiencies, V/C ratios for the I-5 freeway ramps were not calculated, since they would not give an accurate representation of actual ramp performance conditions that would be experienced within the interchange area.

- Accidents along Ortega Highway within the project limits occur at a rate more than twice as high as the state average of similar facilities. Improvements are proposed under Alternatives 3 and 5 that would alleviate traffic congestion at the interchange, which would potentially decrease accident rates.

The Caltrans Traffic Accident Surveillance and Analysis System (TASAS) provides detailed accident rates for all highways in the State. As shown in Table 1-4, there were 29 accidents recorded on Ortega Highway, with five injury accidents and no fatalities. Most of the accidents were broadsides (34.5 percent), rear ends (34.5 percent), and sideswipes (27.6 percent) associated with the signalized intersections along Ortega Highway. The total actual accident rate was 7.31 accidents per million vehicle miles (a/mvm) compared to the statewide average accident rate of 3.16 a/mvm for similar facilities. This high rate may be attributed to a backup of traffic along Ortega Highway because of operational problems at the three closely spaced intersections, which include the I-5 southbound ramps, the I-5 northbound ramps, and Del Obispo Street.

**Table 1-4
Accident Rates for Ortega Highway Intersections**

Segment	Number of Accidents			Person		Accident Rate (mvm)					
						Actual Rate			Average Rate		
	FAT	F+I	Total	Kill	Injured	FAT	F+I	Total	FAT	F+I	Total
Ortega Highway	0	5	29	0	5	0.000	1.26	7.31	0.020	1.37	3.16
FAT – Fatalities F+I – Fatalities plus injuries A/MVM – Accidents per Million Vehicle Miles											

Source: Department, 2008

- Accidents along the I-5 southbound off-ramp within the project limits occur at a much higher rate than the state average of similar facilities. The improvements proposed under Alternatives 3 and 5 would alleviate the backup of traffic along the I-5 southbound off-ramp, which would potentially decrease accident rates at this location.

TASAS data indicate that the total accident rate for the I-5 southbound off-ramp is 1.61 accidents per million vehicles (a/mv) compared to the statewide average accident rate of 1.50 a/mv for similar facilities. There were 34 total accidents recorded, with ten injury accidents and no fatalities. The majority of the accidents recorded occurred at the ramp terminus and the local intersecting street (Ortega Highway). This may be attributed to a backup of traffic along the ramp because of operational problems at the ramp intersection in addition to traffic backup along Ortega Highway because of the three closely spaced signalized intersections.

Roadway Deficiencies

- The existing lane widths along Ortega Highway in the interchange area are a nonstandard 10 feet (ft) and 11 ft. The Caltrans Highway Design Manual (HDM) Index 301.1 requires 12-ft lane widths.
- Shoulders currently do not exist along Ortega Highway in the interchange area. The HDM Index 302.1 requires 8-ft shoulders for a bridge separation.
- The existing I-5 ramp shoulder widths in the interchange area are nonstandard. The HDM Index 302.1 requires 8-ft right shoulders and 4-ft left shoulders.
- The existing nonstandard lane widths increase safety hazards and contribute to traffic accidents, especially when combined with congestion and vehicle hours traveled.

Modal Interrelationships and System Linkages

- Regional and System Planning: The I-5/Ortega Highway interchange has regional importance. The proposed project is needed to accommodate the increased traffic volumes using the interchange because of development in the area.
- State Planning: The year 2005 Route Concept Report (RCR) recommendation for Ortega Highway is a four-lane conventional highway from I-5 to the proposed Foothill Transportation Corridor (SR-241), with passing lanes provided where feasible from SR-241 eastward to the county line. The RCR recommendations are consistent with the 2002 Orange County Master Plan of Arterial Highways (MPAH), which proposes Ortega Highway as a primary roadway consisting of a four-lane divided highway. In addition to the above recommendation, the RCR also recommends improvements to increase the capacity of the I-5/Ortega Highway interchange to accommodate the anticipated growth in south Orange County, as well as Riverside County; therefore, the proposed project is needed to implement the recommendations of the RCR concept for Ortega Highway.
- Regional Planning: According to the April 2000 I-5 RCR, the ultimate (2020 Concept) transportation corridor (UTC) for I-5 is an eight-lane freeway with two high-occupancy vehicle (HOV) lanes south of Ortega Highway and a ten-lane freeway with two HOV lanes north of Ortega Highway; however, in discussion with the Department, potential future widening of the I-5 freeway would consist of providing one additional HOV lane in each direction. In reference to the

Ortega Highway interchange, the RCR lists the addition of auxiliary lanes to I-5 south of the interchange from the southbound on-ramp and northbound off-ramp as part of its 2020 concept. The proposed project is intended to accommodate these design considerations for the future I-5 widening.

The proposed I-5/Ortega Highway interchange improvements are included as part of Project “D”, Santa Ana Freeway/San Diego Freeway (I-5) Local Interchange Upgrades, in Orange County’s Renewed Measure M Freeway Program. The projects included in the Renewed Measure M Freeway Program are strategic improvements needed to minimize system-wide freeway traffic congestion in Orange County. Subject to a Master Agreement negotiated between Orange County Transportation Authority (OCTA) and federal and state resource agencies, an Environmental Mitigation Program will be implemented to provide for high-value environmental benefits such as habitat protection and/or resource preservations to exchange for streamlined project approvals for the Renewed Measure M Freeway Program as whole.

- Local Planning: The proposed project is needed to implement the objectives of the 2002 San Juan Capistrano Strategic Transportation Plan, which recommends reconstruction of the I-5/Ortega Highway interchange. The levels of service at both intersections of the I-5 ramps and Ortega Highway are projected to further degrade in the future without improvements to the interchange.

1.3 Project Description

This section describes the proposed project (Preferred Alternative) and design alternatives that were developed by a multidisciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. This EIR/EA evaluates the environmental consequences of two project build options (Alternative 3 and Alternative 5), as well as a No Build Alternative. Detailed descriptions of the considered project alternatives are provided in Section 1.4.2.

After comparing and weighing the benefits and impacts of all of the feasible alternatives and considering comments received on the Draft EIR/EA, the project development team has identified Alternative 3 as the Preferred Alternative. Alternative 3 has been identified as the Preferred Alternative because of its smaller direct impact footprint and associated smaller amount of property acquisition required for ROW, as compared to Alternative 5. Furthermore, Alternative 3 would not require property acquisition and relocations of buildings on the San Juan Elementary School site, which would provide a lower project cost associated with property acquisition and avoid temporary inconveniences to the school during the construction period that would result from relocation and reconstruction of the school buildings.

The project site is located in Orange County at the interchange of I-5 and SR-74 (Ortega Highway) in an urbanized area of the City. Figures 1-1 and 1-2 display the general location and vicinity of the project site. The I-5/Ortega Highway interchange provides the primary entrance to the City, and it is located just east of its downtown area.

The boundaries of the project site on I-5 are between PM 9.36 and PM 9.88, and on Ortega Highway between El Camino Real (PM 0.0) and 120 m east of Los Cerritos Avenue (PM 0.20).

The existing I-5/Ortega Highway interchange is a compact diamond (Type L-1) interchange consisting of the Ortega Highway/I-5 separation (Bridge No. 55-0229), I-5, Ortega Highway, associated on- and off-ramps, a concrete-lined channel, and Del Obispo Street. Ortega Highway consists of two westbound and two eastbound lanes from I-5 to Via Cordova, with additional turn lanes for the I-5 on- and off-ramps. There is currently a dedicated right-turn lane on each side of the highway between the I-5 northbound ramps and Rancho Viejo Road.

The purpose of the proposed project is to facilitate traffic flows, ease congestion, and improve safety along Ortega Highway and the I-5 on-/off-ramps, accommodate an expected increase in regional traffic, and accommodate increased traffic generated by planned development east of the interchange along Ortega Highway.

1.4 Alternatives

1.4.1 Steps Taken to Develop Project Alternatives

Project studies were initiated in July 2000 to develop viable alternatives for the project. Initially, in consultation with the Department and the City, an array of sixteen possible alternatives were developed and considered to alleviate traffic congestion in the project area. Monthly Project Development Team (PDT) meetings, comprising staff from the City, the Department, and the consultant team, were held to direct the development of alternatives and to assist in evaluating their viability. As a result, the sixteen original alternatives were screened down to three potentially viable alternatives.

On December 11, 2000, the City, along with the Department and the consultant team, held a public workshop to review the three proposed alternatives and to gather community input. Many issues emerged from the public workshop. As a result of the public workshop, the traffic benefits of providing improvements to other adjacent interchanges were also analyzed; however, the analysis concluded that no significant reduction in traffic for the Ortega Highway interchange would be realized as a result of improving adjacent intersections.

A Value Analysis (VA) study, which focused on the three viable alternatives under consideration at the time, was completed in April 2001. In mid 2001, the City began work on the development of a “Strategic Transportation Plan” (STP) to evaluate the impacts of regional growth on the City. After the STP was completed in October 2002, the I-5/Ortega Highway project was subsequently revived in early 2003. As a result, a second public workshop was held in October 2003, which introduced two additional project alternatives that had been developed to address both the community concerns that emerged from the initial public workshop and the results from the VA study.

Between October 2003 and March 2004, a series of City Council, City Transportation Commission, City Planning Commission, and City Blue Ribbon Panel meetings were held to assess the five proposed alternatives (Alternatives 1 through 5) under

consideration at that time and to gather additional community input. As a result of the community input gathered from the October 2003 public workshop and based on direction from the City Council and City staff, the five potential interchange alternatives were carried forward for further study in the PSR(PDS) phase of the project. A Notice of Preparation/Notice of Initiation of Studies (NOP/NOIS) for the project's environmental studies was issued May 31, 2006. A public scoping meeting was held June 8, 2006, and Alternatives 1 through 5 from the PSR(PDS) were presented at this meeting.

In September 2006, an updated traffic analysis was completed, which concluded that Alternatives 1 and 2 did not meet the intended project purpose of providing current and future traffic congestion relief. The updated traffic analysis also indicated that Alternative 4 had geometric design constraints that would pose potential safety issues and geometric (operational) constraints.

Based upon an evaluation of the performance, benefits, limitations, cost, anticipated impacts, and other factors concerning Alternatives 1 through 5 documented as part of the PSR(PDS) study, two of the build alternatives (Alternatives 3 and 5) were selected for detailed environmental evaluation in this EIR/EA. The remaining project Alternatives 1, 2, and 4 from the PSR(PDS) phase have been removed from further consideration and are not analyzed as viable project build alternatives in this EIR/EA. Section 1.4.4 below provides a description of Alternatives 1, 2, and 4 that have been eliminated from further consideration.

1.4.2 Project Alternatives

This EIR/EA evaluates the environmental consequences of two project build options (Alternative 3 and Alternative 5), as well as a No Build Alternative. Descriptions of Alternatives 3 and 5 and the No Build Alternative are provided below.

1.4.2.1 Common Design Features of the Build Alternatives

Both Alternatives 3 and 5 would provide the following safety enhancements:

- Standard lane widths would be provided along Ortega Highway at the bridge approaches and on the bridge
- Standard shoulder widths would be provided along Ortega Highway at the bridge approaches and on the bridge
- Standard ramp shoulder widths would be provided
- Various turning movements at the intersections would be designed to improve safety by reducing the amount of conflicting movements

1.4.2.2 Unique Features of Build Alternatives

Alternative 3 (Preferred Alternative) – Reconfigured Del Obispo Street Intersection and Single Cloverleaf Interchange

This alternative realigns Ortega Highway west of the I-5 southbound ramps and widens the I-5 southbound off-ramp (refer to Figures 1-3, 1-4, and 1-5). Proposed improvements would realign the Del Obispo Street and Ortega Highway roadways so that the eastern

branch of Ortega Highway curves into Del Obispo Street forming a new intersection south of the existing intersection. A new curved roadway would also be constructed connecting the current El Camino Real/Ortega Highway intersection with this new intersection. In addition, Ortega Highway would be widened and re-striped east of the proposed northbound I-5 ramps to accommodate the eastbound and westbound through/turn lanes and to allow for lane widening to standard.

The east side of the interchange would feature a partial cloverleaf ramp configuration. The current I-5 northbound off-ramp would be pushed east to provide room for a loop ramp in the southeast corner of the interchange. This loop ramp would be used for eastbound traffic to access northbound I-5 without having to make a left turn onto the current northbound on-ramp, which would be retained for westbound traffic turning right. The current intersection would be simplified by the removal of this left-turn movement, and it would be moved east, increasing the spacing between it and the intersection of Ortega Highway and the southbound I-5 ramps. In addition, the northbound on-ramp would be modified to accommodate the acceleration lane for the proposed east loop on-ramp. A retaining wall would be placed along the outside of the revised northbound off-ramp (refer to Figure 1-3) to minimize right-of-way (ROW) impacts to the adjacent business park.

The Ortega Highway/I-5 freeway overcrossing would be replaced to allow for additional full-width standard² lanes (8 total) on the I-5 freeway, as well as a longer span length to provide additional space underneath to accommodate the proposed northbound loop on-ramp and for possible future widening of the I-5 freeway. The increased span length would result in a deeper bridge section, thus requiring the bridge profile to be raised to maintain the minimum required vertical clearance.

It is anticipated that I-5 may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. Alternative 3 has been designed to accommodate this future widening. The cloverleaf on-ramp proposed as part of Alternative 3 was designed so that a reduction of the ramp radii would not be required to provide room for the additional I-5 HOV lanes. If I-5 is widened in the future, the acceleration lane for the proposed east loop on-ramp may be revised to accommodate the future freeway HOV lanes while still meeting minimum radii standards for the loop portion of the ramp. Similarly, the proposed northbound on-ramp has been moved eastward, which would require minimal modification to accommodate additional I-5 HOV lanes.

Alternative 3 would meet the project's purpose and need by providing operational improvements to add sufficient capacity to accommodate current deficiencies at the interchange. This would be accomplished by Alternative 3 accommodating the potential future I-5 widening and providing additional capacity to accommodate projected year 2030 traffic growth.

² *Full-width standard* is defined as a 12-ft lane.

Alternative 5 – Double Cloverleaf Interchange

Alternative 5 provides a double cloverleaf design with dual-lane loop on-ramps located in the northwest and southeast corners of the interchange (refer to Figures 1-6, 1-7, and 1-8). The southbound and northbound off-ramps would be realigned to terminate at the intersections of Del Obispo Street and Los Cerritos Avenue, respectively. Del Obispo Street would be widened and realigned to meet the revised southbound off-ramp configuration. Furthermore, Ortega Highway would be widened and/or re-striped to accommodate the additional eastbound and westbound through/turn lanes and to allow for lane widening to standard.

The current southbound freeway on-ramp would be maintained at its current location for traffic making right turns from eastbound Ortega Highway to I-5. Similarly, the current northbound on-ramp would be maintained for traffic making right turns from westbound Ortega Highway to I-5; however, the northbound on-ramp would be modified to accommodate construction of the northbound loop on-ramp, as previously discussed under Alternative 3.

To minimize ROW impacts, retaining walls would be placed along the outside of the proposed southbound and northbound off-ramps, as shown on Figure 1-6. A portion of the existing 16-ft soundwall that currently protects portions of the San Juan Elementary School buildings, playground, and baseball fields would remain in place, but a portion of the barrier must be removed and replaced to accommodate the new I-5 southbound ramp configuration. The portion of the existing 16-ft wall to remain in place is located between Stations 532+00 and 538+25. South of Station 538+25, a new 10-ft soundwall is proposed to be constructed along the ramp shoulder to Ortega Highway at Station 518+60. The new 10-ft soundwall along the ramp shoulder would also shield the line of sight from heavy-duty truck exhaust stacks. To be effective, the new soundwall would be designed to connect to, or overlap, the existing soundwall at this location.

It is anticipated that I-5 may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. Alternative 5 has been designed to accommodate this future widening. Similar to Alternative 3, Alternative 5 would replace the Ortega Highway/I-5 overcrossing to allow additional lanes (8 total) and full-width standards, as well as provide additional span length for the possible future widening of I-5. The bridge span and the cloverleaf on-ramps were designed so that ramp acceleration lanes could be moved to provide room for additional I-5 lanes while still meeting minimum radii standards for the loop portion of the ramp. The increased bridge span length would result in a deeper bridge section, thus requiring the bridge profile to be raised to maintain the minimum required vertical clearance.

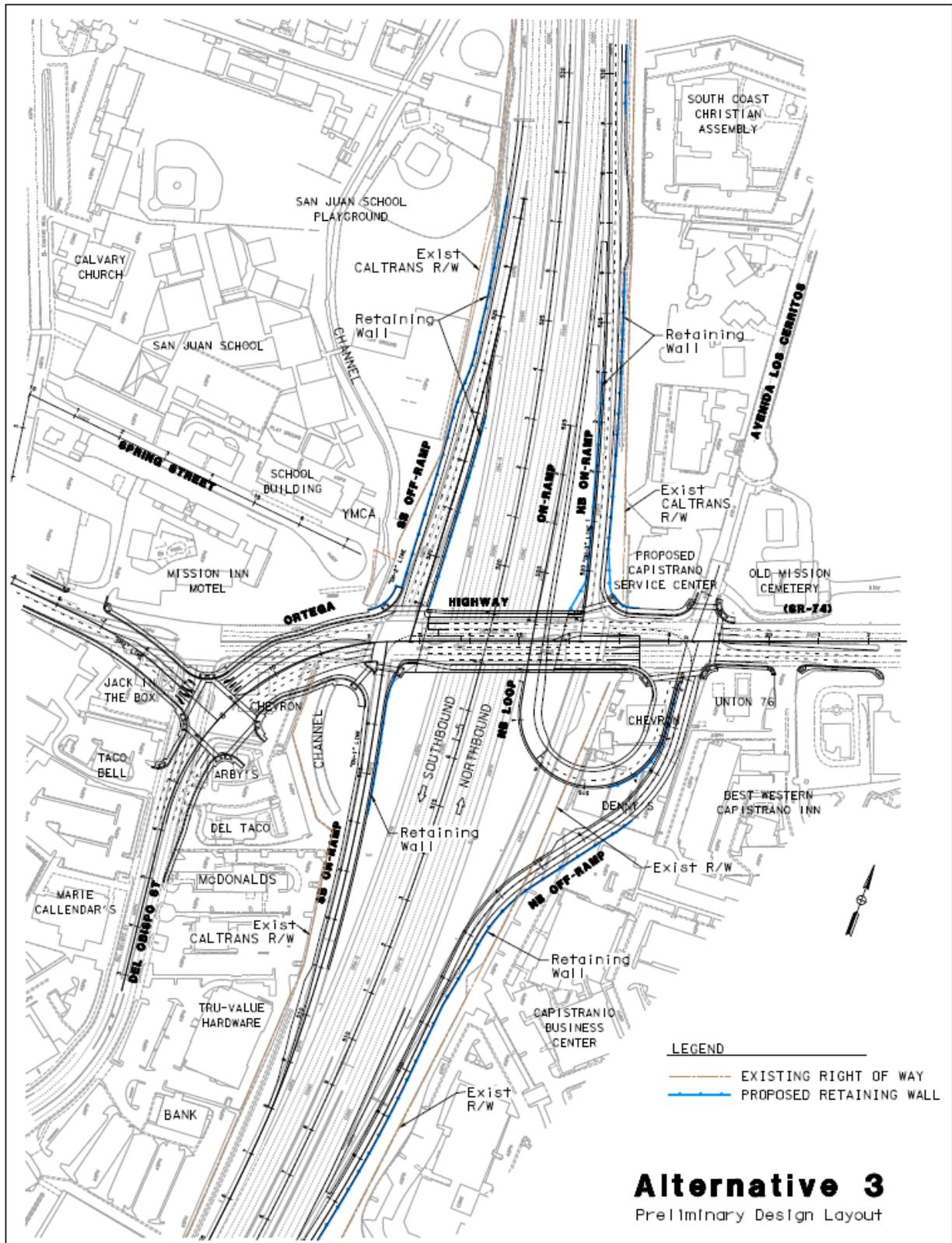
Alternative 5 would meet the project's purpose and need by providing operational improvements to add sufficient capacity to accommodate current deficiencies at the interchange. This would be accomplished by Alternative 5 accommodating potential future I-5 widening, and by providing additional capacity to accommodate projected year 2030 traffic growth.

1.4.2.3 Transportation System Management and Transportation Demand Management Alternatives

Although Transportation System Management (TSM) and Transportation Demand Management (TDM) measures alone could not satisfy the purpose and need of the project, the following TSM measures have been incorporated into Alternatives 3 and 5 proposed for the project:

- Existing ramp meters would be maintained on the existing on-ramp.
- New proposed loop on-ramps would be provided with ramp meters.
- Proposed traffic signals would be interconnected and coordinated to enhance traffic operations and maximize the number of vehicles that can pass through the interchange area.
- Existing HOV facilities (HOV lanes) on the I-5 on-ramps would be maintained.

The Ortega Highway bridge over I-5 would be redesigned and reconstructed to accommodate potential future widening of I-5 (as a separate project), which includes HOV components. The future widening of I-5 would provide an additional HOV lane in each direction on I-5 through and beyond the Ortega Highway interchange area.



Alternative 3
 Preliminary Design Layout

Figure 1-3

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**ALTERNATIVE 3 AERIAL PHOTO
I-5 / ORTEGA HIGHWAY
INTERCHANGE IMPROVEMENT PROJECT**

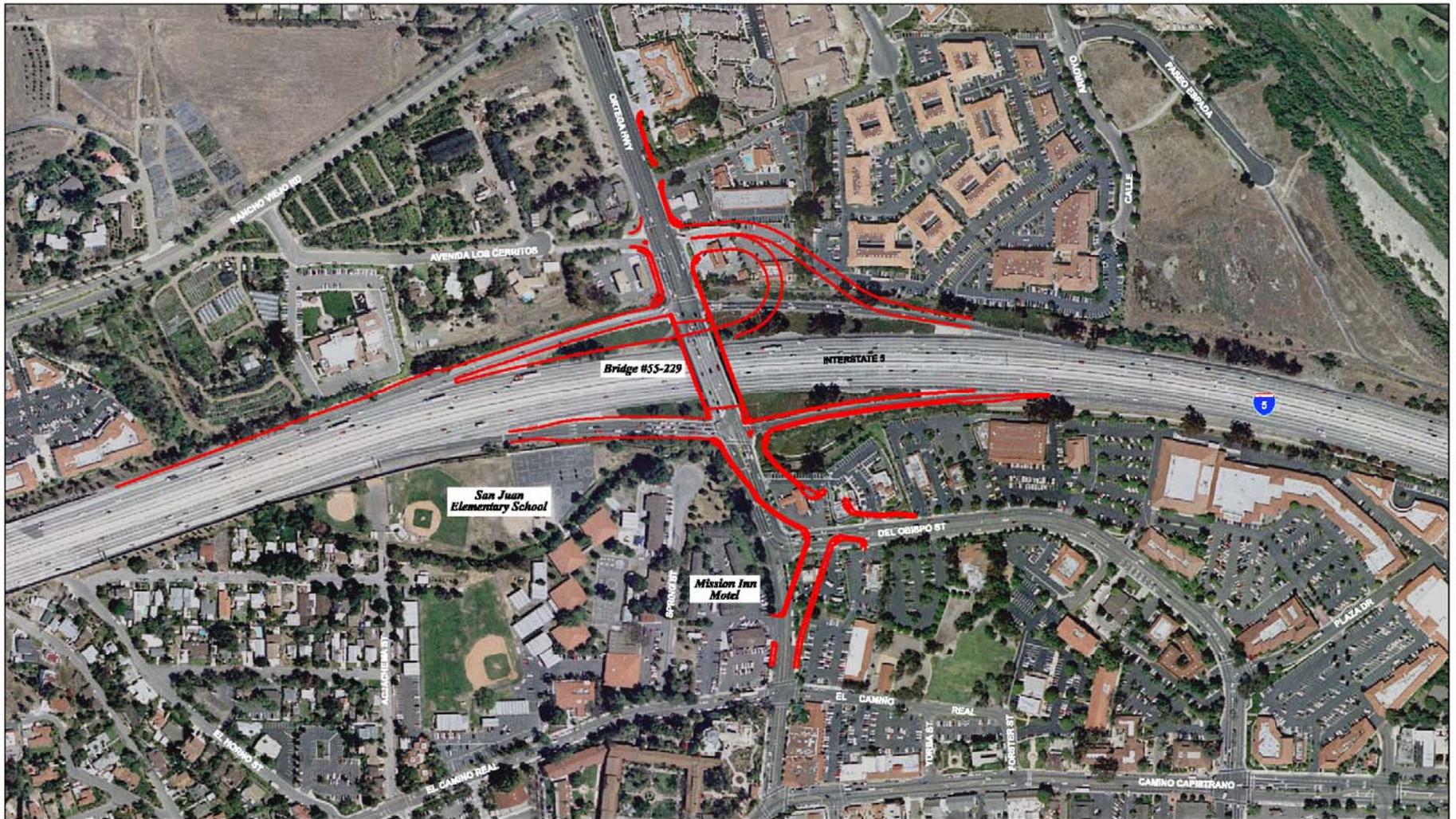


Figure 1-4

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I-5 / ORTEGA HIGHWAY INTERCHANGE IMPROVEMENT PROJECT



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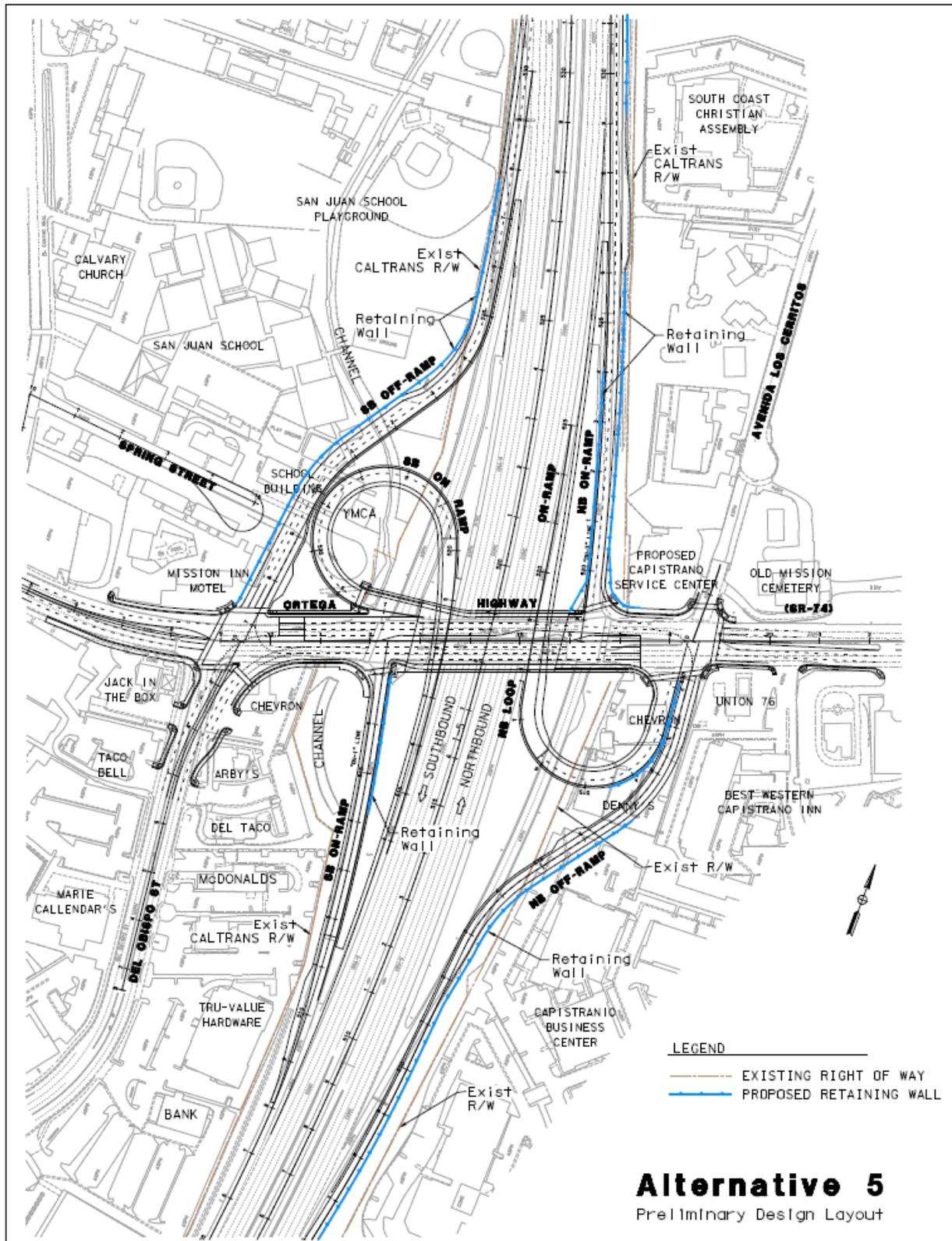


Figure 1-6

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**ALTERNATIVE 5 AERIAL PHOTO
I-5 / ORTEGA HIGHWAY
INTERCHANGE IMPROVEMENT PROJECT**



Figure 1-7

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I-5 / ORTEGA HIGHWAY INTERCHANGE IMPROVEMENT PROJECT

ALTERNATIVE 5

Visual Simulation



Figure 1-8

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1.4.2.4 No Build (No Action) Alternative

No changes to the existing roadway configuration are anticipated for the analysis of this alternative. Ortega Highway and the surrounding land uses in the interchange area would continue to exist and operate as they do today. Figure 1-9 displays the existing conditions associated with the No Build Alternative.

It is anticipated that I-5 may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. The potential future widening of I-5 in the interchange area would occur independently if the No Build Alternative were selected. Currently, the Ortega Highway overcrossing over I-5 does not provide enough span length (horizontal clearance) to accommodate the future widening of I-5. In addition, the Ortega Highway overcrossing over I-5 would exist as it is currently designed and would not provide the required span length to accommodate the future widening of I-5; therefore, the Ortega Highway overcrossing would ultimately need to be reconstructed as a separate project if the I-5 widening project is implemented.

If the No Build Alternative is selected in lieu of one of the proposed build alternatives, the purpose and need for the project would not be achieved, and impacts related to increased traffic congestion, the inability of the interchange to accommodate projected year 2030 traffic levels, ongoing traffic safety issues, nonstandard design features, and air quality effects (because of increased traffic congestion) would be exacerbated in the project area.

The No Build Alternative provides a baseline for comparing the impacts associated with the Build Alternatives since environmental review must consider the effects of not implementing the proposed project. For the purposes of this analysis, the baseline for assessing impacts of the “Build Alternatives on the existing conditions was established at the time the Notice of Preparation (NOP) was prepared.

1.4.3 Comparison of Alternatives / Identification of a Preferred Alternative

After the Draft EIR/EA public circulation period, all comments were considered, and the project development team selected Alternative 3 as the Preferred Alternative and made a final determination of the project’s effect on the environment. The project development team compared and weighed the community and environmental benefits and impacts of all of the feasible alternatives, and selected Alternative 3 as the Preferred Alternative because it meets the need and purpose of the project and is the environmentally superior alternative, as compared to Alternative 5. Alternative 3 would have a smaller direct impact footprint and associated smaller amount of property acquisition required for ROW, as compared to Alternative 5.

Alternative 5 would provide slightly better traffic operational enhancements on the west side of the interchange area as compared to Alternative 3; however, Alternative 3 would still provide acceptable traffic operational enhancements that meet both Department and City performance standards. Alternative 5 would have a greater direct impact footprint and associated greater amount of property acquisition required for ROW, as compared to Alternative 3. Alternative 5 would cause greater impacts to the community, as compared to Alternative 3, because of more relocations required for businesses and public

institutional uses. Alternative 5 would require property acquisition and relocations of buildings on the San Juan Elementary School site, which would cause temporary inconveniences to the school during the construction period that would result from relocation and reconstruction of the school buildings. The slightly better traffic operational enhancements that would be achieved by Alternative 5 are not considered beneficial enough to outweigh the greater community impacts that would be caused by this alternative.

In accordance with CEQA, the Department has certified that the project complies with CEQA. The Department concluded that all project impacts will be mitigated below a level of significance. The Department will file a Notice of Determination (NOD) with the State Clearinghouse indicating that the project will not have significant impacts and identifies mitigation measures included as conditions of project approval. The NOD will also indicate that findings were not made and a Statement of Overriding Considerations was not adopted, as the project would not have significant impacts after implementation of the required mitigation measures. Similarly, the Department, as assigned by FHWA, has determined that the NEPA action does not significantly impact the environment. The Department will issue notice of a Finding of No Significant Impact (FONSI) in accordance with NEPA guidelines. The notice of the FONSI will be published in the Federal Register and indicate that the preparation of a NEPA Environmental Impact Statement (EIS) is not required.

I-5 / ORTEGA HIGHWAY INTERCHANGE IMPROVEMENT PROJECT



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1.4.4 Alternatives Considered but Eliminated from Further Discussion Prior to Draft Environmental Document

As described above, project build Alternatives 1, 2, and 4 from the PSR(PDS) phase have been removed from further consideration and are not analyzed as viable project build alternatives in this EIR/EA. Below are brief descriptions of these project build alternatives, which have been removed from consideration, as well as the rationale for removing them from consideration:

Alternative 1 (Eliminated) – Widened Diamond Interchange

Alternative 1 would provide improvements consisting of widening and re-striping Ortega Highway from El Camino Real to immediately east of Los Cerritos Avenue, widening the existing bridge structure to accommodate an additional lane (8 total) and shoulders, widening the I-5 northbound off-ramp and I-5 southbound off-ramp by one additional lane, and adding an additional right-turn lane on Del Obispo Street, resulting in additional capacity at the Ortega Highway/Del Obispo Street intersection and the two ramp intersections. This alternative would retain the current interchange configuration, which consists of three closely spaced intersections.

Alternative 1 was originally proposed to provide short-term operational improvements that would add sufficient capacity to accommodate current deficiencies at the interchange if construction is completed by 2010. Alternative 1 generally retains the current Ortega Highway bridge and I-5 ramp configurations by widening the existing bridge structure and the northbound and southbound off-ramps. It is anticipated that I-5 may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. Alternative 1 does not take into account the potential future I-5 widening and would not accommodate projected year 2030 traffic growth; therefore, Alternative 1 would not satisfy the purpose and need of the project, and this alternative has been dropped from further consideration.

Alternative 2 (Eliminated) – Reconfigured Del Obispo Street Intersection and Widened Diamond Interchange

Alternative 2 would realign the Del Obispo Street and Ortega Highway roadways so that the eastern branch of Ortega Highway curves into Del Obispo Street forming a new intersection south of the existing intersection. A new curved roadway would also be constructed connecting the current El Camino Real/Ortega Highway intersection with this new intersection. This new intersection would be located farther from the intersection of the Ortega Highway/I-5 southbound ramps and would revise the existing dual left-turn movement onto Del Obispo Street into a through movement.

This alternative would feature the same improvements to the bridge structure, Ortega Highway east of the interchange, and the I-5 northbound and southbound off-ramps as Alternative 1. These improvements would consist of widening and/or re-striping Ortega Highway from the southbound I-5 ramps to immediately east of Los Cerritos Avenue, widening the existing bridge structure to accommodate an additional lane and shoulders, and widening the I-5 northbound and southbound off-ramps by one additional lane.

Alternative 2 was originally proposed to provide short-term operational improvements that would add sufficient capacity to accommodate current deficiencies at the interchange if construction is completed by 2010. Alternative 2 generally retains the current Ortega Highway Bridge and I-5 ramp configurations by widening the existing bridge structure and the northbound and southbound off-ramps. It is anticipated that I-5 may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. Alternative 2 does not take into account the potential future I-5 widening and would not accommodate projected year 2030 traffic growth; therefore, Alternative 2 would not satisfy the purpose and need of the project, and this alternative has been dropped from further consideration.

Alternative 4 (Eliminated) – Reconfigured Del Obispo Intersection and Single Cloverleaf Interchange

This alternative would provide a single cloverleaf configuration with a dual-lane loop on-ramp located in the southeast corner of the interchange identical to Alternative 3. The southbound and northbound off-ramps would be realigned to terminate at the intersections of Del Obispo Street and Los Cerritos Avenue, respectively. Del Obispo Street would be widened and realigned to meet the revised southbound off-ramp configuration. Furthermore, Ortega Highway would be widened and/or re-striped to accommodate the additional eastbound and westbound through/turn lanes and to allow for lane widening to standard.

The southbound I-5 on-ramp would be maintained at its current location for vehicles traveling eastbound along Ortega Highway. Dual left-turn movements would also be provided for vehicles traveling westbound to access the southbound I-5 on-ramp. The on-ramp entrance would be reconfigured to accommodate both turn movements. Similarly, the current northbound on-ramp would be maintained for traffic making right turns from westbound Ortega Highway to I-5; however, this on-ramp would be modified to accommodate construction of the northbound loop on-ramp, as previously discussed under Alternative 3.

This alternative would alleviate the short intersection spacing in the current configuration between the Del Obispo Street and southbound ramps intersection, which results in queue backup because of the short storage distance for vehicles turning left onto southbound Del Obispo Street from westbound Ortega Highway. Combining the Del Obispo Street and southbound I-5 off-ramp into a single intersection at Del Obispo Street results in the elimination of one of the three intersections along Ortega Highway.

Similar to Alternative 3, the Ortega Highway/I-5 overcrossing would be replaced to allow for additional lanes (8 total) and full-width standards, as well as to provide additional span length for the possible future widening of the freeway. The bridge span and the cloverleaf on-ramp were designed so that the acceleration lane could be moved to provide room for the proposed I-5 widening while still meeting minimum radii standards for the loop portion of the ramp. The increased span length would result in a deeper bridge section, thus requiring the bridge profile to be raised to maintain the minimum required vertical clearance.

Retaining walls would be placed along the outside of the revised southbound off-ramp to minimize ROW impacts to the San Juan Elementary School and Mission Inn Motel sites. In addition, retaining walls would be placed along the outside of the revised northbound off-ramp to minimize ROW impacts to the adjacent business park. Soundwalls would be provided along the proposed southbound off-ramp for the portion adjacent to the school, comparable to the existing soundwalls.

Alternative 4 would meet the project’s purpose and need by providing short-term operational improvements to add sufficient capacity to accommodate current deficiencies at the interchange, by accommodating potential future I-5 widening, and by providing additional capacity to accommodate projected year 2030 traffic growth; however, Alternative 4 has been removed from consideration as a viable project build option because of the proposed nonstandard intersection geometrics that include a skewed intersection angle at the Ortega Highway/Del Obispo Street/I-5 southbound off-ramp. This skewed intersection angle proposed under Alternative 4 has the potential to cause additional traffic delay and potentially hazardous traffic conditions because of decreased visibility at this intersection that would not be present if either Alternative 3 or Alternative 5 were selected.

1.5 Permits and Approvals Needed

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

**Table 1-5
Probable Permit Requirements**

Agency	Permit/Approval	Purpose	Authority
California Department of Fish and Game	1602 Agreement	Regulates work within channel of Horno Creek	California Fish and Game Code, Section 1602
U.S. Army Corps of Engineers	Nationwide Permit	Required for work within “waters of the United States”	Federal Clean Water Act, Section 404
San Diego Regional Water Quality Control Board	Water Quality Certification	Required to ensure consistency with federal clean water requirements	Federal Clean Water Act, Section 401
State Water Resources Control Board	General Construction Stormwater Permit	Entails preparation of a Storm Water Pollution Control Plan to control discharges	Caltrans’ Statewide National Pollutant Discharge Elimination System (NPDES) Permit
Orange County, Certified Unified Program Agency, Environmental Health Division	Underground Storage Tank Permit	Review and approval for removal of underground storage tanks	California Code of Regulations, Title 23
Orange County, Certified Unified Program Agency, Environmental Health Division	Well Permit	The County issues permits for wells and certain test borings as specified	County Ordinance No. 2607

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