State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

M e m o r a n d u m

To: CHAIR AND COMMISSIONERS
CALIFORNIA TRANSPORTATION COMMISSION

CTC Meeting: August 22, 2012

Reference No.: 2.2b.(2)
Action Item

From: NORMA ORTEGA
Chief Financial Officer

Prepared by: Jay Norvell
Division Chief
Environmental Analysis

Subject: **DRAFT ENVIRONMENTAL IMPACT REPORT, INTERSTATE 405 (I-405) IN ORANGE AND LOS ANGELES COUNTIES – ROADWAY IMPROVEMENTS NEAR COSTA MESA**

RECOMMENDATION:

The Department of Transportation (Caltrans) recommends that the California Transportation Commission (Commission) review and comment at the August 2012 Commission meeting on the following Draft Environmental Impact Report (DEIR):

- 12-ORA-405 PM 9.3/24.2, 07-LA-405, PM 0.0/1.2, 12-ORA-22, PM R0.7/R3.8, 12-ORA-22, PM R0.5/R0.7, 12-ORA-73, PM R27.2/R27.8, 12-ORA-605, PM 3.5/R1.6, 07-LA-605, R0.0/R1.2, Roadway improvements on Interstate 405 (I-405) near Costa Mesa in Orange AND Los Angeles Counties.

PROGRAMMING:

This project in Orange and Los Angeles County will construct improvements to the Interstate 405 corridor from SR-73 to I-605 that widen the corridor, relieve congestion and improve operational efficiencies for approximately 14 miles. The project limits extend from 0.2 miles south of Bristol Street to 1.4 miles north of I-605, as well as portions of SR-22, SR-73, and I-605 in Orange and Los Angeles County. The encroachments into Los Angeles County are associated with signing and striping to accommodate the transition from the existing to the proposed facility. Orange County Transportation Authority (OCTA) is currently identifying additional funding sources to support the project implementation of each of the three build alternatives. A large portion of the funding for the proposed project is included in Orange County's Renewed Measure M transportation sales tax initiative funding program. Potential funding sources include Local Renewed Measure M funds, State Transportation Improvement Program funds, federal funds and tolls/user fees for the express lanes portion of one of the build alternatives. The total estimated cost is between $1.3 and 1.7 billion. The programming year has not been established. Depending on the availability of funds and assuming the design-build procurement method, construction is estimated to begin in late Fiscal Year (FY) 2014-15.

ALTERNATIVES BEING CONSIDERED:

Alternatives considered for the proposed project include:

- No Build Alternative.
- Alternative 1 would add one general purpose lane.
- Alternative 2 would add two general purpose lanes.
- Alternative 3 would add one general purpose lane and one Express Toll Lane.

The Toll Express Lane and the existing High Occupancy Vehicle Lane would be managed jointly as a tolled Express Lanes Facility with two lanes in each direction.

POTENTIAL SIGNIFICANT ENVIRONMENTAL EFFECTS:

The decision to prepare an EIR was made due to analysis results indicating unavoidable significant environmental impacts in conjunction with the project's public controversy. Impacts include:

- Aesthetics
- Land Use/Planning

PROPOSED MEASURES TO MINIMIZE HARM:

- Incorporate design characteristics and aesthetic treatments to minimize visual impacts.
- Relocations and Real Property Acquisition.

Attachments

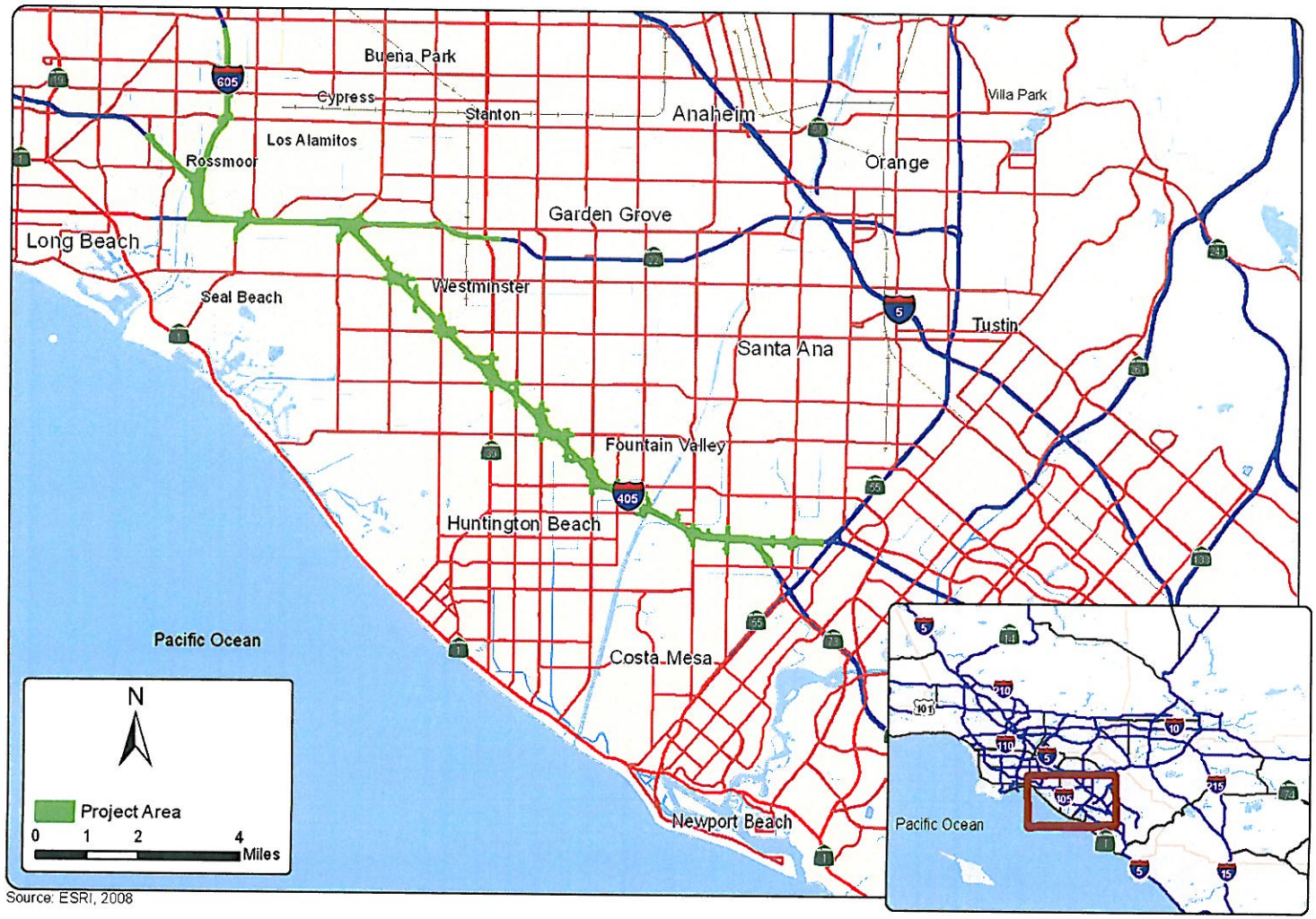

Figure 1-2: Project Location Map

San Diego Freeway (I-405) Improvement Project

ORANGE AND LOS ANGELES COUNTIES, CALIFORNIA
12-ORA-405 PM 9.3/24.2 / 07-LA-405 PM 0.0/1.2
12-ORA-22 PM R0.7/R3.8 / 12-ORA-22 PM R0.5/R0.7
12-ORA-73 PM R27.2/R27.8 / 12-ORA-605 PM 3.5/R1.6
07-LA-605 PM R0.0/R1.2
EA 0H1000 / PN 1200000180

Draft Environmental Impact Report/ Environmental Impact Statement

Prepared by the
State of California Department of Transportation

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

Caltrans

OCTA

May 2012

General Information About This Document

What's In This Document:

The California Department of Transportation (Department or Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this joint Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Orange and Los Angeles counties, California. The Department is the lead agency under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). The Orange County Transportation Authority (OCTA) is the project sponsor. The document tells you why the project is being proposed, what alternatives we have considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What You Should Do:

- Please read the document.
- Additional copies of the document, as well as the technical studies relied on to prepare the document, are available for review at Caltrans District 12, 3347 Michelson Drive, Suite100, Irvine, CA 92612-1692.
- Copies of the document will also be available at the following public libraries:
  - Costa Mesa/Donald Dungan Branch Library (1855 Park Avenue, Costa Mesa, CA 92627),
  - Mesa Verde Branch Library (2969 Mesa Verde Drive, Costa Mesa, CA 92626),
  - Garden Grove Regional Library (11200 Stanford Avenue, Garden Grove, CA 92840),
  - Huntington Beach Central Library (7111 Talbert Avenue, Huntington Beach, CA 92648-1296),
  - Heritage Park Regional Library (14361 Yale Avenue, Irvine, CA 92604),
  - Los Alamitos/Rossmoor Library (12700 Montecito, Seal Beach, CA 90740),
  - Mary Wilson Library (707 Electric Avenue, Seal Beach, CA 90740),
  - Westminster Branch Library (8180 13th Street, Westminster, CA 92683),
  - Fountain Valley Library (17635 Los Alamos, Fountain Valley, CA 92708),
  - Main Library (101 Pacific Avenue, Long Beach, CA 90822),
  - Ruth Bach Neighborhood Library (4055 Bellflower Boulevard, Long Beach, CA 90808),
  - Santa Ana Public Library (26 Civic Center Plaza, Santa Ana, CA 92701-4087),
  - Main Library & History Center (407 E. Chapman Avenue, Orange, CA 92866), and
  - Newport Beach Public Library (1000 Avocado Avenue, Newport Beach, CA 92660).

- The document is available for review on Caltrans' website at the following address: www.dot.ca.gov/dist12/405/index.htm. OCTA has provided a link to Caltrans' website at the following address: www.octa.net/405improvement.
- Attend one of the four public hearings held at the following times and locations (public presentation starts at 6:30 p.m.):
  - Monday, June 4, 2012 – 6:00 to 8:00 p.m. at Orange Coast College Student Center, 2701 Fairview Road, Costa Mesa, CA 92626.
  - Wednesday, June 6, 2012 – 6:00 to 8:00 p.m. at Westminster Community Center AB Room, 8200 Westminster Avenue, Westminster, CA 92683.
  - Thursday, June 7, 2012 – 6:00 to 8:00 p.m. at Rush Park Auditorium, 3021 Blume Drive, Rossmoor, CA 90720.
  - Thursday, June 14, 2012 – 6:00 to 8:00 p.m., Fountain Valley Senior and Community Center, 17967 Bushard Street, Fountain Valley, CA 92708.
- Tell us what you think. If you have any comments regarding the proposed project, please attend the public hearing, and/or send your written comments to the Department by Monday, July 2, 2012.
- Submit comments via postal mail to:

  Smita Deshpande, Branch Chief,
  Caltrans-District 12, "Attn: 405 DEIR-DEIS Comment Period"
  2201 Dupont Drive, Suite 200,
  Irvine, CA, 92612
- Submit comments via e-mail to: 405.dedcomments.Parsons@parsons.com
- Submit comments by the deadline: Monday, July 2, 2012.

What Happens Next:

After comments are received from the public and reviewing agencies, the Department, as assigned by the FHWA, may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the Department could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to: Department of Transportation, Attn: Smita Deshpande, Environmental Planning, Caltrans District 12, 3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692; (949) 724-2705 Voice; or use the California Relay Service 1 (800) 735-2929 (TTY-English), 1 (800) 855-3000 (TTYSpanish), 1 (800) 735-2922 (voice-English), 1 (800) 855-3000 (voice-Spanish), or 711.

SCH# 2009091001
12-ORA-405 PM 9.3/24.2 / 07-LA-405 PM 0.0/1.2
12-ORA-22 PM R0.7/R3.8 / 12-ORA-22 PM R0.5/R0.7
12-ORA-73 PM R27.2/R27.8 / 12-ORA-605 PM 3.5/R1.6
07-LA-605 PM R0.0/R1.2
EA 0H1000 / PN 1200000180

The Interstate 405 Improvement Project between State Route 73 and Interstate 605

DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT

Submitted pursuant to (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C) and 49 USC 303

THE STATE OF CALIFORNIA
Department of Transportation

COOPERATING AGENCY
U.S. Army Corps of Engineers

RESPONSIBLE AGENCIES
California Department of Fish and Game
California Regional Water Quality Control Board
California Transportation Commission

May 7, 2012
Date of Approval

Cindy Quon
District 12 Director
California Department of Transportation
NEPA and CEQA Lead Agency

The following person may be contacted for additional information concerning this document:

Smita Deshpande
Environmental Chief, Branch A
California Department of Transportation

3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692
949-724-2000
405.dedcomments.Parsons@parsons.com

Abstract: The Interstate 405 (I-405) Improvement Project proposes to widen the corridor by adding: one general purpose (GP) lane in each direction between Euclid Street and Interstate 605 (I-605); or two GP lanes in each direction between Brookhurst/Euclid Streets and I-605; or one GP lane between Euclid Street and I-605 and one tolled Express Lane in each direction between State Route 73 (SR-73) and State Route 22 (SR-22) east of I-405 to be managed jointly as a tolled Express Facility with two lanes in each direction between SR-73 and I-605 The tolled Express Facility would operate so that HOV2s would be tolled and HOV3+ would either be free or receive a discount. The proposed action would improve the freeway mainline and interchanges on I-405 in Orange and Los Angeles counties for approximately 16 miles between 0.2-mile south of Bristol Street and 1.4 miles north of I-605, as well as portions of SR-22, SR-73, and I-605 to reduce congestion and improve lane continuity through the corridor. Within the proposed project limits, I-405 is a controlled-access highway facility with a fenced right-of-way (ROW), separated by grade from crossing traffic, with vehicular access limited to interchanges. I-405 within the project area consists of 8 to 12 mixed-flow GP lanes, two HOV lanes, auxiliary lanes along selected portions of the route, and 21 arterial crossings. Potential benefits include maintaining or improving future traffic operations in the I-405 corridor and improving the efficient movement of people and goods. Effects from the proposed project include impacts to community character and cohesion, biological resources, aesthetics, air quality, cultural resources, geology, hazardous waste, noise, land use, hydrology and water quality, transportation/traffic, public services and utilities, and paleontological resources. Please send your comments to Smita Deshpande at the above address by Monday, July 2, 2012.

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SUMMARY

S.1 Introduction

Effective July 1, 2007, the California Department of Transportation (Department or Caltrans) has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act (NEPA) pursuant to Section 6005 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (23 United States Code [U.S.C.] 327). On projects for which the Department has assumed NEPA responsibilities, the Department has also assumed responsibility for environmental review and consultation under other federal environmental laws. The Department is the lead agency for the California Environmental Quality Act (CEQA), as well as NEPA. The Orange County Transportation Authority (OCTA) is the project sponsor. No other major actions are proposed by other government agencies for the same general area as the proposed project.

S.2 Purpose and Need

The project purpose is a set of objectives the project is intended to meet. The project need is the range of transportation deficiencies that the project was initiated to address.

Purpose of the Project

The purpose of the proposed action is to:

- Reduce congestion;
- Enhance operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations; and
- Minimize environmental impacts and right-of-way (ROW) acquisition.

In furtherance of the project's purpose, the following objective is established:

- To be consistent with regional plans and find a cost-effective early project solution for delivery.

Need for the Project

Current deficiencies of Interstate 405 (I-405) within the project limits are summarized below:

- The I-405 mainline general purpose (GP) lanes peak-period traffic demand exceeds available capacity;

- The I-405 mainline high-occupancy vehicle (HOV) lanes peak-period traffic demand exceeds available capacity;
- The I-405 mainline GP traffic lanes have operational and geometric deficiencies;
- The interchanges along I-405 within the study area have geometric, storage, and operational capacity deficiencies; and
- I-405 currently has limitations in detecting traffic incidents and providing rapid response and clearance due to lack of capacity and technological infrastructure.

As described in further detail below, Alternatives 1, 2, and 3 are considered viable project alternatives because they would achieve the project's purpose and need; however, the Transportation System Management (TSM)/Transportation Demand Management (TDM) Alternative and No Build Alternative are not considered viable project alternatives because they fail to meet the project's purpose and need.

S.3 Project Description

The project proposes to improve the mainline freeway and interchanges on I-405 in Orange and Los Angeles counties. The proposed project would relieve congestion and improve operational efficiency on I-405 between State Route (SR)-73 and Interstate 605 (I-605). The approximately 16-mile-long project corridor is primarily located in Orange County on I-405 and traverses the cities of Costa Mesa, Fountain Valley, Huntington Beach, Westminster, Garden Grove, Seal Beach, Los Alamitos, Long Beach, and the community of Rossmoor. The project limits extend from 0.2-mile south of Bristol Street (12-ORA-405 Post Mile [PM] 9.3) to the Orange County/Los Angeles county line (12-ORA-405 PM 24.2) and in Los Angeles County from the county line (07-LA-405 PM 0.00) to 1.4 miles north of I-605 (07-LA-405 PM 1.2). Improvements are proposed on SR-22 West in Orange County from 0.2-mile west of I-605 (12-ORA-22 PM R0.5) to I-405 (12-ORA-22 PM R0.7) and on SR-22 East in Orange County from I-405 (12-ORA-22 PM R0.7) to 0.2-mile east of the Beach Boulevard Undercrossing (12-ORA-22 PM R3.8). Improvements on SR-73 will be from the Bear Street Overcrossing (12-ORA-73 PM R27.2) to I-405 (12-ORA-73 PM R27.8). Improvements on I-605 in Orange County will be from I-405 (12-ORA-605 PM 3.5) to the county line (12-ORA-605 PM R1.6) and in Los Angeles County from the county line (07-LA-605 PM R0.0) to 0.9-mile north of the Spring Street Overcrossing (07-LA-605 PM R1.2). Encroachments into Los Angeles County and work on SR-22 are associated with signing and striping to accommodate the transition from the existing to the proposed facility. I-405 is currently a controlled-access highway facility, with 8 to 12 mixed-flow GP lanes and two HOV lanes, which is over capacity and subject to traffic congestion and travel delays.

I-405 is generally a north-south route with 24 miles in Orange County and 48 miles in Los Angeles County. I-405 is part of the National Highway System and is considered a bypass route to Interstate 5 (the Santa Ana/Golden State Freeway) providing intra-regional and inter-regional access between Orange and Los Angeles counties. I-405 also serves as a critical goods movement corridor connecting the San Diego and U.S./Mexico border region with the ports of Long Beach and Los Angeles.

Within the project limits, I-405 connects with SR-73 at the southern end and with I-605 at the northern end, and for approximately 2 miles between Bolsa Chica Road and I-605, it overlaps with SR-22. Fifteen (15) local street interchanges and 3 freeway-to-freeway interchanges are within the limits of the project improvements.

The north and south termini of the project, at the I-605 and SR-73 respectively, are locations where multiple freeways converge, generating congestion and causing delay. The termini have been logically chosen based on geography and transportation needs to ensure adequate response to transportation deficiencies at and around these points of intersection. The northern terminus of the proposed project is at the interchange of I-405 and I-605. The proposed additional lanes on I-405 south of this interchange would terminate into and provide enhanced traffic service between SR-73 and SR-22 and I-605. The proposed additional lanes would enhance lane continuity along I-405 and terminate new lanes into available lanes on these other freeways. The southern terminus of the proposed project is at the interchange of SR-73. The additional lanes provided on I-405 would terminate either at locations north of the SR-73 interchange where lanes are currently dropped/added, thereby removing the lane drop/add, or at SR-73, depending upon the alternative.

In addition to the No Build Alternative, three build alternatives are proposed: Alternative 1 – Add One GP Lane in Each Direction; Alternative 2 – Add Two GP Lanes in Each Direction; and Alternative 3 – Express Lanes (Tolled) and Add One GP Lane in Each Direction.

Alternative 1 – Add One GP Lane in Each Direction

Alternative 1 would add a single GP lane in each direction on I-405 from Euclid Street to the I-605 interchange. Preliminary cost estimates for this alternative are $1.30 billion. Figures 2-1 and 2-2 display the I-405 lane configurations associated with the proposed Alternative 1. The construction duration for Alternative 1 is estimated to be 48 months.

The proposed improvements under Alternative 1 would take place on the following routes within the stated post miles (PM). (Post miles are the established method of consistently identifying locations along a roadway; on I-405 in Orange County, post miles are the distance from the I-405/I-5 interchange.)

- 12-Ora-405 PM 12.1/23.9
- 12-Ora-22 PM R0.6/R0.7 (SR-22 West)
- 12-Ora-22 PM R0.7/R1.0 (SR-22 East)

Alternative 1 would provide a full standard highway cross section, with 12-foot (ft)-wide mainline travel lanes. Right-side (outside) shoulders would be 10 ft wide, and left-side (inside) shoulders would have a maximum width of 10 ft. Alternative 1 would require design exceptions. Nine mandatory and 18 advisory design standards would require design exceptions at one or more locations along the corridor.

Alternative 1 would provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved a Project Study Report (PSR) for a separate project (EA 0J440K) to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access would be implemented as part of Alternative 1 of the proposed project for the segment of I-405 between Euclid Street and I-605. Transit vehicles and HOV2+ would continue to be eligible to utilize the HOV lanes.

Under Alternative 1, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. In the northbound direction, the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. Additional northbound auxiliary lanes would be provided at the following locations:

- At the approach to the Euclid Street/Ellis Avenue off-ramp; and
- From the Seal Beach Boulevard on-ramp to the westbound SR-22/7th Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. The existing auxiliary lane from the SR-22/7th Street on-ramp to Seal Beach Boulevard would be retained, as would the existing auxiliary lane from the Harbor Boulevard on-ramp to the Fairview Road off-ramp. The southbound auxiliary lane currently provided approaching the Harbor Boulevard off-ramp would be extended to start at the Euclid Street on-ramp.

Descriptions of the proposed improvements included in Alternative 1 and shared by all alternatives are provided below.

In the northern segment of the project area where SR-22 and I-405 overlap, Alternative 1 would result in a freeway with 9 to 10 lanes in each direction. Signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway for traffic in

the left lanes, including the HOV lanes. Alternative 1 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Reduce congestion;
- Enhance operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations; and
- Minimize environmental impacts and ROW acquisition.

Alternative 2 – Add Two GP Lanes in Each Direction

Alternative 2 would add one GP lane in each direction on I-405 from Euclid Street to the I-605 interchange (as in Alternative 1), plus add a second GP lane in the northbound direction from Brookhurst Street to the SR-22/7th Street interchange and a second GP lane in the southbound direction from the Seal Beach Boulevard on-ramp to Brookhurst Street. Preliminary cost estimates for this alternative are $1.4 billion. Figures 2-1 and 2-2 display the I-405 lane configurations associated with the proposed Alternative 2. The construction duration for Alternative 2 is estimated to be 51 months.

The proposed improvements under Alternative 2 would take place on the following routes within the stated post miles:

- 12-Ora-405 PM 12.1/23.9
- 12-Ora-22 PM R0.6/R0.7 (SR-22 West)
- 12-Ora-22 PM R0.7/R1.0 (SR-22 East)

Alternative 2 would provide a full standard highway cross section, with 12-ft-wide mainline travel lanes. Right-side (outside) shoulders would be 10 ft wide, and left-side (inside) shoulders would have a maximum width of 10 ft. This alternative would provide nonstandard highway cross sections with 11-ft-wide mainline travel lanes from Seal Beach Boulevard to SR-22 to avoid Naval Weapons Station (NAVWPNSTA) Seal Beach. Alternative 2 would require design exceptions. Nine mandatory and 17 advisory design standards would require design exceptions at one or more locations along the corridor.

Alternative 2 would provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved a PSR for a separate project (EA 0J440K) to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access would be implemented as part of Alternative 2 of the proposed project for the segment of

I-405 between Euclid Street and I-605. Transit vehicles and HOV2+ would continue to be eligible to utilize the HOV lanes.

Under Alternative 2, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. In the northbound direction, the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. A northbound auxiliary lane would be provided at the northerly approach to the Euclid Street/Ellis Avenue off-ramp, as well as between the Euclid Street/Ellis Avenue on-ramp and the Brookhurst Street/ Magnolia Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. The existing auxiliary lane from the SR-22/7th Street on-ramp to Seal Beach Boulevard would be retained, as would the existing auxiliary lane from the Harbor Boulevard on-ramp to the Fairview Road off-ramp. The southbound auxiliary lane currently provided approaching the Harbor Boulevard off-ramp would be extended to start at the Euclid Street southbound on-ramp.

Descriptions of proposed improvements included in Alternative 2 and shared by all alternatives are provided below.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 2 would result in a freeway with 9 to 10 lanes in each direction. Signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway for traffic in the left lanes, including the HOV lanes.

Alternative 2 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Reduce congestion;
- Enhance operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations; and
- Minimize environmental impacts and ROW acquisition.

Alternative 3 – Express Lanes (Tolled) and Add One GP Lane in Each Direction

Alternative 3 would add one GP lane in each direction on I-405 from Euclid Street to the I-605 interchange (as in Alternatives 1 and 2), plus add a tolled Express Lane in each direction of I-405 from SR-73 to SR-22 East. The tolled Express Lane and the existing HOV lanes would be managed jointly as a tolled Express Facility (described in further detail in Section 2.2.2) with two lanes in each direction from SR-73 to I-605. The tolled Express Facility would operate so

that HOV2s would be tolled and HOV3+ would either be free or receive a discount. From SR-22 to I-605, the existing HOV lane and the second HOV lane that is being built as part of the WCC Project would become part of the tolled Express Facility. Preliminary cost estimates for this alternative are $1.7 billion. Figures 2-1 and 2-2 display the proposed I-405 lane configurations associated with the proposed Alternative 3. The construction duration for Alternative 3 is estimated to be 54 months.

The proposed improvements under Alternative 3 would take place on the following routes within the stated post miles:

- 12-Ora-405 PM 9.3/24.2
- 07-LA-405 PM 0.0/1.2
- 12-Ora-22 PM R0.7/R3.8 (SR-22 East)
- 12-Ora-22 PM R0.5/R0.7 (SR-22 West)
- 12-Ora-73 PM R27.2/R27.812-Ora-605 PM 3.5/R1.6
- 07-LA-605 PM R0.0/R1.2

The current plan is that the tolled Express Facility would provide discounts or free use to HOVs with 3 or more occupants, zero emission vehicles, motorcycles, vehicles with disabled license plates, and disabled veterans; these vehicles would use the I-405 Express Lanes free of charge except during the most congested hours when such vehicles would receive a 50 percent toll discount. The Express Lanes would be free to the following users at all times: transit vehicles, California Highway Patrol (CHP) vehicles, Caltrans vehicles, and emergency vehicles responding to an emergency.

Alternative 3 would provide a full standard highway cross section, with 12-ft-wide mainline travel lanes. Right-side (outside) shoulders would be 10 ft wide, and left-side (inside) shoulders would have a maximum width of 10 ft. The Express Facility would be separated from the GP lanes by a 1-ft to 4-ft buffer. Alternative 3 would require design exceptions. Nine mandatory and 20 advisory design standards would require design exceptions at one or more locations along the corridor.

Under Alternative 3, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. In the northbound direction the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. Additional northbound auxiliary lanes would be at the northerly approach to the Euclid Street/Ellis Avenue off-ramp, and between the Seal Beach Boulevard on-ramp and the SR-22/7th Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. The existing auxiliary lane from the SR-22/7th Street on-ramp to Seal Beach Boulevard would be retained, as would the existing auxiliary lane from the Harbor Boulevard on-ramp to the Fairview Road off-ramp. The southbound auxiliary lane currently provided approaching the Harbor Boulevard off-ramp would be extended to start at the Euclid Street southbound on-ramp.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 3 would result in a freeway with seven GP lanes in each direction. For traffic in the left lanes to exit the freeway properly, signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway.

Alternative 3 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Reduce congestion;
- Enhance operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations; and
- Minimize environmental impacts and ROW acquisition.

Transportation System Management/Transportation Demand Management Alternative

A stand-alone TSM/TDM Alternative was identified for the corridor. The TSM/TDM Alternative consists primarily of operational investments, policies, and actions aimed at improving traffic flow, promoting travel safety, and increasing transit usage and rideshare participation.

TSM consists of strategies to maximize efficiency of the existing facility by providing options such as ridesharing, parking, and traffic-signal optimization. TSM options to improve traffic flow typically increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Such strategies include replacing existing stop signs with traffic signals at intersections to improve existing peak-hour traffic flow and to reduce queuing of vehicles. TSM also encourages automobile, public and private transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. Multimodal alternatives integrate multiple forms of transportation modes, such as pedestrian, bicycle, automobile, rail, and transit.

TDM focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled (VMT), as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation choice in terms of travel

experience. Typical activities within this alternative reduce the amount of single-occupancy vehicle trips by providing funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals. Promoting mass transit and facilitating nonmotorized alternatives are two such examples, but TDM strategies may also include reducing the need for travel altogether through initiatives such as telecommuting.

The TSM/TDM components that have been included in the proposed build alternatives are described in Section 2.2.1, Common Design Features of the Build Alternatives.

No Build (No Action) Alternative

Under the No Build Alternative, no improvements would be made to the I-405 corridor within the project limits by the proposed project. No additional lanes or interchange improvements would be provided. The No Build Alternative configuration would not accommodate future traffic demand, and existing nonstandard geometric features would not be corrected. Congestion along the corridor would not be alleviated, and the situation would deteriorate with time.

The No Build Alternative provides a condition for comparing impacts associated with the build alternatives because environmental review must consider the effects of not implementing the proposed project. This alternative is inconsistent with the Caltrans goal of providing an efficient and effective interregional mobility system. Other direct effects of the No Build Alternative would include continued deterioration of freeway and local interchange operations and increases of emissions and maintenance costs associated with inefficiencies. Indirect and cumulative effects of the No Build Alternative could include increased effects on the communities related to increased commute times and traffic diversion through adjacent neighborhoods. Additionally, the No Build Alternative could increase the total amount of time the corridor cities have to endure construction-related effects associated with addressing the corridor needs through many smaller projects completed over an extended period of time.

Compared to the existing condition, as recorded in the Notice of Preparation (NOP) (issued August 31, 2009) and the Notice of Intent (NOI) (issued September 1, 2009), the future No Build Alternative includes the future completion of the following two projects:

- The SR-22 West County Connectors (WCC) Project (currently in the construction phase), which has received environmental document approval and is proceeding through the design and construction phases; and

- Project EA 0J440K, which would provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded.

The following improvements in the project area are to be constructed by the SR-22 WCC Project and are considered part of the future No Build Alternative:

- An additional HOV lane in each direction between SR-22 East and I-605;
- HOV lane direct connectors at the I-405/SR-22 East and I-405/I-605 interchanges;
- Relocation of the existing off-ramp to southbound Bolsa Chica Road, which currently exits from the eastbound SR-22 branch connector, to exit from the I-405 southbound mainline;
- Replacement of the Seal Beach Boulevard overcrossing;
- Replacement of the SR-22 separation bridge carrying westbound SR-22 over I-405 near 7th Street;
- Replacement of the SR-22 separation bridge carrying eastbound SR-22 over I-405 near Valley View Street;
- New bridge carrying the planned I-405/SR-22 HOV direct connectors over I-405 northbound; and
- New bridge carrying the planned I-405/I-605 HOV direct connector over I-405 northbound.

Each of the new and replacement bridges constructed as part of the SR-22 WCC Project has been designed to have a span and structural support positioning that would accommodate future I-405 widening proposed by Alternatives 1, 2, and 3 of the proposed project.

The future configuration under the No Build Alternative would also assume completion of the planned improvement on Seal Beach Boulevard north and south of I-405 currently underway by the City of Seal Beach. The proposed improvement north of I-405 principally involves the addition of a through lane on southbound Seal Beach Boulevard between Lampson Avenue and Old Ranch Parkway. The proposed improvements south of I-405 consist of the addition of a northbound right-turn lane on Seal Beach Boulevard to the southbound on-ramp and construction of a raised median between the northbound and southbound lanes of Seal Beach Boulevard.

Construction Staging

Construction of the proposed project is planned to commence in 2015 and is anticipated to be completed in 2020. The duration of construction for the build alternatives is 48 months for Alternative 1, 51 months for Alternative 2, and 54 months for Alternative 3. The proposed improvements are envisioned to be constructed in multiple stages, as shown in Figure 2-7, due to

the scale of the project and the need to minimize impacts and maintain traffic during construction. Construction of interchange improvements, consisting of freeway ramp reconstruction, local arterial improvements, and overcrossing structure replacement, is envisioned to be staggered throughout stages to minimize impacting two consecutive interchanges or closing two consecutive on- or off-ramps at the same time. Arterials and overcrossing improvements that would add capacity over the existing condition are proposed in the earlier stages in efforts to ease traffic congestion during subsequent construction stages. Construction staging area locations will be finalized during final design, but they are anticipated to generally be located within the existing ROW at interchange locations. Additionally, no material borrow sites have been identified for this project. Imported borrow material for the project construction ranges from 870,000 cubic yards for Alternative 1 up to 1,124,000 cubic yards for Alternative 3. The contractor will be responsible for ensuring that all import material comes from permitted commercial material providers and does not contain hazardous materials, in accordance with 2010 Caltrans Standard Special Specifications 19-7.

Construction operation would necessitate the closures of various facilities, such as the I-405 mainline, branch connectors, interchange ramps, and local arterials. Closures of these facilities may be overnight, short-term, during an extended weekend (i.e., 55-hour window from Friday night to Monday morning), or long-term, as discussed in Section 3.1.4, Community Impacts. Lane reductions and restrictions are also anticipated on mainline, connector, ramp, and arterial roadway facilities to accommodate construction activities. Long-term closure of arterial overcrossings may be employed during construction to expedite construction and shorten the duration that the overcrossing is out of service.

S.4 Joint CEQA/NEPA Document

The Department is the lead agency for California Environmental Quality Act (CEQA), as well as National Environmental Policy Act (NEPA).

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for NEPA; however, for the proposed project an EIS is being prepared. One of the most commonly seen joint document types is an Environmental Impact Report (EIR)/Environmental Impact Statement (EIS).

Following receipt of public comments on the Draft EIR/EIS, the Department will consider the comments submitted. After circulation of the Final EIR/EIS, the Department will be required to take actions regarding the environmental document. The Department will determine whether to

certify the EIR and, if required, issue Findings and a Statement of Overriding Considerations under CEQA, and (for NEPA) issue a Record of Decision (ROD) for publishing in the Federal Register.

S.5 Project Impacts

Table S-1 summarizes project impacts by alternative and identifies avoidance and minimization measures. Where applicable, these measures are sometimes also mitigation measures, as discussed in Chapter 4 of this Draft EIR/EIS. For detailed information regarding the impacts of each alternative, see Chapters 3 and 4 of this Draft EIR/EIS and the associated technical studies.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
Project Cost	Not Applicable.	The full cost is $1.3 billon. In addition to construction and engineering, the full cost includes inflation to 2014 dollars, program management, public awareness and outreach, and environmental process.	The full cost is $1.4 billon. In addition to construction and engineering, the full cost includes inflation to 2014 dollars, program management, public awareness and outreach, and environmental process.	The full cost is $1.7 billon. In addition to construction and engineering, the full cost includes inflation to 2014 dollars, program management, public awareness and outreach, and environmental process.	Not Applicable.
Construction Duration	Not Applicable.	48 Months	51 Months	54 Months	Not Applicable.
Land Use	Inconsistent with regional and local planning goals and policies.	Permanent conversion, through acquisition, of approximately 12.65 acres of land designated as other land uses to transportation. Temporary and intermittent inconvenience for some current land use operations due to temporary traffic lane and ramp closures and temporary construction easements (TCEs) on 112 parcels to accommodate construction of the project. Consistent with the goals, objectives, and policies of all surrounding communities' General Plans. Alternative 1 is consistent with the 2008 Regional Transportation Plan (RTP) and 2011 Federal Transportation Improvement Program (FTIP). **Parks and Recreational Effects and Section 4(f) Use:** Pleasant View Park: • No Effect Buckingham Park: • Permanent Use: 3,151 square ft (Direct 4(f) Use) • Temporary Use: None Cascade Park: • Permanent Use: 1 square ft (Direct 4(f) Use) • Temporary Use: None Santa Ana River Trail: • Permanent Use: 2,000 square ft (Direct 4(f) Use) • Temporary Use: 1,700 square ft (Temporary 4(f) Use)	Permanent conversion, through acquisition, of approximately 13.09 acres of land designated as other land uses to transportation. Temporary and intermittent inconvenience for some current land use operations due to temporary traffic lane and ramp closures and TCEs on 224 parcels to accommodate construction of the project. Consistent with the goals, objectives, and policies of all surrounding communities' General Plans. Alternative 2 is not consistent with the current RTP or FTIP. OCTA is currently pursuing revisions to both documents. This will be completed prior to the Final EIR/EIS, which will include the revised description and reference to the conforming documents. **Parks and Recreational Effects and Section 4(f) Use:** Pleasant View Park: • Permanent Use: 1,210 square ft (Direct 4(f) Use) • Temporary Use: None Buckingham Park: • Permanent Use: 3,151 square ft (Direct 4(f) Use) • Temporary Use: None Cascade Park: • Permanent Use: 4,152 square ft (Direct 4(f) Use) • Temporary Use: None	Permanent conversion, through acquisition, of approximately 13.93 acres of land designated as other land uses to transportation. Temporary and intermittent inconvenience for some current land use operations due to temporary traffic lane and ramp closures and TCEs on 257 parcels to accommodate construction of the project. Consistent with the goals, objectives, and policies of all surrounding communities' General Plans. Alternative 3 is not consistent with the current RTP or FTIP. OCTA is currently pursuing revisions to both documents. This will be completed prior to the Final EIR/EIS, which will include the revised description and reference to the conforming documents **Parks and Recreational Effects and Section 4(f) Use:** Pleasant View Park: • Permanent Use: 1,210 square ft (Direct 4(f) Use) • Temporary Use: None Buckingham Park: • Permanent Use: 3,151 square ft (Direct 4(f) Use) • Temporary Use: None Cascade Park: • Permanent Use: 4,152 square ft (Direct 4(f) Use) • Temporary Use: None	**LU-1:** If a build alternative is selected for implementation, OCTA shall request the County of Orange and the cities along the project corridor to amend their respective General Plans to reflect the selected build alternative and the modification of land use designations for properties that would be acquired for the project that are not currently designated for transportation uses. **LU-2:** Caltrans shall implement a TMP throughout the duration of the construction activities and make this document available to the public. The TMP shall seek to minimize project-related construction disruptions and would include traffic strategies designed in coordination with local jurisdictions. **LU-3:** Pedestrian access shall be maintained via detour at Pleasant View Park at all times during construction of the project. **LU-4:** Existing vegetation or landscaping at Buckingham Park that is damaged or removed during construction shall be replaced. Replacement plantings shall be consistent with any existing preserved vegetation. Replacement plantings shall be reviewed and approved by a Caltrans District 12 Landscape Architect. **LU-5:** Existing vegetation or landscaping at Cascade Park that is damaged or removed during construction shall be replaced. Replacement plantings shall be consistent with any existing preserved vegetation. Replacement plantings shall be reviewed and approved by a Caltrans District 12 Landscape Architect. **LU-6:** To avoid temporary closures of both riverbank trails of the Santa Ana River Trail, phased construction of the Euclid Street southbound I-405 on-ramp from Ellis Avenue shall provide access to at least one of the riverbank trails at all times during construction. **COM-13:** Where acquisition and relocation are unavoidable, the provisions of the Uniform Act and the 1987 Amendments, as implemented by the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the United States Department of Transportation (March 2, 1989) and, where applicable, the California Public Park Preservation Act of 1971 will be followed. An appraisal of the affected property will be obtained, and an offer for the full appraisal will be made

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		Boomers Parcels Containing Mini Golf course and Go Karts: Partial Acquisition (3 of 5 parcels occupied by Boomers) Fountain Valley Skate Center: Full Acquisition	Santa Ana River Trail: • Permanent Use: 2,000 square ft (Direct 4(f) Use) • Temporary Use: 1,700 square ft (Temporary 4(f) Use) Boomers Parcels Containing Mini Golf Course and Go Karts: Partial Acquisition (3 of 5 parcels occupied by Boomers) Fountain Valley Skate Center: Full Acquisition	Santa Ana River Trail: • Permanent Use: 2,000 square ft (Direct 4(f) Use) • Temporary Use: 1,700 square ft (Temporary 4(f) Use) Boomers Parcels Containing Mini Golf Course and Go-Karts: Partial Acquisition (3 of 5 parcels occupied by Boomers) Fountain Valley Skate Center: Full Acquisition	
Growth	No impact.	No impact.	No impact.	No impact.	No measures required.
Farmlands/ Timberlands	No impact.	No impact.	No impact.	No impact.	No measures required.
Community Impacts	The quality of accessibility to and mobility within corridor communities within the project area would continue to deteriorate. This would potentially erode community cohesion-related activities over time.	**Community Character and Cohesion:** Implementation of the proposed project is anticipated to result in a beneficial effect on neighborhoods and community cohesion by reducing cut-through traffic within the adjacent neighborhoods. At present, motorists traveling along I-405 often exit the freeway and seek less-congested alternative routes within the adjacent neighborhoods when freeway conditions deteriorate. However, the project would add approximately 18 percent additional hardscape/pavement; modified/new ramps; concrete barriers; new retaining, tieback, and sound walls; and new freeway appurtenances (e.g. changeable message signs, overhead traffic sensors, and video cameras). The improvements would generally extend to the ROW limits and, with the exception of areas within the interchanges, would reduce and/or eliminate mature vegetation, as well as potential areas for replacement landscaping. These changes would permanently modify the visual quality of the surrounding communities and, as a result, would affect the existing	**Community Character and Cohesion:** Implementation of the proposed project is anticipated to result in a beneficial effect on neighborhoods and community cohesion by reducing cut-through traffic within the adjacent neighborhoods. At present, motorists traveling along I-405 often exit the freeway and seek less-congested alternative routes within the adjacent neighborhoods when freeway conditions deteriorate. However, the project would add approximately 21 percent additional hardscape/pavement; modified/new ramps; concrete barriers; new retaining, tieback, and sound walls; and new freeway appurtenances (e.g. changeable message signs, overhead traffic sensors, and video cameras). The improvements would generally extend to the ROW limits and, with the exception of areas within the interchanges, would reduce and/or eliminate mature vegetation, as well as potential areas for replacement landscaping. These changes would permanently modify the visual quality of the surrounding communities and, as a result, would affect the existing	**Community Character and Cohesion:** Implementation of the proposed project is anticipated to result in a beneficial effect on neighborhoods and community cohesion by reducing cut-through traffic within the adjacent neighborhoods. At present, motorists traveling along I-405 often exit the freeway and seek less-congested alternative routes within the adjacent neighborhoods when freeway conditions deteriorate. However, the project would add approximately 18 percent additional hardscape/pavement; modified/new ramps; concrete barriers; new retaining, tieback, and sound walls; and new freeway appurtenances (e.g. changeable message signs, overhead traffic sensors, and video cameras). Additional features included in Alternative 3 include congestion pricing signage, and I-405/ SR-73 HOV direct connector ramp. The improvements would generally extend to the ROW limits and, with the exception of areas within the interchanges, would reduce and/or eliminate mature vegetation, as well as potential areas for replacement	**COM-1:** No two consecutive/adjacent off-ramps or two consecutive/adjacent on-ramps in the same direction will be closed concurrently. **COM-2:** Business access will be maintained at all times during construction, consistent with Section 7-1.03 Public Convenience of Standard Specifications (2010). **COM-3:** Ramps that provide access immediately adjacent to South Coast Plaza (South Coast Drive northbound off-ramp), Bella Terra (Beach Boulevard off-ramps), or Westminster Mall (Bolsa Avenue northbound and Goldenwest Street southbound off-ramps) will not be closed from November 1 to January 31. **COM-4:** Provision of motorist information (i.e., existing changeable message signs, portable changeable message signs, stationary ground-mounted signs, traffic radio announcements, and the Caltrans Highway Information Network [CHIN]). **COM-5:** Incorporation of traffic circulation construction strategies (i.e., lane closure restrictions during holidays and special local events, closure of secondary streets during construction to allow quick construction and reopening, lane modifications [lane reductions, shifts] to maintain the number of lanes needed, allowing night work and extended weekend work, maintaining business access, and maintaining pedestrian and bicycle access). In addition, see Traffic Measure T-1 for public information regarding the TMP. Upon completion, the final TMP can be obtained by request from OCTA. **COM-6:** Implementation of alternate and detour routes strategies; street/intersection improvements (e.g., widening, pavement rehabilitation, removal of median, restriping) to provide added capacity to handle detour traffic; signal improvements; adjustment of signal timing and/or signal coordination to increase vehicle throughput, improve traffic flow and optimize intersection capacity;

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		community character and cohesion. Subsequent to construction of build alternatives, views of and from I-405 would be affected. The build alternatives would bring I-405 in closer proximity to corridor communities and would eliminate the majority of mature vegetation located within the ROW, which currently softens the urban nature of the roadway. Changes in the views of and from the I-405 would have a particularly noticeable effect on residents whose homes are located adjacent to and/or those who travel on the I-405 and contributing to the project adverse effects on community character and cohesion Construction of the proposed project would create typical construction-related temporary and intermittent inconveniences for local and regional users and adjacent residents and business owners within and adjacent to the project corridor (i.e., construction delays, equipment operations, temporary traffic lane, arterial, and ramp closures) to accommodate construction activities. Construction at major interchanges could disrupt local business operations. Periodic freeway arterial and ramp lane closures would impede traffic mobility. Considering the construction duration of 48 months, construction impacts could result in adverse impacts to the community character within the corridor cities located adjacent to the construction zone **Temporary Construction Easements: (TCEs)** 112 TCEs **Ramp Closures:** The project would result in the following types and locations of local	community character and cohesion. Subsequent to construction of build alternatives, views of and from I-405 would be affected. The build alternatives would bring I-405 in closer proximity to corridor communities and would eliminate the majority of mature vegetation located within the ROW, which currently softens the urban nature of the roadway. Changes in the views of and from the I-405 would have a particularly noticeable effect on residents whose homes are located adjacent to and/or those who travel on the I-405 and contributing to the project adverse effects on community character and cohesion Construction of the proposed project would create typical construction-related temporary and intermittent inconveniences for local and regional users and adjacent residents and business owners within and adjacent to the project corridor (i.e., construction delays, equipment operations, temporary traffic lane, arterial, and ramp closures) to accommodate construction activities. Construction at major interchanges could disrupt local business operations. Periodic freeway arterial and ramp lane closures would impede traffic mobility. Considering the construction duration of 51 months, construction impacts could result in adverse impacts to the community character within the corridor cities located adjacent to the construction zone **TCEs:** 224 TCEs **Ramp Closures:** The project would result in the following types and locations of local ramp closures:	landscaping. These changes would permanently modify the visual quality of the surrounding communities and, as a result, would affect the existing community character and cohesion. Subsequent to construction of build alternatives, views of and from I-405 would be affected. The build alternatives would bring I-405 in closer proximity to corridor communities and would eliminate the majority of mature vegetation located within the ROW, which currently softens the urban nature of the roadway. Changes in the views of and from the I-405 would have a particularly noticeable effect on residents whose homes are located adjacent to and/or those who travel on the I-405 and contributing to the project adverse effects on community character and cohesion Construction of the proposed project would create typical construction-related temporary and intermittent inconveniences for local and regional users and adjacent residents and business owners within and adjacent to the project corridor (i.e., construction delays, equipment operations, temporary traffic lane, arterial, and ramp closures) to accommodate construction activities. Construction at major interchanges could disrupt local business operations. Periodic freeway arterial and ramp lane closures would impede traffic mobility. Considering the construction duration of 54 months, construction impacts could result in adverse impacts to the community character within the corridor cities located adjacent to the construction zone **TCEs:** 257 TCEs	turn restrictions at intersections and roadways necessary to reduce congestion and improve safety; and parking restrictions on alternate and detour routes during work hours to increase capacity, reduce traffic conflicts, and improve access. **COM-7:**Coordination with the relevant parks and recreation departments of affected parks shall occur during construction to ensure the access and safety of users in the parks and trails adjacent to the proposed project **COM-8:** Close coordination with utility service providers and the implementation of a public outreach program will be conducted to minimize impacts to surrounding communities **COM-9:** Close coordination with railroad owners and operators will be conducted during final design and construction phases to minimize impacts to railroad operations. **COM-10:** During design and construction, OCTA and Caltrans shall work closely with affected property owners to identify means to avoid and minimize parking impacts, including space management such as restriping of parking areas and identifying parking replacement options. For those anticipated impacts, the property owners shall receive compensation for the partial loss of property through the ROW acquisition process. **COM-11:** Maintain good public relations with the community to minimize objections to the unavoidable construction impacts. OCTA will implement a community information plan to maintain good community relations with the public by providing timely information about anticipated construction activities to affected citizens and adjacent property owners. Notification methods could include, but are not limited to, website, fliers, mailers, e-mail blasts, and electronic messaging on the freeway. **COM-12:** The existing Heil Avenue pedestrian crossing will remain open for use until the replacement crossing has been completed. **COM-13:** Where acquisition and relocation are unavoidable, the provisions of the Uniform Act and the 1987 Amendments, as implemented by the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the United States Department of Transportation (March 2, 1989) and, where applicable, the California Public Park Preservation Act of 1971 will be followed. An appraisal of the affected property will be obtained, and an offer for the full appraisal will be made.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		ramp closures: Permanent: None Temporary long-term (10 to 30 days): • Talbert Avenue southbound on-ramp • Warner Avenue southbound on-ramp • Magnolia Street southbound off-ramp • Bolsa Avenue southbound on-ramp • Westminster Avenue southbound on-ramp • Bolsa Chica Road southbound off-ramp **Arterial Closures:** Permanent: None Temporary long-term: Reconstruction of local arterials and overcrossing structures to accommodate the I-405 widening and interchange improvements. Long-term closure of arterial overcrossing lasting up to 12 months may be employed during construction to expedite construction and shorten the duration that the overcrossing is out of service. The potential locations for long-term closures include the following: • Ward Street OC – 8 to 12 months • Talbert Avenue OC – 8 to 12 months • Slater Avenue OC – 8 to 12 months • Bushard Street OC – 8 to 12 months • Newland Street OC – 8 to 12 months • Edinger Avenue OC – 8 to 12 months • McFadden Avenue OC – 8 to 12 months • Edwards Street OC – 8 to 12 months **Parking:**	Permanent: None Temporary long-term (10 to 30 days): • Talbert Avenue southbound on-ramp • Warner Avenue southbound on-ramp • Magnolia Street southbound off-ramp • Bolsa Avenue southbound on-ramp • Westminster Avenue southbound on-ramp • Bolsa Chica Road southbound off-ramp **Arterial Closures:** Permanent: None Temporary long-term: Reconstruction of local arterials and overcrossing structures to accommodate the I-405 widening and interchange improvements. Long-term closure of arterial overcrossing lasting up to 12 months may be employed during construction to expedite construction and shorten the duration that the overcrossing is out of service. The potential locations for long-term closures include the following: • Ward Street OC – 8 to 12 months • Talbert Avenue OC – 8 to 12 months • Slater Avenue OC – 8 to 12 months • Bushard Street OC – 8 to 12 months • Newland Street OC – 8 to 12 months • Edinger Avenue OC – 8 to 12 months • McFadden Avenue OC – 8 to 12 months • Edwards Street OC – 8 to 12 months **Parking:** Permanent:	**Ramp Closures:** The project would result in the following types and locations of local ramp closures: Permanent: None Temporary long-term (10 to 30 days): • South Coast Drive northbound off-ramp • Fairview Road northbound off-ramp • Fairview Road northbound on-ramp • Fairview Road southbound off-ramp • Harbor Boulevard northbound loop on-ramp • Harbor Boulevard southbound on-ramp • Talbert Avenue southbound on-ramp • Warner Avenue southbound on-ramp • Magnolia Street southbound off-ramp • Bolsa Avenue southbound on-ramp • Westminster Avenue southbound on-ramp • Bolsa Chica Road southbound off-ramp **Arterial Closures:** Permanent: None Temporary long-term: Reconstruction of local arterials and overcrossing structures to accommodate the I-405 widening and interchange improvements. Long-term closure of arterial overcrossing lasting up to 12 months may be employed during construction to expedite construction and shorten the duration that the overcrossing is out of service. The potential locations for long-term closures include the following: • Ward Street OC – 8 to 12 months	

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		Permanent: Up to 450 parking spaces out of the current inventory of 2,243 spaces associated with 17 potentially affected properties would be lost to accommodate freeway widening and associated roadway improvements. Of the 450 spaces, 339 are located on or associated with parcels to be fully acquired. In addition, approximately 13 on-street parking spaces could be lost. Temporary: During construction some parking may be temporarily impacted as a result of the detour routes. **Business and Economic Effects:** Permanent: • $988,500 (estimated): Loss of annual property/sales tax revenue to the City of Fountain Valley if businesses subject to relocation moved outside Fountain Valley. Temporary: • 50 to 90 employees could lose jobs if all relocated business discontinue operations. • The project could result in approximately 32,000 direct/indirect/induced jobs (http://www.fhwa.dot.gov/policy otps/ pubs/impacts/index htm). **Relocation:** No homes displaced and no full acquisition of residential properties Up to 3 full parcel acquisitions and relocation of up to three commercial establishments within Fountain Valley near the intersection of I-405 and Warner Avenue is required: • Sports Authority; • Days Inn & Suites; • Boomers Parcels with Mini Golf and Go Karts (3 of 5 parcels)	Up to 450 parking spaces out of the current inventory of 2,243 spaces associated with 17 potentially affected properties would be lost to accommodate freeway widening and associated roadway improvements. Of the 450 spaces, 339 are located on or associated with parcels to be fully acquired. In addition, approximately 13 on-street parking spaces could be lost. Temporary: During construction some parking may be temporarily impacted as a result of the detour routes. **Business and Economic Effects:** Permanent: • $988,500 (estimated): Loss of annual property/sales tax revenue to the City of Fountain Valley if businesses subject to relocation moved outside Fountain Valley. Temporary: • 50 to 90 employees could lose jobs if all relocated business discontinue operations. • The project could result in approximately 34,000 direct/indirect/induced jobs (http://www.fhwa.dot.gov/policy otps/ pubs/impacts/index htm). **Relocation:** No homes displaced and no full acquisition of residential properties Up to 3 full parcel acquisitions and relocation of up to three commercial establishments within Fountain Valley near the intersection of I-405 and Warner Avenue is required: • Sports Authority; • Days Inn & Suites; • Boomers Parcels with Miniature Golf and Go Karts (3 of 5 parcels) • Fountain Valley Skating Center	• Talbert Avenue OC – 8 to 12 months • Slater Avenue OC – 8 to 12 months • Bushard Street OC – 8 to 12 months • Newland Street OC – 8 to 12 months • Edinger Avenue OC – 8 to 12 months • McFadden Avenue OC – 8 to 12 months • Edwards Street OC – 8 to 12 months **Parking:** Permanent: Up to 450 parking spaces out of the current inventory of 2,243 spaces associated with 17 potentially affected properties would be lost to accommodate freeway widening and associated roadway improvements. Of the 450 spaces, 339 are located on or associated with parcels to be fully acquired. In addition, approximately 13 on-street parking spaces could be lost. Temporary: During construction some parking may be temporarily impacted as a result of the detour routes. **Business and Economic Effects:** Permanent: • $988,500 (estimated): Loss of annual property/sales tax revenue to the City of Fountain Valley if businesses subject to relocation moved outside Fountain Valley. Temporary: • 50 to 90 employees could lose jobs if all relocated business discontinue operations. • The project could result in approximately 42,000 direct/indirect/induced jobs (http://www.fhwa.dot.gov/policy	

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		• Fountain Valley Skating Center Up to 90 partial acquisitions from public and privately owned parcels ranging from less than 1 square foot to 30,000 square feet (approximately 0.7-acre). **Environmental Justice:** The proposed project alternatives would not cause disproportionately high and adverse effects on minority or low-income populations within the context and intent of EO 12898.	Up to 91 partial acquisitions from public and privately owned parcels ranging from less than 1 square foot to 30,000 square feet (approximately 0.7-acre). **Environmental Justice:** The proposed project alternatives would not cause disproportionately high and adverse effects on minority or low-income populations within the context and intent of EO 12898.	otps/ pubs/impacts/index htm). **Relocation:** No homes displaced and no full acquisition of residential properties Up to 3full parcel acquisitions and relocation of up to three commercial establishments within Fountain Valley near the intersection of I-405 and Warner Avenue is required: • Sports Authority; • Days Inn & Suites; • Boomers Parcels with Miniature Golf and Go Karts (3 of 5 parcels) • Fountain Valley Skating Center Up to 108 partial acquisitions from public and privately owned parcels ranging from less than 1 square foot to 30,000 square feet (approximately 0.7-acre). **Environmental Justice:** The proposed project alternatives would not cause disproportionately high and adverse effects on minority or low-income populations within the context and intent of EO 12898.	
Utilities/ Emergency Services	No impact.	Permanent Impacts: Utility relocations are considered routine and are not anticipated to result in any long-term or permanent disruptions in service as a result of relocation or replacement of utilities. Temporary Impacts: The project is anticipated to result in 107 utility conflicts. 69 of the utilities would be relocated, 37 require encasement/ protection/minor work/extension, and 1 gas line would be abandoned. The types and number of utility conflicts are as follows: Electric: 32 Gas/Petroleum: 16 Communication: 19 Sewer: 10	Permanent Impacts: Utility relocations are considered routine and are not anticipated to result in any long-term or permanent disruptions in service as a result of relocation or replacement of utilities. Temporary Impacts: The project is anticipated to result in 114 utility conflicts. 75 of the utilities would be relocated, 38 require encasement/ protection/minor work/extension, and 1 gas line would be abandoned. The types and number of utility conflicts are as follows: Electric: 36 Gas/Petroleum: 16 Communication: 19 Sewer: 10	Permanent Impacts: Utility relocations are considered routine and are not anticipated to result in any long-term or permanent disruptions in service as a result of relocation or replacement of utilities. Temporary Impacts: The project is anticipated to result in 115 utility conflicts. 75 of the utilities would be relocated, 39 require encasement/ protection/ minor work/extension, and 1 gas line would be abandoned. The types and number of utility conflicts are as follows: Electric: 36 Gas/Petroleum: 16 Communication: 20 Sewer: 10	**UT-1:** During design, utility providers will be made aware of project developments and be involved in the planning of utility rerouting, identification of potential conflicts, and the formulation of strategies to deal with unanticipated problems that may arise during construction. **UT-2:** During construction, emergency service providers will be alerted in advance of any temporary road closures and delays so that they have adequate time to make appropriate accommodations to ensure prompt emergency response times that fulfill their responsibilities and defined service objectives.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		Water: 30 Five (5) parallel relocations within State ROW requiring an exception to the utility longitudinal encroachment policy. Relocation of one 14-inch high-pressure transmission gas line and one 16-inch high-pressure distribution gas line outside of State ROW. Three high-voltage transmission line relocations requiring compliance with CPUC General Order 131-D and can sometimes require a long lead time	Water: 33 Nine (9) parallel relocations within State ROW requiring an exception to the utility longitudinal encroachment policy. Relocation of one 14-inch high-pressure transmission gas line and one 16-inch high-pressure distribution gas line outside of State ROW. Three high-voltage transmission line relocations requiring compliance with CPUC General Order 131-D and can sometimes require a long lead time	Water: 33 Nine (9) parallel relocations within State ROW requiring an exception to the utility longitudinal encroachment policy. Relocation of one 14-inch high-pressure transmission gas line and one 16-inch high-pressure distribution gas line outside of State ROW. Three high-voltage transmission line relocations requiring compliance with CPUC General Order 131-D and can sometimes require a long lead time	
Traffic and Transportation/ Pedestrian and Bicycle Facilities	The quality of accessibility to and mobility within area communities would continue to deteriorate.	**Traffic and Transportation:** Permanent: The proposed improvements in Alternative 1 are expected to increase vehicle throughput on the freeway by: • 20% between Brookhurst Street and SR-22 East; and • 13% between SR-22 East and I-605. No increase in throughput is anticipated between SR-73 and Brookhurst Street. Temporary: During the 48-month construction period, construction-related delays along the I-405, I-605, and SR-22 freeways and interchanges, as well as on the surrounding local arterials, are anticipated. Temporary and short-term closures would likely be required and would occur intermittently throughout the construction duration. Full freeway lane, ramp, and arterial street closures could also be required and would likely occur during the nighttime and on weekends during various roadway and structure construction activities. Some prolonged closure, ranging from 10 days to 12 months, is also anticipated to facilitate construction of certain	**Traffic and Transportation:** Permanent: The proposed improvements in Alternative 2 are expected to increase vehicle throughput on the freeway by: • 40% between Brookhurst Street and SR-22 East; and • 25% between SR-22 East and I-605. No increase in throughput is anticipated between SR-73 and Brookhurst Street. Temporary: During the 51- month construction period, construction-related delays along the I-405, I-605, and SR-22 freeways and interchanges, as well as on the surrounding local arterials, are anticipated. Temporary and short-term closures would likely be required and would occur intermittently throughout the construction duration. Full freeway lane, ramp, and arterial street closures could also be required and would likely occur during the nighttime and on weekends during various roadway and structure construction activities. Some prolonged closure, ranging from 10 days to 12 months, is also anticipated to facilitate construction of certain	**Traffic and Transportation:** Permanent: The proposed improvements in Alternative 3 are expected to increase vehicle throughput on the freeway by: • 24% between SR-73 and Brookhurst Street; • 50% between Brookhurst Street and SR-22 East; and • 23% between SR-22 East and I-605. Temporary: During the 54-month construction period, construction-related delays along the I-405, I-605, SR-22, and SR-73 freeways and interchanges, as well as on the surrounding local arterials, are anticipated. Temporary and short-term closures would likely be required and would occur intermittently throughout the construction duration. Full freeway lane, ramp, and arterial street closures could also be required and would likely occur during the nighttime and on weekends during various roadway and structure construction activities. Some prolonged closure, ranging from 10 days to 12 months, is also anticipated to facilitate construction of certain	**T-1:** A Final TMP will be prepared prior to project construction that identifies methods to avoid and minimize construction-related traffic and circulation effects and minimize impacts to pedestrian and bicycle access, including ADA-compliant features as a result of the proposed project. During construction, the contractor shall implement the methods identified in the Final TMP. **T-2:** During final design, plans shall be prepared to incorporate the following improvements at the Slater Avenue/Brookhurst Street intersection, which the contractor shall implement during construction: • Convert the southbound right-turn lane on Brookhurst Street to a fourth through lane (with right turns shared). • Convert the existing second eastbound through lane on Slater Avenue at Brookhurst Street to a shared through/right-turn lane. Retain the existing eastbound exclusive right-turn lane. • Provide increased queue storage areas for northbound right-turn, northbound left-turn, eastbound right-turn, and westbound left-turn movements. **T-3:** During final design, plans shall be prepared to incorporate the following improvements at the Talbert Avenue/Brookhurst Street intersection, which the contractor shall implement during construction: • Add a third westbound through lane on Talbert Avenue. Retain the existing westbound exclusive right-turn lane. • Convert the southbound right-turn lane on Brookhurst Street to a fourth through lane (with right turns shared). • Convert the eastbound right-turn lane on Talbert Avenue to a fourth through lane (with right turns shared). • Convert the existing third northbound through lane on Brookhurst Street to a shared through/right-turn lane. Retain the existing

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Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		interchange ramps, arterials, and overcrossing structures. **Pedestrian Facilities:** Permanent: Pedestrian facilities along both sides of the street are proposed for 13 of the 17 arterials, which do not currently have pedestrian facilities on both sides along their approaches to and crossing of I-405. Two crosswalks across the east and north legs of the Bolsa Avenue/ Westminster Boulevard intersection in the City of Westminster will not meet Americans with Disabilities Act (ADA) standards due to nonstandard cross slopes. Design exceptions are currently being sought with the City of Westminster for these locations. The existing pedestrian crossing of I-405 at Heil Avenue would be replaced by the proposed project with a longer pedestrian bridge meeting current ADA standards. The current pedestrian crossing would remain open for use until the new bridge is constructed. Temporary: Closure of pedestrian facilities, including facilities with ADA-compliant features on bridges crossing the freeway, will be closed concurrently with the closures of the arterial roadways. **Bicycle Facilities:** Permanent: The existing Class 1 bicycle facilities along the east bank of the Santa Ana River and along the San Gabriel River and the six existing Class 2 bicycle facilities would be retained under all of the build alternatives. Bicycle facilities in the project corridor planned by municipalities, but not currently existing, include Class 2 bikeways along the following arterials crossing	interchange ramps, arterials, and overcrossing structures. **Pedestrian Facilities:** Permanent: Pedestrian facilities along both sides of the street are proposed for 13 of the 17 arterials, which do not currently have pedestrian facilities on both sides along their approaches to and crossing of I-405. Two crosswalks across the east and north legs of the Bolsa Avenue/ Westminster Boulevard intersection in the City of Westminster will not meet ADA standards due to nonstandard cross slopes. Design exceptions are currently being sought with the City of Westminster for these locations. The existing pedestrian crossing of I-405 at Heil Avenue would be replaced by the proposed project with a longer pedestrian bridge meeting current ADA standards. The current pedestrian crossing would remain open for use until the new bridge is constructed. Temporary: Closure of pedestrian facilities, including facilities with ADA-compliant features, on bridges crossing the freeway, will be closed concurrently with the closures of the arterial roadways. **Bicycle Facilities:** Permanent: The existing Class 1 bicycle facilities along the east bank of the Santa Ana River and the San Gabriel River, and the six existing Class 2 bicycle facilities would be retained under all of the build alternatives. Bicycle facilities in the project corridor planned by municipalities, but not currently existing, include Class 2 bikeways along the following arterials crossing I-405:	interchange ramps, arterials, and overcrossing structures. **Pedestrian Facilities:** Permanent: Pedestrian facilities along both sides of the street are proposed for 13 of the 17 arterials, which do not currently have pedestrian facilities on both sides along their approaches to and crossing of I-405. Two crosswalks across the east and north legs of the Bolsa Avenue/ Westminster Boulevard intersection in the City of Westminster will not meet ADA standards due to nonstandard cross slopes. Design exceptions are currently being sought with the City of Westminster for these locations. The existing pedestrian crossing of I-405 at Heil Avenue would be replaced by the proposed project with a longer pedestrian bridge meeting current ADA standards. The current pedestrian crossing would remain open for use until the new bridge is constructed. Temporary: Closure of pedestrian facilities, including facilities with ADA-compliant features, on bridges crossing the freeway, will be closed concurrently with the closures of the arterial roadways. **Bicycle Facilities:** Permanent: The existing Class 1 bicycle facilities along the east bank of the Santa Ana River and the San Gabriel River, and the six existing Class 2 bicycle facilities would be retained under all of the build alternatives. Bicycle facilities in the project corridor planned by municipalities, but not currently existing, include Class 2 bikeways along the following arterials crossing I-405:	northbound exclusive right-turn lane. **T-4:** During final design, plans shall be prepared to incorporate the following improvements at the Warner Avenue/Magnolia Street intersection, which the contractor shall implement during construction: • Convert the southbound right-turn lane on Magnolia Street at Warner Avenue to a shared through/right-turn lane. Extend the third southbound through lane on Magnolia Street south of the intersection. • Provide dual northbound left-turn lanes on Magnolia Street at Warner Avenue. • Extend the southbound dual left-turn pocket from the existing 200 ft to approximately 440 ft of queue storage. **T-5:** During final design, plans shall be prepared to incorporate the following improvements at the McFadden Avenue/Beach Boulevard intersection, which the contractor shall implement during construction: • Provide an exclusive northbound right-turn lane on Beach Boulevard. • Provide increased queue storage areas for eastbound right-turn and westbound left-turn movements. **T-6:** During final design, plans shall be prepared to incorporate the following improvements at the Center Avenue/Beach Boulevard intersection, which the contractor shall implement during construction: • Provide an exclusive right-turn lane and a shared through/right-turn lane on southbound Beach Boulevard. • Add a third eastbound right-turn lane on Center Avenue at Beach Boulevard. Increase the eastbound Center Avenue left-turn queue storage to 270 ft per lane and right-turn queue storage to 450 ft per lane. • Provide a fifth northbound through lane on Beach Boulevard. **T-7:** During final design, plans shall be prepared to incorporate the following improvements at the Edinger Avenue/Beach Boulevard intersection, which the contractor shall implement during construction: • Add a fourth northbound through lane on Beach Boulevard at Edinger Avenue. • Convert the existing eastbound right-turn only lane on Edinger Avenue at Beach Boulevard to a fourth through lane (with a shared right turn) and extend the lane to Parkside Lane to increase vehicle queue storage. Sign and stripe to allow two curb lanes on eastbound Edinger Avenue at Beach Boulevard as freeway access

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		I-405: • McFadden Avenue; • Edinger Avenue; • Newland Street; • Westminster Avenue; and • Bolsa Chica Road All three build alternatives would provide pavement to accommodate standard Class 2 bikeways on all of the above-mentioned arterials. Temporary: Alternative 1 would require temporary closure of the Santa Ana River Trail and the Class I bicycle facility during construction of the Euclid Street southbound I-405 on-ramp from Ellis Avenue. During construction, the trail on one riverbank will remain open at all times. Bikeways along arterial streets will be closed consistent with the closures of the arterial roadways.	• McFadden Avenue; • Edinger Avenue; • Newland Street; • Westminster Avenue; and • Bolsa Chica Road. All three build alternatives would provide pavement to accommodate standard Class 2 bikeways on all of the above-mentioned arterials. Temporary: Alternative 2 would require temporary closure of the Santa Ana River Trail and the Class I bicycle facility during construction of the Euclid Street southbound I-405 on-ramp from Ellis Avenue. During construction, the trail on one riverbank will remain open at all times. Bikeways along arterial streets will be closed consistent with the closures of the arterial roadways.	• McFadden Avenue; • Edinger Avenue; • Newland Street; • Westminster Avenue; and • Bolsa Chica Road. All three build alternatives would provide pavement to accommodate standard Class 2 bikeways on all of the above-mentioned arterials. Temporary: Alternative 3 would require temporary closure of the Santa Ana River Trail and the Class I bicycle facility during construction of the Euclid Street southbound I-405 on-ramp from Ellis Avenue. During construction, the trail on one riverbank will remain open at all times. Bikeways along arterial streets will be closed consistent with the closures of the arterial roadways.	lanes (to the southbound on-ramp at Edinger Avenue). • Extend the existing southbound dual left-turn lanes on Beach Boulevard from the existing queue storage of 240 ft to an average of 300 ft per lane. • Widen the Edinger Avenue overcrossing to provide two westbound through lanes and two eastbound through lanes. The third eastbound through lane on Edinger Avenue from Beach Boulevard is dropped at the bridge overcrossing. • At the intersection of eastbound Edinger Avenue and the I-405 southbound on-ramp, provide an exclusive right-turn and a shared through/right-turn lane on eastbound Edinger Avenue, thereby allowing two lanes onto the southbound ramp. • Provide increased queue storage areas for southbound left-turn, eastbound left-turn, and westbound left-turn movements. **T-8:**During final design, plans shall be prepared to incorporate the following improvements at the Bolsa Avenue/Goldenwest Street intersection, which the contractor shall implement during construction: • Widen the southbound approach on Goldenwest Street to provide an exclusive right-turn lane and a second left-turn lane. The southbound left-turn pocket is extended past the Goldenwest Street/Westminster Mall Road intersection. • Widen the northbound approach on Goldenwest Street at Bolsa Avenue to provide an exclusive right-turn lane with queue storage of approximately 430 ft. • Convert the eastbound right-turn lane on Bolsa Avenue to a fourth through lane (with right turns shared). Widen the south side of Bolsa Avenue between Goldenwest Street and the I-405 southbound on-ramp. Sign and stripe to allow two curb lanes on eastbound Bolsa Avenue at Goldenwest Street as freeway access lanes (to the I-405 southbound on-ramp from Bolsa Avenue). • Widen the westbound approach to provide extended queue storage of 750 ft for the right-turn lane and increased queue storage of 280 ft for the left-turn lanes. **T-9:** During final design, plans shall be prepared to incorporate the following improvements at the Garden Grove Boulevard and Bolsa Chica Road/Valley View Street intersection, which the contractor shall implement during construction: • Add a third westbound right-turn lane on Garden Grove Boulevard. • Add a third through lane on northbound Bolsa Chica Road/Valley View Street. • Extend the northbound right-turn lane on Bolsa Chica Road/Valley View Street and increase the existing queue storage of 400 ft to approximately 800 ft.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
Visual/ Aesthetics	No impact.	Permanent Impacts: Alternative 1 would result in a permanent change in both the visual quality and character of the project area associated with the follow: • The addition of lanes would result in the permanent removal of most of the vegetation along the I-405 mainline (i.e., areas along the freeway between interchanges) where the roadway would be widened to extend from ROW to ROW. • A new GP lane would be added in both directions, new auxiliary lanes would be added in certain stretches of the corridor and standard shoulders where ever feasible. The percentage of pavement/hardscape within the ROW would increase by approximately 18 percent. • Alternative 1 includes 8 new structures, 17 structure replacements and 5 structure widening/ modifications. Replacement bridges within the corridor would be wider to accommodate a widened paving section and have a deeper girder and appear thicker to the freeway traveler. These bridges would also be slightly higher than the existing bridge elevations. • Large retaining walls (i.e., those over 5 ft in height) would be located within the Magnolia Street, Euclid Street, and Warner Avenue interchanges. The height of these walls would vary, from nothing to up to 30 ft in some locations. The higher walls would be closest to the associated bridge crossing. Other smaller walls (i.e., less than 5 ft in height) would be found in the corridor, with the exact location to	Permanent Impacts: Alternative 2 would result in a permanent change in both the visual quality and character of the project area associated with the follow: • The addition of lanes would result in the permanent removal of most of the vegetation along the I-405 mainline (i.e., areas along the freeway between interchanges) where the roadway would be widened to extend from ROW to ROW. • Two GP lanes would be added in both directions, new auxiliary lanes would be added in certain stretches of the corridor and standard shoulders where ever feasible. The percentage of pavement/hardscape within the ROW would increase by approximately 21 percent. • Alternative 2 includes 8 new structures, 17 structure replacements and 5 structure widening/ modifications. Replacement bridges within the corridor would be wider to accommodate a widened paving section and have a deeper girder and appear thicker to the freeway traveler. These bridges would also be slightly higher than the existing bridge elevations. • Large retaining walls (i.e., those over 5 ft in height) would be located within the Magnolia Street, Euclid Street, and Warner Avenue interchanges. The height of these walls would vary, from nothing to up to 30 ft in some locations. The higher walls would be closest to the associated bridge crossing. Other smaller walls (i.e., less than 5 ft in height) would be found in the corridor, with the exact location to	Permanent Impacts: Alternative 3 would result in a permanent change in both the visual quality and character of the project area associated with the follow: • The addition of lanes would result in the permanent removal of most of the vegetation along the I-405 mainline (i.e., areas along the freeway between interchanges) where the roadway would be widened to extend from ROW to ROW. • A new GP lane and one tolled Express Lane would be added in each direction, new auxiliary lanes would be added in certain stretches of the corridor and standard shoulders where ever feasible. The percentage of pavement/hardscape within the ROW would increase by approximately 18 percent. • Alternative 3 includes 10 new structures, 18 structure replacements and 6 structure widening/ modifications. Replacement bridges within the corridor would be wider to accommodate a widened paving section and have a deeper girder and appear thicker to the freeway traveler. These bridges would also be slightly higher than the existing bridge elevations. • Large retaining walls (i.e., those over 5 ft in height) would be located within the Magnolia Street, Euclid Street, and Warner Avenue interchanges. The height of these walls would vary, from nothing to up to 30 ft in some locations. The higher walls would be closest to the associated bridge crossing. Other smaller walls (i.e., less than 5 ft in height) would be found in the	**VIS-1:** Beginning with preliminary design and continuing through final design and construction, plan, save, and protect as much existing vegetation in the corridor, especially eucalyptus and other skyline trees, as feasible. **VIS-2:** Survey exact locations for existing trees and include in plans. **VIS-3:** Protect with temporary fencing large infield areas of existing plantings to be preserved. **VIS-4:** Transplant, relocate, protect, and maintain existing trees that are in conflict with the proposed improvements, replacement vegetation, and mesh fencing per Caltrans' District Landscape Architect approval. **VIS-5:** Beginning with preliminary design, and continuing through final design and construction, develop construction plans that apply architectural detailing to the proposed soundwalls, retaining walls, and bridges, including textures, colors, and patterns. Include elements such as caps, columns, pier caps, parapets, fencing, and abutment and wing walls as shown in the Aesthetics and Landscape Master Plan. In addition, bridge or architectural elements on ramps, bridges, and soundwalls will include forms and lines to match the existing built-environment features. **VIS-6:** Beginning with preliminary design, and continuing through final design and construction, landscape and revegetate disturbed areas to the greatest extent feasible. **VIS-7:** Include skyline trees in the planting palette to bring down the scale of the new freeway elements. **VIS-8:** Fund from this parent project and accomplish by separate contract a 3-year extended plant establishment project to assure a well-established highway planting. This separate contract must begin as soon as possible upon completion of the 1-year plant establishment period that may be accomplished with the roadway contract. **VIS-9:** Design basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. They shall be shaped in an informal, curvilinear manner. **VIS-10:** Basin slope grading will incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it shall be worked into the overall design concept. **VIS-11:** Employ grading design of any ponds or swales, wherever possible, to be sympathetic to the Aesthetic and Landscape Master Plan. **VIS-12:** Locate maintenance access drives in unobtrusive areas away from local streets. Such drives must consist of inert materials or herbaceous groundcover that is visually compatible with the surrounding landscape.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		be determined during final design. • Alternative 1 would also include 17 new soundwalls, 6 existing soundwalls that would be replaced at a greater height, 14 existing soundwalls that would be replaced in-kind, and 6 soundwalls that would be provided for gap closure (i.e., to account for removal of embankment). • Alternative 1 would increase the slope of the local streets as they approach the bridge crossing. This would be due to the raised height of the bridge over I-405, but would not likely change the overall visual appearance of the local street. Side slopes along the approach may also be longer or steeper than the current. • All of the existing lighting at the freeway on-ramps, off-ramps, connector ramps, and along local streets and overcrossing structures, including the Heil Avenue pedestrian overcrossing bridge, would be replaced in-kind within the project improvement limits. • New lighting would be provided on the new Euclid Street southbound I-405 on-ramp from Ellis Avenue, as well as under new or widened undercrossing structures to illuminate the roadway or pedestrian path underneath. Additional lighting would be installed under the existing I-405/SR-39 grade-separated structure to illuminate the sidewalks along Beach Boulevard, which would be relocated to exclusive paths underneath the grade-separated structure. Additional lighting would be provided at overhead signs and also where required to meet current	be determined during final design. • Alternative 2 would also include 15 new soundwalls, 5 existing soundwalls that would be replaced at a greater height, 20 existing soundwalls that would be replaced in-kind, and 7 soundwalls that would be provided for gap closure (i.e., to account for removal of embankment). • Alternative 2 would increase the slope of the local streets as they approach the bridge crossing. This would be due to the raised height of the bridge over I-405, but would not likely change the overall visual appearance of the local street. Side slopes along the approach may also be longer or steeper than the existing. • All of the existing lighting at the freeway on-ramps, off-ramps, connector ramps, and along local streets and overcrossing structures, including the Heil Avenue pedestrian overcrossing bridge, would be replaced in-kind within the project improvement limits. • New lighting would be provided on the new Euclid Street southbound I-405 on-ramp from Ellis Avenue, as well as under new or widened undercrossing structures to illuminate the roadway or pedestrian path underneath. Additional lighting would be installed under the existing I-405/SR-39 grade-separated structure to illuminate the sidewalks along Beach Boulevard, which would be relocated to exclusive paths underneath the grade-separated structure. Additional lighting would be provided at overhead signs and also	corridor, with the exact location to be determined during final design. • Alternative 3 would also include 16 new soundwalls, 6 existing soundwalls that would be replaced at a greater height, 23 existing soundwalls that would be replaced in-kind, and 7 soundwalls that would be provided for gap closure (i.e., to account for removal of embankment). • Alternative 3 would increase the slope of the local streets as they approach the bridge crossing. This would be due to the raised height of the bridge over I-405, but would not likely change the overall visual appearance of the local street. Side slopes along the approach may also be longer or steeper than the current. • All of the existing lighting at the freeway on-ramps, off-ramps, connector ramps, and along local streets and overcrossing structures including the Heil Avenue pedestrian overcrossing bridge, would be replaced in-kind within the project improvement limits. • New lighting would be provided on the new I-405/SR-73 HOV Connector and toll gantries and the new Euclid Street southbound I-405 on-ramp from Ellis Avenue, as well as under new or widened undercrossing structures to illuminate the roadway or pedestrian path underneath. Additional lighting would be installed under the existing I-405/SR-39 grade-separated structure to illuminate the sidewalks along Beach Boulevard, which would be relocated to exclusive paths underneath the grade-separated structure.	**VIS-13:** Design all basins so that chain-link perimeter fencing is not required. **VIS-14:** Design all visible concrete structures and surfaces to adhere to the Aesthetic and Landscape Master Plan when developed. **VIS-15:** Design rock slope protection to consist of aesthetically pleasing material with a variety of sizes. **VIS-16:** Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas and design to appear as natural features. **VIS-17:** The Department has existing ongoing maintenance programs for the control and removal of graffiti, which would apply to all new and modified structures on public and private property, as appropriate. Key components of those programs are: • Chapter D1, Litter, Debris, and Graffiti (July 2006), in the Caltrans Maintenance Manual (Volume I, January 2011) describes the Department's maintenance program for the control and removal of graffiti. Key program components applicable to the project features are: – Use of recycled paint for various structures and matching paint used to cover graffiti with the original paint color on the structure. – Use of physical devices, such as rat guards, sign hoods, razor wire, and glare screen patches, to limit access to facilities targeted by taggers. – Replacement of ground-mounted signs with signs that have protective coatings or application of protective coatings to signs. **VIS-18:** Provide vine planting on sound walls and retaining walls where feasible and appropriate. Per Highway Design Manual, Index 902.3(5), vine planting should be included with all sound barrier projects to reduce the potential for graffiti and to soften the appearance of the wall. **VIS-19:** Protect with temporary fencing the drip line of existing isolated trees identified on plans as to remain. **VIS-20:** Plant biostrips and bioswales with vegetative cover that includes a combination of low-growing shrubs and groundcover per the NPDES Construction General Permit, A.9 Definitions: 1) Vegetative Cover. **VIS-21:** Glare shields shall be used wherever possible to reduce lighting impacts, and to redirect light onto the facility and away from adjacent homes and areas of wildlife habitat.

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Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		lighting policies and guidelines and to provide required safety improvements, such as to illuminate the areas of potential vehicle conflict. • Visual impacts related to utility relocations would be minor, and in some areas would improve because some utilities would be relocated within bridge structures or underground and overall other views would, for the most part, remain unchanged. • Public structures are often targets of graffiti; however, the Department has existing ongoing maintenance programs for the control and removal of graffiti. Temporary Impacts: The construction of the build alternatives would result in changes to the visual quality and/or character associated with vegetation removal, construction activities, and the introduction of new and modified permanent structures. For the I-405 project area, removal of the eucalyptus trees and other vegetation within the interchange areas would likely have the greatest impact on the visual quality; however, this would be a temporary effect because, as the replacement vegetation grows, the overall impact would be expected to diminish.	where required to meet current lighting policies and guidelines and to provide required safety improvements, such as to illuminate the areas of potential vehicle conflict. • Visual impacts related to utility relocations would be minor, and in some areas would improve because some utilities would be relocated within bridge structures or underground and overall other views would, for the most part, remain unchanged. • Public structures are often targets of graffiti; however, the Department has existing ongoing maintenance programs for the control and removal of graffiti. Temporary Impacts: The construction of the build alternatives would result in changes to the visual quality and/or character associated with vegetation removal, construction activities, and the introduction of new and modified permanent structures. For the I-405 project area, removal of the eucalyptus trees and other vegetation within the interchange areas would likely have the greatest impact on the visual quality; however, this would be a temporary effect because, as the replacement vegetation grows, the overall impact would be expected to diminish.	Additional lighting would be provided at overhead signs in conformance with the current overhead sign lighting policies. Additional lighting may be added, as required, to meet current lighting policies and guidelines and to provide required safety improvements, such as to illuminate the areas of potential vehicle conflict. • Visual impacts related to utility relocations would be minor, and in some areas would improve because some utilities would be relocated within bridge structures or underground and overall other views would, for the most part, remain unchanged. • Public structures are often targets of graffiti; however, the Department has existing ongoing maintenance programs for the control and removal of graffiti. Temporary Impacts: The construction of the build alternatives would result in changes to the visual quality and/or character associated with vegetation removal, construction activities, and the introduction of new and modified permanent structures. For the I-405 project area, removal of the eucalyptus trees and other vegetation within the interchange areas would likely have the greatest impact on the visual quality; however, this would be a temporary effect because, as the replacement vegetation grows, the overall impact would be expected to diminish.	
Cultural Resources	No impact.	No historic properties/resources would be affected with implementation of the proposed minimization measures.	No historic properties/resources would be affected with implementation of the proposed minimization measures.	No historic properties/resources would be affected with implementation of the proposed minimization measures.	**CUL-1:** Work shall be halted in the vicinity of any previously known or unknown buried cultural materials unearthed during construction until a qualified archaeologist can assess the significance of the materials. Any further mitigation measures required will be developed in accordance with the requirements of Caltrans Section

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Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
					106 PA –Stipulation XV in accordance with 36 CFR 800.13. Any mitigation measures required by the archaeologist will be implemented, including, if necessary, supplemental environmental documentation. **CUL-2:** If human remains and associated artifacts are encountered during ground-disturbing activities, then the provisions of Public Law 101-601, Section 5097.98 and .99 of the PRC, and Section 7050 of the Health and Safety Code, will be followed. Any further mitigation measures required shall be developed in accordance with the requirements of 36 CFR 800.13, the post review discovery provision of the regulations implementing Section 106 of the NHPA. **CUL-3**: If any buildings and/or structures in the project APE are determined eligible for listing in the NRHP subsequent to finalizing the Final EIR/EIS, then such buildings and/or structures shall not be destroyed or significantly altered as part of construction of this project. Proper coordination shall be undertaken with the entity responsible for such listing.
Hydrology and Floodplains	No impact.	Alternative 1 would impact channels and drains and their related floodplains at varying degrees; however, this alternative would not: • Result in a significant floodplain encroachment; • Substantially affect life and property; • Result in an interruption or termination of a transportation facility; or • Negatively affect natural and beneficial floodplain values. Drainage Improvements include: • Extension of Fountain Valley Channel box culvert • Extension of Ocean View Channel box culvert • Extension of Heil Avenue Drain box culvert • Extension of Milan Storm Drain box culvert • Extension of Montecito Storm Channel box culvert • Construction of new Bixby Channel Bypass structure	Alternative 2 would impact channels and drains and their floodplains at varying degrees; however, this alternative would not: • Result in a significant floodplain encroachment; • Substantially affect life and property; • Result in an interruption or termination of a transportation facility; or • Negatively affect natural and beneficial floodplain values. Drainage Improvements include: • Extension of Fountain Valley Channel box culvert • Extension of Ocean View Channel box culvert • Extension of Heil Avenue Drain box culvert • Extension of Milan Storm Drain box culvert • Extension of Montecito Storm Channel box culvert • Construction of new Bixby Channel Bypass structure	Alternative 3 would impact channels and drains and their floodplains at varying degrees; however, this alternative would not: • Result in a significant floodplain encroachment; • Substantially affect life and property; • Result in an interruption or termination of a transportation facility; or • Negatively affect natural and beneficial floodplain values. Drainage Improvements include: • Extension of Greenville-Banning Channel reinforced concrete pipe (RCP) • Extension of Hyland Storm Drain box culvert and inlet modification • Extension of Fountain Valley Channel box culvert • Extension of Ocean View Channel box culvert • Extension of Heil Avenue Drain box culvert • Extension of Milan Storm Drain box culvert	**HYD-1:** Project design elements will include bridge pier alignment paralleling the direction of flow to minimize flow obstruction; **HYD-2:** Bridges will be designed with sufficient freeboard above the 100-year water surface elevation to prevent the bridge deck from impacting flood flows; **HYD-3:** Positive drainage will be provided during construction and refrain from diverting flows; **HYD-4:**Recommended BMPs will be implemented; **HYD-5:** In-river construction and post construction shall include erosion control and water quality protection; **HYD-6:** A contingency plan shall be developed for unforeseen discovery of underground contaminants; **HYD-7:** Construction activities between October and May shall be limited to those actions that can adequately withstand high flows and entrainment of construction materials; and **HYD-8:** Adequate conveyance capacity will be provided at bridge crossings to ensure no net increase in velocity.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
				• Extension of Montecito Storm Channel box culvert • Construction of new Bixby Channel Bypass structure	
Water Quality and Stormwater Runoff	Zero treatment of impervious surface runoff.	Permanent Impacts: Alternative 1 will increase impervious surface area by 86 acres (18 percent more impervious surface than existing). However, the proposed treatment BMP strategy (up to 34 permanent treatment BMPs) will not only treat 100 percent of the net new impervious surface area proposed by this project, but will also be treating additional runoff from approximately 60 acres of impervious surface. Temporary Impacts: Project construction will disturb 355 acres (graded soil disturbance area).	Permanent Impacts: Alternative 2 will increase impervious surface area by 99 acres (21 percent more impervious surface than existing). However, the proposed treatment BMP strategy (up to 34 permanent treatment BMPs) will not only treat 100 percent of the net new impervious surface area proposed by this project, but will also be treating additional runoff from approximately 60 acres of impervious surface. Temporary Impacts: Project construction will disturb 384 acres (graded soil disturbance area).	Permanent Impacts: Alternative 3 will increase impervious surface area by 104 acres (18 percent more impervious surface than existing). However, the proposed treatment BMP strategy (up to 34 permanent treatment BMPs) will not only treat 100 percent of the net new impervious surface area proposed by this project, but will also be treating additional runoff from approximately 60 acres of impervious surface. Temporary Impacts: Project construction will disturb 432 acres (graded soil disturbance area).	**WQ-1:** Conforming to the requirements of the Caltrans Statewide NPDES Storm Water Permit, Order No. 99-06-DWQ, NPDES No. CAS000003, adopted by the SWRCB on July 15, 1999, in addition to the BMPs specified in the Caltrans SWMP (Caltrans 2003a). The Contractor shall also conform to the requirements of the General NPDES Permit for Construction Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 and any subsequent permit in effect at the time of construction. **WQ-2:** Preparing and implementing the SWPPP. The SWPPP shall address all State and federal water control requirements and regulations. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to impact water quality. All Construction Site BMPs will follow the latest edition of the Storm Water Quality Handbooks, Construction Site BMP Manual to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, stormwater runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific stormwater effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing the exceedance of any water quality standards. All work will conform to the Construction Site BMP (Category II) requirements specified in the latest edition of the Caltrans SWMP to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed(s). These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other nonstormwater BMPs. For a complete list, refer to Section 4.5 of the Caltrans SWMP (2003a). **WQ-3:** Dewatering is anticipated for the proposed project; therefore, this project will fully conform to Order No. R8-2009-0003 NPDES No. CAG998001, *General Waste Discharge Requirements for Discharges to Surface Water which Pose an Insignificant (De Minimis) Threat to Water Quality, from the Santa Ana RWQCB.* Dewatering BMPs will be used to control sediments and pollutants. A laboratory, certified under either the Environmental Laboratory Accreditation Program or the National Environmental Laboratory Accreditation Program, will test and monitor any discharge for compliance with RWQCB requirements. **WQ-4:** Maintenance BMPs – Maintenance BMPs will be adhered to

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
					in accordance with Caltrans policies, including routine maintenance work, such as litter pickup, toxics control, street sweeping, drainage, and channel cleaning. **WQ-5:** Design Pollution Prevention BMPs – Permanent soil stabilization systems will be incorporated into project design, such as preservation of existing vegetation, concentrated flow conveyance systems (e.g., drainage ditches, dikes, berms, swales), and slope/surface protection systems that utilize either vegetated or hard surfaces. Identification of Design Pollution Prevention BMPs will occur during final design. **WQ-6:** Treatment BMPs – All Caltrans-approved Treatment BMPs will be implemented to the MEP. Treatment BMPs may include traction sand traps, infiltration devices, detention devices, biofiltration strips/swales, dry weather flow diversion, media filters, multi-chamber treatment trains, wet basins, and gross solids removal devices.
Geology/Soils/ Seismic/ Topography	No impact.	Permanent: The proposed project site is located in seismically active southern California; it is within an existing transportation corridor. The project would be designed to meet current corridor cities' and Caltrans' design standards to minimize geologic and seismic hazards. No structures would be constructed that would increase the current risk of loss, injury, or death as a result of ground shaking or other seismically induced effects. The proposed project would not increase the risk of exposing people or structures to potential substantial adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present with the current freeway configuration. Temporary: The site is in a State of California mapped Liquefaction Hazard Zone and has relatively shallow groundwater, layers of loose to medium dense saturated granular soils, and moderate to high earthquake accelerations; therefore, liquefaction potential should be considered high. Potential for seismic-induced slope failures in the project area would be	Permanent: The proposed project site is located in seismically active southern California; it is within an existing transportation corridor. The project would be designed to meet current corridor cities' and Caltrans' design standards to minimize geologic and seismic hazards. No structures would be constructed that would increase the current risk of loss, injury, or death as a result of ground shaking or other seismically induced effects. The proposed project would not increase the risk of exposing people or structures to potential substantial adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present with the current freeway configuration. Temporary: The site is in a State of California mapped Liquefaction Hazard Zone and has relatively shallow groundwater, layers of loose to medium dense saturated granular soils, and moderate to high earthquake accelerations; therefore, liquefaction potential should be considered high. Potential for seismic-induced slope failures in the project area would be	Permanent: The proposed project site is located in seismically active southern California; it is within an existing transportation corridor. The project would be designed to meet current corridor cities' and Caltrans' design standards to minimize geologic and seismic hazards. No structures would be constructed that would increase the current risk of loss, injury, or death as a result of ground shaking or other seismically induced effects. The proposed project would not increase the risk of exposing people or structures to potential substantial adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present with the current freeway configuration. Temporary: The site is in a State of California mapped Liquefaction Hazard Zone and has relatively shallow groundwater, layers of loose to medium dense saturated granular soils, and moderate to high earthquake accelerations; therefore, liquefaction potential should be considered high. Potential for seismic-induced slope failures in the project area would be	**GEO-1:** In accordance with standard Caltrans requirements, detailed geotechnical studies shall be conducted during the project's future PS&E phase. If results of these studies find high potential for seismic slope instability or lateral spreading, additional measures will need to be incorporated for new structures associated with the project, including bridges, embankments, and retaining walls. Resulting recommendations from the detailed studies shall be incorporated into the project's final design plans to address seismic safety, liquefaction, and load-bearing concerns present in the project area. **GEO-2** Selection of earth-retaining system types should be based on consideration of foundation bearing capacity, anticipated settlement and ability of the system to tolerate settlements, overall slope stability, constructability, and cost. **GEO-3**: Depending on locations, drilled piles (for sign foundations or soundwalls) may extend below the groundwater and will require appropriate construction methods. **GEO-4:** Corrosion mitigation for steel and concrete structures should generally follow Caltrans Corrosion Guidelines (2003 or latest). The latest Caltrans Highway Design Manual (Section 855) provides corrosion requirements for roadway structures (e.g., culverts, signs) for a 50-year design life (Caltrans, 2010). **GEO-5**: The project engineer shall request a Materials Report in the early stage of PS&E. The report shall include the results of field tests and sampling for corrosion (i.e., pH, sulfate, chloride, and minimum resistivity) for use in recommending culvert materials and concrete mix designs. Sampling and testing shall be performed in accordance with Caltrans Corrosion Guidelines (2003 or latest). **GEO-6:** In general, earthwork should be performed in accordance with Sections 6 and 19 of the Caltrans Standard Specifications. The

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		limited to lateral spreading of fill embankments due to ground shaking. Deeper open excavations will require dewatering. In the SR-22 WCC Project near the SR-22 interchange, soils were determined to be corrosive due to high chlorides and sulfates. Corrosive conditions are likely to be present in the remainder of the alignment.	limited to lateral spreading of fill embankments due to ground shaking. Deeper open excavations will require dewatering. In the SR-22 WCC Project near the SR-22 interchange, soils were determined to be corrosive due to high chlorides and sulfates. Corrosive conditions are likely to be present in the remainder of the alignment.	limited to lateral spreading of fill embankments due to ground shaking. Deeper open excavations will require dewatering. In the SR-22 WCC Project near the SR-22 interchange, soils were determined to be corrosive due to high chlorides and sulfates. Corrosive conditions are likely to be present in the remainder of the alignment.	new construction will have to be carefully planned to protect the many existing utilities in the area. **GEO-7:** Monitoring during construction shall be done by a licensed geologist and engineer to ensure that the construction site was properly characterized by the geotechnical studies and that the project design is in compliance with geotechnical and seismic safety standards and practices included in the final design package.
Paleontology	No impact.	Permanent: The proposed project would include earth-moving activities resulting in ground disturbance and modification to existing freeway and local street structures. Vertebrate fossils have been located within the project study area; however, their locations were outside of the project disturbance area. The highest potential for fossils occur at locations where auguring would occur for overhead signage and where the overcrossings and railroad overheads are replaced. Temporary: Any impacts would be considered permanent, and a discussion for temporary impacts is not applicable. No temporary impacts would occur as a result of this project. Ground-disturbing activities have the potential to destroy fossils and associated location data, which is a permanent impact.	Permanent: The proposed project would include earth-moving activities resulting in ground disturbance and modification to existing freeway and local street structures. Vertebrate fossils have been located within the project study area; however, their locations were outside of the project disturbance area. The highest potential for fossils occur at locations where auguring would occur for overhead signage and where the overcrossings and railroad overheads are replaced. Temporary: Any impacts would be considered permanent, and a discussion for temporary impacts is not applicable. No temporary impacts would occur as a result of this project. Ground-disturbing activities have the potential to destroy fossils and associated location data, which is a permanent impact.	Permanent: The proposed project would include earth-moving activities resulting in ground disturbance and modification to existing freeway and local street structures. Vertebrate fossils have been located within the project study area; however, their locations were outside of the project disturbance area. The highest potential for fossils occur at locations where auguring would occur for overhead signage and where the overcrossings and railroad overheads are replaced. Temporary: Any impacts would be considered permanent, and a discussion for temporary impacts is not applicable. No temporary impacts would occur as a result of this project. Ground-disturbing activities have the potential to destroy fossils and associated location data, which is a permanent impact.	**PAL-1:** If auguring or foundation construction will penetrate 5 ft or more into undisturbed sediment, Caltrans shall ensure that a PMP is prepared and adhered to during construction of the portions that are identified as having high paleontological sensitivity. The PMP shall include, but not be limited to, the following instructions: • A qualified principal paleontologist (MS or PhD in paleontology or geology familiar with paleontological procedures and techniques) will be retained to prepare a Paleontological Mitigation Plan (PMP) following the Department's Standard Environmental Reference (SER) if auguring or foundation construction will penetrate 5 ft or more into undisturbed sediment. • The paleontologist will be present to consult with construction contractors at pre-grading meetings. • Paleontological monitoring under the direction of the qualified principal paleontologist will be performed for subsurface construction activities involving sensitive geologic formations. • When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas will be halted or diverted to allow recovery of fossil remains in a timely manner. • Fossil remains collected during the monitoring and salvage portion of the mitigation program will be cleaned, repaired, sorted, and cataloged. • Prepared fossils, along with copies of all pertinent field notes, photos, and maps will then be deposited in a scientific institution with paleontological collections. • A final report will be completed that outlines the results of the mitigation program.
Hazardous Waste/ Materials	No impact.	Permanent: No permanent impacts are anticipated and routine maintenance activities during operation of the proposed project would be required to follow applicable regulations with respect to	Permanent: No permanent impacts are anticipated and routine maintenance activities during operation of the proposed project would be required to follow applicable regulations with respect to	Permanent: No permanent impacts are anticipated and routine maintenance activities during operation of the proposed project would be required to follow applicable regulations with respect to	**HAZ-1:** Prior to completion of the Final EIR/EIS, in areas that would require the removal of groundwater during construction that could be impacted with releases from the nearby 19 LUST sites, 2 dry-cleaning facilities, 1 SLIC site, and 2 DoD sites, groundwater shall be tested by OCTA for the following analytes to evaluate proper methods of its management and disposal:

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		the use, storage, handling, transport, and disposal of potentially hazardous materials Temporary: Alternative 1 would require 9 partial and 3 full acquisitions of properties considered as a Recognized Environmental Conditions. Alternative 1 could involve disturbance of hazardous soil and groundwater contaminants and structural materials during construction.	the use, storage, handling, transport, and disposal of potentially hazardous materials Temporary: Alternative 2 would require 9 partial and 3 full acquisitions of properties considered as a Recognized Environmental Conditions. Alternative 2 could involve disturbance of hazardous soil and groundwater contaminants and structural materials during construction.	the use, storage, handling, transport, and disposal of potentially hazardous materials Temporary: Alternative 3 would require 9 partial and 3 full acquisitions of properties considered as a Recognized Environmental Conditions. Alternative 3 could involve disturbance of hazardous soil and groundwater contaminants and structural materials during construction.	• TPH for both gasoline and diesel, and VOCs at all locations; • Perchloroethylene (PCE), Trichloroethylene (TCE) at the I-405/Beach Boulevard connector; and • CA Title 22 Metals, TCE, PCE, and pH between the I-405/I-605 connector and I-405/SR-22 west connector. **HAZ-2:** Prior to completion of the Final EIR/EIS, sampling for ADL shall be conducted by OCTA within unpaved locations adjacent to the existing roadway ROW within the study area if such locations have not been tested. **HAZ-3:** Prior to completion of the Final EIR/EIS, testing of yellow traffic stripes and pavement marking material shall be performed by OCTA. **HAZ-4:** Prior to completion of the Final EIR/EIS, ACM and LBP investigations for any of the site bridges proposed to be fully or partially demolished shall be performed by OCTA. The survey shall be conducted in conformance with the EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR regulation and SCAQMD Rule 1403. Additionally, notification to SCAQMD prior to any structure renovation or demolition is mandatory according to Rule 1403 (d)(1)(B). **HAZ-5:** Prior to completion of the Final EIR/EIS, if still present, the Newland Street overcrossing soil pile shall be tested for TPH gasoline/diesel (EPA Test Method 8015M) and CA Title 22 (SW-846) by OCTA to profile the material for disposal purposes prior to removal and disposal. **HAZ-6:** Prior to construction, if still present, two 30-gallon open trash bins and two 5 gallon buckets that were dumped in the I-405 northbound shoulder just south of the I-605 interchange shall be removed and properly disposed of by the contractor. **HAZ-7:** Potential properties to be partially acquired as part of the proposed project and that will require a site-specific investigation include: • 17520 Brookhurst Street, Fountain Valley (Arco #6116 BP West Coast Products) • 17475 Brookhurst Street, Fountain Valley (Thrifty Oil Co.) • 15501 Beach Boulevard, Westminster (Shell Oil) • 15001 Goldenwest Street, Huntington Beach (Mobil #G3W) • 14022 Springdale Street, Westminster (Oil Mobile Station) • 5992 Westminster Avenue, Westminster (Chevron) • 5981 Westminster Avenue, Westminster (Shell Oil) • 6311 Westminster Avenue, Westminster (Thrifty Oil) • 16800 Magnolia Street, Fountain Valley (Boomers) (3 of 5 parcels)

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
					If required by the site-specific investigation, soil and/or groundwater sampling will be conducted prior to completion of the Final EIR/EIS by OCTA to determine any soil and groundwater contamination on these properties. If contaminated soil and/or contaminated groundwater are determined to be present at these properties, then additional remedial action options may be necessary to properly address the cleanup, handling, and disposal of such material. **HAZ-8:** Potential properties to be fully acquired as part of the proposed project and that will require a site-specific investigation, including ACM and LBP, include: • 9065 Warner Avenue (Sports Authority) • 9105 Recreation Circle, Fountain Valley (Fountain Valley Skating Center) • 9125 Recreation Circle, Fountain Valley (Days Inn) If required by the site-specific investigation, soil and/or groundwater sampling will be conducted prior to completion of the Final EIR/EIS by OCTA to determine any soil and groundwater contamination on these properties. If contaminated soil and/or contaminated groundwater are determined to be present at these properties, then additional remedial action options may be necessary to properly address the cleanup, handling, and disposal of such material. **HAZ-9:** During the construction phase, the upper 2 ft of soil excavated along the I-405 northbound shoulder from the I-605/I-405 connector to approximately 1,000 ft south of the I-605/I-405 connector shall be set aside and tested for TPH (gasoline and diesel) by the contractor before being disposed of or reused at the site. **HAZ-10:** During completion of site investigations, coordination will occur with all appropriate regulatory agencies. **HAZ-11:** If signs of potential impacts (e.g., odors, discolored soil) are observed during construction activity, construction shall cease and the California Department of Transportation's Unknown Procedures for Construction shall be followed. If groundwater is encountered during construction activities, or if construction dewatering is necessary, then sampling and analysis of groundwater shall be conducted to identify the appropriate management and disposal of the groundwater.
Air Quality	Congestion within the project corridor would continue to increase and contribute to decreased air quality within the project corridor and region.	Permanent: Alternative 1 future emissions (2020 and 2040) would be less than existing for VOC, NOx, and CO and higher than existing for SOx, $PM_{2.5}$, and PM_{10}. All Alternative 1 emissions would be less than the future no build emissions.	Permanent: Alternative 2 future emissions (2020 and 2040) would be less than existing for VOC, NOx, and CO and higher than existing for SOx, $PM_{2.5}$, and PM_{10}. All Alternative 2 emissions would be less than the future no build emissions, and they would generally be slightly less	Permanent: Alternative 3 future emissions (2020 and 2040) would be less than existing for VOC, NOx, and CO and higher than existing for SOx, $PM_{2.5}$, and PM_{10}. All Alternative 3 emissions would be less than the future no build emissions, and they would generally be less than	**AQ-1:** The construction contractor shall comply with Caltrans' Standard Specifications in Section 14(2010). • Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. • Section 14-9.02 is directed at controlling dust. If dust palliative

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Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		Temporary: Construction of the proposed project is anticipated to last 48 months. As a result, project construction would not last more than 5 years and is considered temporary. Construction emission would be associated with the following Stationary or mobile-powered onsite construction equipment: trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers, and other paving equipment.	than Alternative 1 emissions (i.e., no greater than 3 percent). Temporary: Construction of the proposed project is anticipated to last 51 months. As a result, project construction would not last more than 5 years and is considered temporary. Construction emission would be associated with the following Stationary or mobile-powered onsite construction equipment: trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers, and other paving equipment.	Alternative 1 emissions (i.e., no greater than 4 percent). Temporary: Construction of the proposed project is anticipated to last 54 months. As a result, project construction would not last more than 5 years and is considered temporary. Construction emission would be associated with the following Stationary or mobile-powered onsite construction equipment: trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers, and other paving equipment.	materials other than water are to be used, material specifications are contained in Section 18. **AQ-2:** The construction contractor shall apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the ROW line, depending on local regulations. **AQ-3:** The construction contractor shall spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas. **AQ-4:** The construction contractor shall wash off trucks as they leave the ROW, as necessary, to control fugitive dust emissions. **AQ-5:** The construction contractor shall properly tune and maintain construction equipment and vehicles. **AQ-6:** The construction contractor shall use low-sulfur fuel in all construction equipment as provided in CCR Title 17, Section 93114. **AQ-7:** The construction contractor shall develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities. **AQ-8:** The construction contractor shall locate equipment and materials storage sites as far away from residential and park uses as practical. Construction areas shall be kept clean and orderly. **AQ-9:** The construction contractor shall establish Environmentally Sensitive Areas (ESAs) or their equivalent near sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited, to the extent that is feasible. **AQ-10:** The construction contractor shall use track-out reduction measures, such as gravel pads, at project access points to minimize dust and mud deposits on roads affected by construction traffic. **AQ-11:** The construction contractor shall cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM10 and deposition of PM during transportation. **AQ-12:** The construction contractor shall remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease PM. **AQ-13:** The construction contractor shall route and schedule construction traffic to avoid peak travel times as much as possible to reduce congestion and related air quality impacts caused by idling vehicles along local roads. **AQ-14:** The construction contractor shall install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

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Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
Noise	Noise conditions within the corridor projected to experience a 1- to 3-decibel (dB) increase under the 2040 no-build conditions.	Permanent: Increases in operational noise at all receptors are considered minor with implementation of the recommended soundwalls summarized below. Project future noise conditions, when compared to the future no build noise conditions, generally increase or decrease slightly when compared to the future no build noise condition. With incorporation of the abatement, maximum changes in future build noise rage from a 3-dBA increase to a 6-dBA decrease. Recommended Soundwalls : • 17 New • 14 Replace In-kind • 6 Replace In-Kind (higher) • 6 Gap Closure Temporary Impacts: Construction noise varies greatly depending on the construction process, type, and condition of the equipment used, and layout of the construction site. Projections of potential construction noise levels may vary from actual noise experienced during construction due to these factors. In general, construction activities conducted during daytime hours would have a lesser impact on sensitive receptors than nighttime construction; however, nighttime construction is expected to be necessary to avoid unacceptable disruptions to traffic during daytime hours.	Permanent: Increases in operational noise at all receptors are considered minor with implementation of the recommended soundwalls summarized below. Project future noise conditions, when compared to the future no build noise conditions, generally increase or decrease slightly when compared to the future no build noise condition. With incorporation of the abatement, maximum changes in future build noise rage from a 4-dBA increase to a 10-dBA decrease. Recommended Soundwalls: • 15 New • 20 Replace In-kind • 5 Replace In-Kind (higher) • 7 Gap Closure Temporary Impacts: Construction noise varies greatly depending on the construction process, type, and condition of the equipment used, and layout of the construction site. Projections of potential construction noise levels may vary from actual noise experienced during construction due to these factors. In general, construction activities conducted during daytime hours would have a lesser impact on sensitive receptors than nighttime construction; however, nighttime construction is expected to be necessary to avoid unacceptable disruptions to traffic during daytime hours.	Permanent: Increases in operational noise at all receptors are considered minor with implementation of the recommended soundwalls summarized below. Project future noise conditions, when compared to the future no build noise conditions, generally increase or decrease slightly when compared to the future no build noise condition. With incorporation of the abatement, maximum changes in future build noise rage from a 4-dBA increase to an 11-dBA decrease. Recommended Soundwalls: • 16 New • 23 Replace In-kind • 6 Replace In-Kind (higher) • 7 Gap Closure Temporary Impacts: Construction noise varies greatly depending on the construction process, type, and condition of the equipment used, and layout of the construction site. Projections of potential construction noise levels may vary from actual noise experienced during construction due to these factors. In general, construction activities conducted during daytime hours would have a lesser impact on sensitive receptors than nighttime construction; however, nighttime construction is expected to be necessary to avoid unacceptable disruptions to traffic during daytime hours.	**NOI-1:** Design and install noise barriers at the locations as recommended in the NADR, as shown for the build alternatives in Appendix N, Sections N2, N3, and N4. **NOI-2:** Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications. According to requirements of this specification, construction noise cannot exceed 86 dBA at 50 ft from the jobsite activities from 9:00 p.m. to 6:00 a.m. **NOI-3:** All internal combustion engines shall be equipped with the manufacturer-recommended muffler. An internal combustion engine cannot be operated on the jobsite without the appropriate muffler.
Energy	No impact.	Energy impacts would be minimized with incorporation of energy conservation measures. Energy conservation measures include, but are not limited to, the following: • Selecting energy-efficient project features (e.g., lighting, pavement surface); using energy-efficient design (i.e., reduced grades, decrease in out-of-direction travel;	Energy impacts would be minimized with incorporation of energy conservation measures. Energy conservation measures include, but are not limited to, the following: • Selecting energy-efficient project features (e.g., lighting, pavement surface); using energy-efficient design (i.e., reduced grades, decrease in out-of-direction travel;	Energy impacts would be minimized with incorporation of energy conservation measures. Energy conservation measures include, but are not limited to, the following: • Selecting energy-efficient project features (e.g., lighting, pavement surface); using energy-efficient design (i.e., reduced grades, decrease in out-of-direction travel;	No measures required.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
		traffic flow improvements; ramp metering and auxiliary lanes and other TSM/TDM measures, as well as, bicycle and pedestrian facilities to further offset increased fuel consumption associated with the projected increase in vehicle miles traveled (VMT).	traffic flow improvements; ramp metering and auxiliary lanes and other TSM/TDM measures, as well as, bicycle and pedestrian facilities to further offset increased fuel consumption associated with the projected increase in VMT.	traffic flow improvements; ramp metering and auxiliary lanes and other TSM/TDM measures, as well as, bicycle and pedestrian facilities to further offset increased fuel consumption associated with the projected increase in VMT.	
Natural Communities	No impact.	There are no high-quality native habitats within the Biological Study Area (BSA); however, this alterative would have the following effects on vegetation within the project corridor: Permanent Impacts: • Agriculture: 0.0 • Developed: 79.3 • Riparian: 0.0 • Drainage: 1.6 Temporary Impacts: • Agriculture: 0.0 • Developed: 189.1 • Riparian: 0.0 • Drainage: 5.7	There are no high-quality native habitats within the BSA; however, this alterative would have the following effects on vegetation within the project corridor: Permanent Impacts: • Agriculture: 0.0 • Developed: /91.3 • Riparian: 0.0 • Drainage: 1.9 Temporary Impacts: • Agriculture:0.0 • Developed: 179.7 • Riparian: 0.0 • Drainage: 5.6	There are no high-quality native habitats within the BSA; however, this alterative would have the following effects on vegetation within the project corridor: Permanent Impacts: • Agriculture: 0.0 • Developed: 101.2 • Riparian: 0.0 • Drainage:2.0 Temporary Impacts: • Agriculture: 0.0 • Developed: 202.1 • Riparian: 0.0 • Drainage: 6.8	**BIO-1:** Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around riparian/riverine vegetation adjacent to the project footprint to designate Environmentally Sensitive Areas (ESA) to be preserved. No grading or fill activity of any type will be permitted within these ESAs. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment will be operated in a manner to prevent accidental damage to nearby preserved areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities.
Wetlands and Other Waters	No impact.	Wetlands – 0-acre Permanent Other Waters: • San Gabriel River-Coyote Creek Watershed – 0.48-acre • Anaheim Bay-Huntington Harbour Watershed – 0.44-acre • Santa Ana River Watershed – 0.07-acre • Newport Bay Watershed – 0.0-acre Temporary Other Waters: • San Gabriel River-Coyote Creek Watershed – 0.06-acre • Anaheim Bay-Huntington Harbour Watershed – 0.96-acre • Santa Ana River Watershed – 3.91 acres • Newport Bay Watershed – 0.0-acre	Wetlands – 0-acre Permanent Other Waters: • San Gabriel River-Coyote Creek Watershed – 0.48-acre • Anaheim Bay-Huntington Harbour Watershed – 0.48-acre • Santa Ana River Watershed – 0.07-acre • Newport Bay Watershed – 0.0-acre Temporary Other Waters: • San Gabriel River-Coyote Creek Watershed – 0.06-acre • Anaheim Bay-Huntington Harbour Watershed – 0.91-acre • Santa Ana River Watershed – 3.91 acres • Newport Bay Watershed – 0.0-acre	Wetlands – 0-acre Permanent Other Waters: • San Gabriel River-Coyote Creek Watershed – 0.48-acre • Anaheim Bay-Huntington Harbour Watershed – 0.48-acre • Santa Ana River Watershed – 0.18-acre • Newport Bay Watershed – 0.0-acre Temporary Other Waters: • San Gabriel River-Coyote Creek Watershed – 0.06-acre • Anaheim Bay-Huntington Harbour Watershed – 0.91-acre • Santa Ana River Watershed – 4.38 acres • Newport Bay Watershed – 0.0-acre	**BIO-2:** Prior to approval of the Final EIR/EIS, Caltrans/OCTA shall consult with the appropriate responsible resource agency (e.g., CDFG, USACE, and RWQCB) to verify delineation results, determine permanent losses and temporary impact areas, and identify compensatory mitigation, as applicable. Prior to undertaking ground-disturbing activities within or immediately adjacent to any aquatic resource areas, OCTA and/or their consultant shall obtain all obligatory discretionary permits/authorizations. **BIO-3:** Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around jurisdictional areas and designated as Environmentally Sensitive Areas (ESA) to be preserved. ESAs will extend from the end of the permitted area to the edge of the construction footprint (within existing and proposed ROW and also within any temporary construction easements) to preserve all other waters of the U.S./State that are not otherwise permitted in accordance with BIO-3.
Plant Species	No impact.	No impact.	No impact.	No impact.	No measures required.

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
Animal Species	No impact.	Permanent During construction, particularly vegetation clearing, some mortality of common animal species can be expected due to conflict with construction equipment. Temporary Raptors and other birds protected by the Migratory Bird Treaty Act (MBTA) may nest in existing trees and shrubs within and adjacent to the BSA. Direct temporary impacts to birds nesting within or adjacent to the BSA may occur if construction, particularly vegetation clearing, occurs during the nesting season. Indirect temporary impacts to nesting birds would include temporary indirect disturbance (e.g., noise, dust, night lighting, and human encroachment) from construction activities. Although no bats were observed within the BSA, there remains a potential for bats to occur within bridges, culverts, and other structures that could support roosting. Temporary impacts during construction (e.g., noise, dust, night lighting, and human encroachment) may occur. Construction could also temporarily impede access to roost sites (i.e., existing and future) in the crevices of bridges, culverts, and overhead structures.	Permanent During construction, particularly vegetation clearing, some mortality of common animal species can be expected due to conflict with construction equipment. Temporary Raptors and other birds protected by the MBTA may nest in existing trees and shrubs within and adjacent to the BSA. Direct temporary impacts to birds nesting within or adjacent to the BSA may occur if construction, particularly vegetation clearing, occurs during the nesting season. Indirect temporary impacts to nesting birds would include temporary indirect disturbance (e.g., noise, dust, night lighting, and human encroachment) from construction activities. Although no bats were observed within the BSA, there remains a potential for bats to occur within bridges, culverts, and other structures that could support roosting. 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Although no bats were observed within the BSA, there remains a potential for bats to occur within bridges, culverts, and other structures that could support roosting. Temporary impacts during construction (e.g., noise, dust, night lighting, and human encroachment) may occur. Construction could also temporarily impede access to roost sites (i.e., existing and future) in the crevices of bridges, culverts, and overhead structures.	**BIO-4:** To avoid impacts to nesting birds, any native vegetation removal or tree (i.e., native or exotic) trimming activities will occur outside of the nesting bird season (February 15 through August 31). If vegetation clearing is necessary during the nesting season, a qualified biologist will conduct a preconstruction survey to identify the locations of nests. Should nesting birds be found, an exclusionary buffer will be established by the biologist. This buffer shall be clearly marked in the field by construction personnel under guidance of the biologist, and construction or clearing will not be conducted within this zone until the biologist determines that the young have fledged or the nest is no longer active. **BIO-5:** To ensure that any owls that may occupy the site are not affected by construction activities, preconstruction burrowing owl surveys and potential owl relocation will be required prior to any phase of construction. These preconstruction surveys are also required to comply with the MBTA and the California Fish and Game Code. If any of the preconstruction surveys determine that the species is present, one or more of the following measures may be required: (1) avoidance of active nests and surrounding buffer area during construction activities; (2) passive relocation of individual owls; (3) active relocation of individual owls; and (4) preservation of onsite habitat with long-term conservation value for the owl. **BIO-6:** To avoid impacts to raptors, all new highway lighting adjacent to NAVWPNSTA Seal Beach shall not contain features that allow for raptor perches, as feasible. **BIO-7:** To avoid impacts to migratory birds at the Seal Beach National Wildlife Refuge, all new highway lighting adjacent to NAVWPNSTA Seal Beach shall be directed down towards the highway itself. **BIO-8:** A qualified bat biologist shall conduct a preconstruction bat habitat suitability assessment to determine if the construction area contains potential bat habitat within the project footprint or immediate surroundings, including roosting sites, foraging sites, and/or maternity colonies. The surveys shall include a combination of inspection, sampling, exit counts, and acoustic surveys. The survey shall be completed in June or at a time determined appropriate by a qualified bat biologist prior to construction, because maternity roosts are generally formed in late spring. If occupied or historic roosting sites, foraging sites, and/or maternity colonies are identified during the preconstruction bat habitat suitability assessment, construction activities shall not be initiated at the location until the bats have been excluded from the location, using CDFG-approved exclusion devices, and the qualified bat biologist certifies the location bat free. All exclusion activities will be coordinated with CDFG and completed under the supervision of a qualified bat biologist. Once installed, exclusion devices will be maintained throughout the duration of the construction activities or until construction at the

Table S-1: Project Impact Summary Table

Resource Impacts	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Avoidance, Minimization and/or Mitigation Measures
					location is deemed complete and bat use is again acceptable. If maternity sites are identified during the preconstruction bat habitat suitability assessment, no construction activities at the location containing the maternity roost will be allowed during the maternity season (April 1 through July 30), unless a qualified bat biologist has determined that young have been weaned. If present, and it is anticipated that construction activities cannot be completed outside of the maternity season, then bat exclusion at maternity roost sites shall be completed either as soon as allowed by the qualified bat biologist after the young have been weaned or outside of the maternity season, prior to initiating construction activities or as otherwise approved by the qualified bat biologist in coordination with CDFG..
Threatened and Endangered Species	No impact.	No impact.	No impact.	No impact.	No measures required.
Invasive Species	No impact.	Approximately 70 to 80 percent of vegetated lands within the BSA are dominated by invasive species, mostly consisting of annual grasses and forbs. A total of 45 exotic plants occurring on California Invasive Plant Council's (Cal- IPC's) California Invasive Plant Inventory were identified in the BSA. Of these species, there are 6 with an overall high rating, 23 with a moderate rating, and 16 with a limited rating.	Approximately 70 to 80 percent of vegetated lands within the BSA are dominated by invasive species, mostly consisting of annual grasses and forbs. A total of 45 exotic plants occurring on Cal- IPC's California Invasive Plant Inventory were identified in the BSA. Of these species, there are 6 with an overall high rating, 23 with a moderate rating, and 16 with a limited rating.	Approximately 70 to 80 percent of vegetated lands within the BSA are dominated by invasive species, mostly consisting of annual grasses and forbs. A total of 45 exotic plants occurring on Cal- IPC's California Invasive Plant Inventory were identified in the BSA. Of these species, there are 6 with an overall high rating, 23 with a moderate rating, and 16 with a limited rating.	**BIO-9:** In compliance with Executive Order (EO) 13112, weed control will be performed to minimize the importation of nonnative plant material during and after construction. Eradication strategies will be employed should an invasion occur. Measures addressing invasive species abatement and eradication will be included in the project design and contract specifications. These measures may include, but not be limited to: • All construction site BMPs from the SWPPP will be followed. • During construction, all construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and will be inspected to reduce the potential of spreading noxious weeds before mobilizing to arrive at the site and before leaving the site. This will be included in project provisions. • After construction, affected areas adjacent to native vegetation will be revegetated with plant species native to the southern California region approved by the Caltrans District Biologist. • After construction, all revegetated areas will be prohibited from the use of species listed in the Cal-IPC California Invasive Plant Inventory that have a high or moderate rating.
Cumulative Impacts	Continued and increasing congestion, travel times, and related air emissions.	Alternative 1, when considered with other cumulative projects as stated in Table 3.6-1 would contribute incrementally to cumulatively considerable impacts related to: • Community Character • Short-term Temporary Construction Impacts • Visual Character and Quality	Alternative 2, when considered with other cumulative projects as stated in Table 3.6-1 would contribute incrementally to cumulatively considerable impacts related to: • Community Character • Short-term Temporary Construction Impacts • Visual Character and Quality	Alternative 3, when considered with other cumulative projects as stated in Table 3.6-1 would contribute incrementally to cumulatively considerable impacts related to: • Community Character • Short-term Temporary Construction Impacts • Visual Character and Quality	Project specific measures described within this table would reduce and minimize potential cumulative impacts.

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S.6 Coordination with Public and Other Agencies

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and level of analysis required, and to identify potential impacts, mitigation measures, and related environmental requirements. Agency consultation and public participation for this project has been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, speakers bureau briefings, Policy Working Group meetings, Stakeholder Working Group meetings, meetings with corridor city staff, meetings with other organizations or groups as requested, interagency coordination meetings, public scoping meetings, and public announcements placed in local newspapers, the *Federal Register,* at the County Clerk's office, and in public libraries. Chapter 5 summarizes the results of the Department's efforts to fully identify, address, and resolve project-related issues through early and continuing coordination. Table 5-1 includes a summary of coordination activities conducted to date.

In compliance with SAFETEA-LU Section 6002, Caltrans undertook an extensive effort first to provide an opportunity for public and interagency involvement, followed by agency participation in the definition of the project's purpose and need. Caltrans utilized the SAFETEA-LU Section 6002 guidance to establish a plan to continue providing opportunities for public involvement, as well as closely working with participating and cooperating agencies.

Many means were used to announce the beginning of the environmental process and updates thereafter. Stakeholders in the Orange County area, as well as local, state, and federal agencies, were notified of the commencement of the environmental process for the project, invited to the four public scoping meetings, and given the opportunity to submit comments in a variety of formats.

Between February 2009 and January 2012, OCTA continued a robust public outreach effort. To date, 155 meetings have been held and fall within the general classifications provided below.

- Scoping Meetings – Formal Scoping Meeting, advertised for public input.
- Task Meetings
- Resource Agency Meetings – Meetings per the Section 6002 process to solicit input.
- City Council Meetings – Meetings to inform local decision makers about project. Input provided by members of the City Council.
- Policy Working Group – Regular meetings to inform OCTA and local decision makers about the project. Input provided by members of the group.

- Stakeholders Working Group – Regular meetings to inform local stakeholders, including business leaders and community members about the project. Input provided by members of the group.
- Stakeholder Meetings – Meetings held with interested groups that will be affected by the project, including NAVWPNSTA Seal Beach, businesses, and residential and community groups and individuals. Input was provided from these meeting regarding specific issues for the project.
- OCTA Board Meetings – Business matters and/or updates on the project at regularly scheduled OCTA Board and Committee meetings. Input provided by OCTA Board Members.
- OC Public Works and Local City Representatives – Meeting with County of Orange Public Works and affected local city staff members to receive input about project specific issues.
- PDT Meetings.
- Agency Coordination/Tech Workshops.

Native American and cultural resources coordination was also conducted as described in Chapter 5.

Unresolved Issues and Areas of Controversy

This section identifies the major unresolved issues or areas of controversy affecting all or some of the proposed alternatives.

1. Tolling: The toll component of the Express Lanes included in Alternative 3 has generated some controversy. Communities along the corridor expressed early concern with the Express Lanes if there were no intermediate access allowing motorists with origins and destinations along the corridor to utilize the Express Lanes. Intermediate access has been included in the proposed alternative. Controversy continues around the topic of tolling on an existing freeway.

   Under the Express Lanes in Alternative 3, tolls would be imposed on HOVs with only 2 occupants. Currently HOVs with only 2 occupants are permitted to utilize the existing HOV lanes. Information included in this Draft EIR/EIS explains that, under the current HOV occupancy requirement, the HOV lane volumes are exceeding the capacity of the HOV lanes in the corridor and throughout southern California as explained in the *California HOV/Express Lane Business Plan* (Department, March 31, 2009). The travel time advantage of the HOV lanes on I-405 within the project limits is anticipated to be completely lost by the time the proposed project is open to traffic, except along the northernmost 3 miles of the corridor. Under the preliminary operating policies for the Express Lanes, HOVs with 3 or

more occupants, zero emission vehicles, motorcycles, vehicles with disabled license plates, and disabled veterans would use the I-405 Express Lanes free of charge except during the most congested hours when such vehicles receive a 50 percent toll discount. The Express Lanes would be free to the following users at all times: transit vehicles, CHP vehicles, Caltrans vehicles, and emergency vehicles responding to an emergency. The preliminary operating polices for the Express Lanes proposed under Alternative 3 are discussed in further detail in Section 2.2, Project Alternatives.

2. Local City Concern: The City of Costa Mesa has expressed concern with the need for the Express Lanes included in Alternative 3 south of the Santa Ana River. The traffic analysis shows the need for additional capacity south of the Santa Ana River. The City has also expressed concern with the height of the direct connector between the proposed Express Lanes and the median of SR-73. Two design options were considered for the direct connector, a high option and a low option. The high option design would place the direct connector above the existing Fairview Road overcrossing bridge with the direct connector touching down and merging with the I-405 mainline north of the Fairview Road overcrossing. The high option design would retain the existing Fairview Road overcrossing of the I-405 mainline. The low option design would have the direct connector touching down and merging with the I-405 mainline south of the Fairview Road overcrossing and adding a travel lane in each direction to the I-405 beneath the Fairview Road overcrossing. The spans of the existing Fairview Road overcrossing are insufficiently long to accommodate the additional lanes that the low option would place beneath the overcrossing. Based on the concerns of the height and cost of the high option, it has been eliminated from consideration. Consequently, the Fairview Road overcrossing must be replaced to accommodate the additional travel lanes beneath it. A direct connector has been planned for this location to serve HOV lanes planned for SR-73.

   The southern terminus of the proposed project is at the interchange of SR-73. The additional lanes provided on I-405 would terminate either at locations north of the SR-73 interchange where lanes are currently dropped/added, thereby removing the lane drop/add, or at SR-73, depending upon the alternative. Additionally, SR-73 is a reasonable location to terminate the Express Lanes because it is tolled and SR-73 is a tolled facility approximately 3 miles south of I-405.

3. Funding: Full funding has not been identified for any of the proposed build alternatives and remains an unresolved issue. Alternative 3, with its tolled Express Lanes, was included in the project development process because it has revenue-generating potential and because it is provides a congestion management element not present in the other build alternatives.

Further financial planning to identify full funding for the alternative selected for construction will be required to prepare the Financial Plan required by the Federal Highway Administration (FHWA) prior to approval of the Final EIR/EIS.

Project Schedule

Table S-3 summarizes the general schedule for the project, subject to funding availability and obtaining all required approvals and permits.

Table S-3: Project Schedule

Milestone	Date
Circulation of Draft EIR/EIS	Summer 2012
Identify Preferred Alternative and the level of design detail	Fall 2012
Circulation of Final EIR/EIS	Winter 2013
Issue ROD	Spring 2014
Completion of anticipated permits, licenses, and approvals after ROD	Fall 2014
Anticipated begin construction	2015

Permits and Approvals Needed

The permits and/or approvals listed in Table S-4 are anticipated to be required for project construction. Caltrans will work closely with all the agencies, utility companies, municipalities, and/or local jurisdictions to maintain communication and coordination throughout the project development process and receipt of the various permits.

The proposed project is a "Major Project" as defined by FHWA because it would cost in excess of $500 million. Consequently, FHWA requires that a Project Management Plan and Financial Plan be prepared for the project. Additionally, the project is subject to federal Cost Estimate Reviews. A draft Project Management Plan must be submitted to FHWA prior to approval of the Final EIR/EIS. The Initial Financial Plan must be approved by FHWA prior to authorization of federal aid funds for construction, although it could be submitted for approval as early as issuance of the ROD. The Financial Plan must be updated annually thereafter over the life of the project. The first Cost Estimate Review is required prior to approval of the ROD and must be updated periodically.

Table S-4: Probable Permit Requirements and Approvals

Agency	Permit/Approval	Status
Federal Agency Permits/Approvals		
United States Army Corps of Engineers (USACE)	Section 404 Permit for filling or dredging waters of the United States	Application for Section 404 Permit anticipated after Final EIR/EIS distribution.
FHWA	Approval for Modified Access Report to the Interstate System	The Draft modified access report has been submitted to FHWA for review and comment. Upon approval FHWA will issue a "Letter of Acceptability."
	Tolling Authority (Alternative 3 only)	If Alternative 3 is selected as the preferred alternative, FHWA approval required to operate a toll facility on the Interstate Highway System. An Expression of Interest was submitted to FHWA on July 20, 2010.
	Project-Level Air Quality Conformity Finding	FHWA concurrence prior to approval of Final EIS and Record of Decision.
	Draft Project Management Plan, Draft Initial Financial Plan, and first Cost Estimate Review	Will be submitted to FHWA prior to approval of the Final EIS to meet FHWA Major Project requirements.
U.S. Navy	Encroachment Permit for relocation of gas lines	Permit will be obtained prior to start of construction.
State Agency Permits/Approvals		
California State Legislature	Design-Build P3 Authority (Alternative 3 only)	Legislative approval from the California State Legislature to utilize Design-Build prior to selection of Alternative 3 as the preferred alternative. Legislation will be sought after Draft EIR/EIS has been circulated.
	Authority to Operate Toll Facility (Alternative 3 Only)	Legislative Approval to operate the toll facility. Legislation will be sought after Draft EIR/EIS has been circulated and after an alternative has been selected.
California Department of Fish and Game (CDFG)	Section 1602 Streambed Alteration Agreement	Application for Section 1602 agreement anticipated after Final EIR/EIS distribution.
Regional Water Quality Control Board (RWQCB), Region 8 (Santa Ana)	Section 401 Water Quality Certification	Application for Section 401 certification anticipated after Final EIR/EIS distribution.

Table S-4: Probable Permit Requirements and Approvals

Agency	Permit/Approval	Status
State Water Resources Control Board (SWRCB)	Construction General Stormwater and Caltrans' Statewide National Pollutant Discharge Elimination System (NPDES) Permits	Project design plans will comply with RWQCB General Orders No. 2009-0009-DWQ (NPDES Permit No. CAS000002) and 99-06-DWQ (NPDES Permit No. CAS000003).
California Public Utilities Commission (CPUC)	Compliance with CPUC General Order 131-D regarding relocation electrical lines 50 kV or greater	Prior to relocation of electrical lines 50 kV or greater, approval must be obtained from CPUC.
	Approval of the project, based on review of the Railroad Construction and Maintenance Agreement	Must be completed prior to construction within or above railroad ROW.
Union Pacific Railroad (UPRR)	Memorandum of Understanding and Construction and Maintenance Agreement with the Railroad	Must be completed prior to construction within or above railroad ROW.
County Agency Permits/Approvals		
Orange County Flood Control District (OCFCD)	Encroachment Permit	Letter or permit will be obtained during final design or construction within OCFCD property.
Orange County Health Care Agency	Well permit for wells and test borings	Letter or permit will be obtained prior to construction.
OCTA	Maintenance, Operations, and Law Enforcement Agreements (Alternative 3 only)	Maintenance, toll operations, and law enforcement agreements between OCTA, the toll operator, CHP and Caltrans will be required if Alternative 3 is selected as the preferred alternative. These will be obtained prior to begin of operation.
Utility Company/County and Municipal Service Provider Permits/Approvals		
SCE, California Gas Company, Chevron, Paramount Petroleum, Plains All-American Pipeline, and Verizon Communications, XO Communications, Time Warner Cable, AT&T, Qwest Communications, and MCI World Com/ Sprint, City of Seal Beach, City of Westminster, City of Long Beach Gas and Oil, Orange County Water District (OCWD), Mesa Consolidated Water District	Approval to relocate, protect in place, or remove utility facilities	Prior to any construction within utility conflict areas.

Table S-4: Probable Permit Requirements and Approvals

Agency	Permit/Approval	Status
Local Jurisdiction Permits/Approvals		
Cities of Costa Mesa, Fountain Valley, Huntington Beach, Westminster, Garden Grove, Seal Beach, and the community of Rossmoor	Freeway Agreements	Agreements will be concluded with each of the cities in which project construction will take place.
	Section 4(f) *De Minimis* Impact Finding	Concurrence on "*De Minimis* Finding" to Section 4(f) resources (parks) prior to alternative being selected
	Encroachment Permits for any encroachments into public ROW owned by these jurisdictions	Will be obtained prior to any encroachment.

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