Interstate 10 Corridor Project

SAN BERNARDINO AND LOS ANGELES COUNTIES, CALIFORNIA
DISTRICT 7 – LA – 10 (PM 44.9/48.3)
DISTRICT 8 – SBD – 10 (PM 0.0/R37.0)
EA 0C2500 / PN 0800000040

Draft Environmental Impact Report/ Environmental Impact Statement

Prepared by the
State of California Department of Transportation
and San Bernardino Associated Governments

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

April 2016

General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this 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 San Bernardino and Los Angeles counties, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). 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 and the related technical studies are available for review at Caltrans District 8, 464 West 4th Street, San Bernardino, CA 92401, and at San Bernardino Association of Governments (SANBAG), 1170 West 3rd Street, San Bernardino, CA 92410. Copies of the document will also be available at the following public libraries: A.K. Smiley Public Library, 125 West Vine Street, Redlands, CA 92373; Loma Linda Branch Library, 25581 Barton Road, Loma Linda, CA 92354-3125; Norman F. Feldheym Central Library, 555 West 6th Street, San Bernardino, CA 92410; Colton Public Library, 656 North 9th Street, Colton, CA 92324; Rialto Branch Library, 251 West 1st Street, Rialto, CA 92376; Fontana Lewis Library & Technology Center, 8437 Sierra Avenue, Fontana, CA 92335-3892; Paul A. Biane Library, 12505 Cultural Center Drive, Rancho Cucamonga, CA 91739; Upland Public Library, 450 North Euclid Avenue, Upland, CA 91786; Ovitt Family Community Library, 215 East "C" Street, Ontario, CA 91764-4111; and Montclair Branch Library, 9955 Fremont Avenue, Montclair, CA 91763.
- This document may be downloaded at the following Web sites:
  - http://www.sanbag.ca.gov/projects/mi_fwy_I-10-corridor.html
  - http://www.dot.ca.gov/d8/index.html.

- Attend the public hearing.
  - May 17, 2016 (4:30 p.m. to 7:30 p.m.)
    Doubletree Hotel
    285 East Hospitality Lane
    San Bernardino, CA 92408
  - May 18, 2016 (4:30 p.m. to 7:30 p.m.)
    Bloomington Senior Center
    18313 Valley Boulevard
    Bloomington, CA 92316
  - May 19, 2016 (4:30 p.m. to 7:30 p.m.)
    Ontario Airport Hotel
    700 North Haven Avenue
    Ontario, CA 91764
- We'd like to hear what you think. If you have any comments regarding the proposed project, please attend the public hearing and/or send your written comments to Caltrans by June 8, 2016.
- Submit comments via postal mail to:
  Aaron Burton, Branch Chief
  Caltrans District 8, "Attn: I-10 CP Draft EIR/EIS Comment Period"
  464 W. 4th Street, San Bernardino, CA 92401
- Submit comments via e-mail to i10corridorproject@dot.ca.gov.
- Be sure to submit comments by the deadline: June 8, 2016.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by 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 obtained, Caltrans 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 Aaron Burton, Branch Chief Caltrans District 8, 464 West 4th Street, San Bernardino, CA 92401; SANBAG (909) 884-8276 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

SCH# 2012101082
7–LA–10 PM 44.9/48.3
8–SBD–10 PM 0.0/R37.0
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Interstate 10 Corridor Project

DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to: (State) Division 13, Public Resources Code
(Federal) 42 U.S.C. 4332(2)(C) and 49 U.S.C. 303

THE STATE OF CALIFORNIA
Department of Transportation

COOPERATING AGENCIES
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency

RESPONSIBLE AGENCIES
San Bernardino Associated Governments
California Department of Fish and Wildlife
California Regional Water Quality Control Board
California Transportation Commission

4/15/16
Date of Approval

David Bricker
Deputy District Director, District 8
Division of Environmental Planning
California Department of Transportation
NEPA and CEQA Lead Agency

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

Aaron Burton
Environmental Chief
California Department of Transportation

464 W. 4th Street
San Bernardino, CA 92401
909-884-8276

Abstract: The Interstate 10 (I-10) Corridor Project proposes to widen the corridor by extending the existing high-occupancy vehicle (HOV) lane in each direction of I-10 from the current HOV terminus near Haven Avenue in the city of Ontario to Ford Street in the city of Redlands; or providing two Express Lanes in each direction of I-10 from the Los Angeles/San Bernardino (LA/SB) county line to California Street (near State Route [SR] 210) in Redlands and one Express Lane in each direction from California Street to Ford Street in Redlands. The Express Lanes would be priced managed lanes in which vehicles not meeting the minimum occupancy requirement would pay a toll. West of Haven Avenue, a single new lane would be constructed and combined with the existing HOV lane to provide two Express Lanes in each direction; east of Haven Avenue, all Express Lanes would be constructed by the project. Potential benefits include maintaining or improving future traffic operations in the I-10 corridor and improving the efficient movement of people and goods. Effects from the proposed project include potential 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 Aaron Burton at the above address by June 8, 2016.

Summary

S-1 Joint CEQA/NEPA Document

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), and is subject to State and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA. The San Bernardino Associated Governments (SANBAG) is the project proponent, and Caltrans is the lead agency under CEQA. In addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (U.S.C.) 327.

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, quite often a "lower level" document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

After receiving comments from the public and reviewing agencies, a Final EIR/EIS will be prepared. SANBAG and Caltrans may prepare additional environmental and/or engineering studies to address comments. The Final EIR/EIS will include responses to comments received on this Draft EIR/EIS and will identify the preferred alternative. After the Final EIR/EIS is circulated, if SANBAG and Caltrans decide to approve the project, a Notice of Determination (NOD) will be published for compliance with CEQA, and a Record of Decision (ROD) will be published for compliance with NEPA.

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 Interstate 10 Corridor Project (I-10 CP) is to improve traffic operations on Interstate 10 (I-10) in San Bernardino County to reduce congestion, increase throughput, enhance trip reliability, and accommodate long-term congestion management of the corridor for the planning design year of 2045.

In furtherance of the project's purpose, the objectives of the project are to:

- Reduce volume-to-capacity (v/c) ratios along the corridor;
- Improve travel times within the corridor;
- Relieve congestion and improve traffic flow on the regional transportation system;
- Address increased travel associated with existing and planned development;
- Provide a facility that is compatible with transit and other modal options;
- Provide consistency with the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP), where feasible and in compliance with federal and State regulations;
- Provide a cost-effective project solution;
- Minimize environmental impacts and right-of-way (ROW) acquisition; and
- Promote sustainable travel and livability for the corridor.

Need for the Project

I-10 is a critical link in the State transportation network and is used by interstate travelers, local commuters, and regional and inter-regional trucks. The efficient movement of people through San Bernardino County is limited by the existing capacity of the transportation networks.

Existing deficiencies of I-10 include:

- General purpose (GP) lanes peak-period traffic demand currently exceeds capacity; and
- I-10 high-occupancy vehicle (HOV) lanes operation is degraded during peak periods.

Forecasted deficiencies of I-10 include:

- Local and regional traffic demand is expected to increase due to population growth;
- Increase in delays;

- Increase in accidents;
- Regional/local circulation will worsen as additional traffic avoids congestion on the facility;
- Interchange/junction traffic service will worsen as additional traffic attempts to enter and exit the facility;
- Bus/multimodal travel time will increase due to congestion and become unreliable; and
- I-10 HOV will continue to degrade as speed decreases on the facility due to the increase in traffic volumes.

As described in further detail below, Alternatives 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 Proposed Action

Caltrans, in cooperation with SANBAG, proposes to improve I-10 by constructing additional lane(s) and other improvements through all or a portion of the 33-mile-long segment of I-10 from the Los Angeles/San Bernardino (LA/SB) county line to Ford Street in San Bernardino County. The project limits, including transition areas, extend from approximately 0.4 mile west of White Avenue in the city of Pomona at LA PM 44.9 to Live Oak Canyon Road in the city of Yucaipa at SBd PM 37.0. Please refer to Figures 1-1 and 1-2 of this Draft EIR/EIS for project location and vicinity maps. The I-10 CP consists of a No Build Alternative (Alternative 1) and two build alternatives (Alternatives 2 and 3). Implementation of the build alternatives associated with the I-10 CP would reduce traffic congestion, increase throughput, and enhance trip reliability for the planning design year of 2045. The project is currently expected to be open to traffic in year 2025.

Alternative 2 – One High-Occupancy Vehicle Lane in Each Direction

Alternative 2 would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands, a distance of approximately 25 miles from SBd PM 4.7 to SBd PM 37.0. Preliminary cost estimates for this alternative are $567 million (approximately $659 million in future dollars), including $446 million in construction, $14 million in ROW and utility relocation, and $100 million in support costs.

In addition to the mainline widening, the project includes reconstruction and/or modification of interchange ramps, local arterials, and structures that are necessary to accommodate the proposed freeway widening, including new or reconstruction of retaining walls and soundwalls where appropriate. Existing concrete barriers, temporary railings, metal beam guardrails, and thrie-beam barriers in the median of Alternative 2 improvements extend through 3 system interchanges (I-10/Interstate 15 [I-15] interchange, I-10/Interstate 215 [I-215] interchange, and I-10/State Route [SR] 210 interchange), in addition to 21 local street interchanges from Haven Avenue to Ford Street.

The proposed improvements under Alternative 2 would involve construction work within the following routes and post miles:

- 08-SBd-10 PM 4.7/R37.0
- 08-SBd-15 PM 0.7/4.0
- 08-SBd-38 PM 0.0/0.3
- 08-SBd-210 PM R33.0/R31.5
- 08-SBd-215 PM 2.1/5.7 9

Alternative 2 Mainline Improvements

- Add one HOV lane in each direction from Haven Avenue to Ford Street.
- Re-establish existing auxiliary lanes along the corridor.
- Construct new westbound (WB) auxiliary lane between Rancho Avenue and La Cadena Drive.

Alternative 2 Connector and Interchange Ramp Improvements

Alternative 2 would require reconstruction of several connector and interchange ramps due to the I-10 widening. Table 2-1 of the EIR/EIS summarizes the proposed connector and interchange ramp improvements along the project corridor.

Alternative 2 Local Street Improvements

Richardson Street, as a local street, and Tennessee Street, as a connector street, are two arterials crossing over I-10 that would need to be replaced with a longer-span structure to accommodate the widened freeway under Alternative 2.

Alternative 2 Structure Improvements

Alternative 2 would necessitate replacement of 3 structures and modification of 44 structures along the corridor.

Alternative 2 Railroad Involvement

Four railroad crossings over or under I-10 require bridgework to construct the proposed freeway widening:

1. Union Pacific Railroad (UPRR) Kaiser Spur Overhead (OH) (widen)
2. Burlington Northern Santa Fe (BNSF) Colton Crossing OH (widen)
3. Pavilion Spur OH (widen or abandon)
4. BNSF West Redlands OH (widen)

Alternative 2 Drainage Improvements

Several drainage structures along the project corridor would be improved as part of the proposed project, including 12 that cross I-10 and 1 that parallels I-10.

Pedestrian and Bicycle Facilities

Existing sidewalks within the project limits would be maintained. Alternative 2 requires reconstruction of Richardson Street and Tennessee Street. The sidewalks on those streets would be replaced in kind. Pedestrian facilities on arterials being improved would meet current Americans with Disabilities Act (ADA) standards.

Existing bike lanes and trails within the project limits would be maintained. In addition, new bike lanes (Class II or III) would be incorporated in the design of the proposed arterial improvements at Tennessee Street.

Transit Operator Planning

Omnitrans express routes would be able to use approximately 24 miles of the HOV lanes on I-10. The I-10 CP would add bus stops at the Sierra Avenue interchange and incorporate associated intersection, pedestrian access, and traffic signal improvements to accommodate the Omnitrans express bus services.

Alternative 3 – Two Express Lanes in Each Direction

SANBAG identified Alternative 3 as the Locally Preferred Alternative (LPA), as discussed in Chapter 2, Project Alternatives.

Alternative 3 would provide two Express Lanes in each direction of I-10 from the LA/SB county line to California Street in Redlands and one Express Lane in each direction from California Street to Ford Street in Redlands, a total of 33 miles. West of Haven Avenue, a single new lane would be constructed and combined with the existing HOV lane to provide two Express Lanes in each direction; east of Haven Avenue, all Express Lanes would be constructed by the project.

The Express Lanes would be price-managed lanes, otherwise known as high-occupancy Express Lanes, in which vehicles not meeting the minimum occupancy requirement would need to pay a toll. This is done to encourage ride-sharing along the freeway. Preliminary cost estimates for this alternative are $1.489 billion (approximately $1.726 billion in future dollars), including $1.176 billion in construction, $82 million in ROW and utility relocation, and $220 million in support costs. The term Express Lanes refers to managed lanes, which would operate as high-occupancy toll (HOT) lanes, free for motorcycle/bus/emergency vehicles/some HOVs. The lanes would be managed to optimize free-flow conditions, so that a journey through the corridor would be possible as free-flow, even when congestion on I-10 is severe with gridlock.

Alternative 3 project limits pass through 3 system interchanges (I-10/I-15 interchange, I-10/I-215 interchange, and I-10/SR-210 interchange) and 29 local street interchanges, including 1 interchange (Indian Hill Boulevard) in Los Angeles County. Alternative 3 would require reconstruction of several freeway-to-freeway connectors and interchange ramps to accommodate the I-10 widening.

Alternative 3 Mainline Improvements

- Add one Express Lane in each direction from the LA/SB county line to Haven Avenue to operate jointly with existing HOV lanes as two Express Lanes in each direction
- Add two Express Lanes in each direction from Haven Avenue to California Street
- Add one Express Lane in each direction from California Street to Ford Street
- Provide 10 at-grade access points, 9 with an additional weave lane and 1 as a weave zone
- Provide California Highway Patrol (CHP) enforcement/observation areas in the median at selected locations along the corridor
- Re-establish existing auxiliary lanes along the corridor
- Construct new eastbound (EB) auxiliary lane between Mountain Avenue and Euclid Avenue
- Modify existing WB auxiliary lane at Haven Avenue WB on-ramp to begin at Haven Avenue WB loop on-ramp
- Modify existing EB auxiliary lane at Haven Avenue EB on-ramp to begin at Haven Avenue EB loop on-ramp
- Extend WB auxiliary lane preceding the Riverside Avenue off-ramp to Pepper Avenue

- Construct new WB auxiliary lane between Rancho Avenue and La Cadena Drive

The proposed improvements under Alternative 3 would involve construction work within the following routes and post miles:

- 07-LA-10 PM 44.9/48.3
- 08-SBd-10 PM 0.0/R37.0
- 08-SBd-15 PM 0.7/4.0
- 08-SBd-38 PM 0.0/0.3
- 08-SBd-83 PM 10.7/11.5
- 08-SBd-210 PM R33.0/R31.5
- 08-SBd-215 PM 2.1/5.7

To accommodate two Express Lanes, the project includes reconstruction and/or modification of existing interchange ramps, local arterials, and structures, including new or reconstruction of retaining walls and soundwalls. Existing concrete barrier, temporary railings, metal beam guardrails, and thrie-beam barriers in the median of I-10 would be replaced with Type 60G concrete barriers, and median lighting at intermediate access points would be provided. Existing auxiliary lanes would be re-established in kind and additional ones added where warranted. CHP enforcement areas would be provided on I-10 at selected locations, including on-ramps and medians.

Ingress/Egress Access Points

Proposed entry and exit points for the toll lanes will be provided by 10 at-grade ingress/egress (I/E) access points in each direction along the project corridor, including 9 additional weave lanes.

- Mountain Avenue, Upland
- 6th Street, Ontario
- Haven Avenue, Ontario
- Etiwanda Avenue, Fontana
- Citrus Avenue, Fontana
- Cedar Avenue, Bloomington
- Pepper Avenue, Colton
- Tippecanoe Avenue, San Bernardino
- California Street (transition from 2 to 1 Express Lane)
- Orange Street (weave zone)

Except for the California Street I/E and Orange Street I/E, all other access points are proposed with an additional weave or speed change lane provided between the No. 1 GP lane and the No. 2 Express Lane.

At the California Street I/E, a separate I/E is provided in the EB direction. At the egress location, the No. 1 EB Express Lane continues while the No. 2 Express Lane becomes a GP lane. A separate ingress opening is provided downstream. In the WB direction, the No. 2 Express Lane is opened up just upstream of the California Street I/E and is anticipated to operate as a weave lane.

The Orange Street I/E is proposed as a weave zone in both directions without a weave lane between the No. 1 GP lane and the No. 2 Express Lane. It would operate similarly to existing HOV lane I/E locations. A weave zone is a portion of the freeway where a single lane is used by vehicles slowing down to exit while other vehicles are using the same lane to increase speed while entering the highway.

Alternative 3 Connector and Interchange Ramp Improvements

Alternative 3 would require reconstruction of several freeway-to-freeway connector ramps and interchange ramps to accommodate the two Express Lanes. Table 2-6 of the EIR/EIS provides a summary of connector and interchange improvements that are required in Alternative 3.

Alternative 3 Local Street Improvements

Nine arterial streets crossing under or over I-10 would be reconstructed by widening and lengthening to accommodate the I-10 improvements, as listed below:

1. Monte Vista Avenue
2. San Antonio Avenue
3. Euclid Avenue
4. Sultana Avenue
5. Campus Avenue
6. 6th Street
7. Vineyard Avenue
8. Richardson Street
9. Tennessee Street

Two arterials that parallel I-10 would be modified as part of the proposed project improvements:

1. Palo Verde Street between Mills Avenue and Monte Vista Avenue
2. J Street between 3rd Street and Pennsylvania Avenue (near Rancho Avenue and Colton OH)

Alternative 3 Railroad Involvement

Five railroad crossings over or under I-10 would require bridgework to construct the proposed freeway widening:

1. UPRR Kaiser Spur OH (widen)
2. UPRR Slover Mountain UP (replace)
3. BNSF Colton Crossing OH (widen)
4. UPRR Pavillion Spur OH (widen or abandon)
5. BNSF West Redlands OH (widen)

Alternative 3 Structure Improvements

Alternative 3 would necessitate replacement of 12 structures and modification of 59 structures.

Alternative 3 Drainage Improvements

Several drainage structures along the project corridor would be improved as part of the proposed project, including 17 that cross I-10 and 2 that parallel I-10.

Transportation System Management/Transportation Demand Management Alternative

A TSM/TDM Alternative was analyzed for the I-10 corridor. This alternative did not meet the project purpose and is further described in Section 2.2.5, Alternatives Considered but Eliminated from Further Discussion. 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. Although this alternative would provide minimal enhancement of operations, it would not maximize throughput or provide trip reliability for the corridor.

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 2.2.1.1, Common Design Features of the Build Alternatives.

No Build Alternative

The No Build Alternative would not provide any improvements to the I-10 corridor within the project limits. No additional lanes or interchange improvements would be provided, except by other planned projects identified in the growth/cumulative impacts section of this environmental document. The No Build Alternative configuration is not expected to accommodate future traffic demand, improve speed or travel times, or relieve congestion. Congestion along the corridor would continue and is expected to deteriorate by 2045.

Direct effects of the No Build Alternative would include continued deterioration of VMT, level of service (LOS), and congestion of freeway and local interchange operations. Indirect and cumulative effects of the No Build Alternative are projected to increase effects on the communities related to increased commute times and traffic diversion through adjacent neighborhoods. Additionally, the No Build Alternative could increase the amount of time the corridor cities and users/travelers have to

endure construction-related effects, as corridor needs would need to be addressed to accommodate future traffic demand through many smaller projects completed over an extended period of time. Figure 2-5 displays the current I-10 lane configurations associated with the No Build Alternative.

The No Build Alternative is not considered a viable project alternative because it would not achieve the project's purpose. The No Build Alternative would not meet the following aspects of the project's purpose:

- Reduce congestion;
- Increase throughput;
- Enhance trip reliability for the planning design year of 2045; or
- Accommodate long-term congestion management of the corridor.

Construction

Construction of the proposed project is planned to commence in 2019 and is anticipated to be open for use by 2024. For Alternative 2, the project is anticipated to be implemented using the design-bid-build delivery process and constructed over a period of 42 months (3.5 years) under one construction contract. Due to the scale of Alternative 3 and the need to minimize impacts and maintain traffic during construction, the proposed improvements are envisioned to be constructed in two construction stages from west to east with some overlap. Although there is overlap in the construction of two contracts, the overall construction period within the overlap area will be less than 12 months. Alternative 3 is anticipated to utilize a design-build delivery process. Alternative 3 is anticipated to be constructed in two project contracts over a period of 60 months (5 years) with Contract 1 covering the proposed improvements from the LA/SB county line to I-15 and Contract 2 covering the improvements from I-15 to Ford Street. Construction would intermittently move along the length of the alignment, and it is not anticipated that construction activity would occur in one location for more than 5 years. Construction activities would not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 *Code of Federal Regulations* [CFR] 93.123(c)(5)).

Construction of interchange improvements, consisting of freeway ramp reconstruction, local arterial improvements, and overcrossing structure replacement, is envisioned to be staggered throughout the corridor to minimize impacting two consecutive interchanges or closing two consecutive on- or off-ramps at the same

time. If feasible, arterials and overcrossing improvements that would add capacity over the existing condition would be constructed in the earlier stages in an attempt to ease traffic congestion during subsequent construction stages.

Construction staging area (CSA) locations will be finalized during the plans, specifications, and estimates (PS&E) phase, but they are anticipated to generally be located within the existing ROW at interchange locations. The PS&E phase of the project involves the transition of the project from concept through design and includes performing topographic, geotechnical, and hydraulic field reconnaissance and analysis.

Additionally, no material borrow sites have been identified for this project. 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 2015 Caltrans Standard Special Specifications 19-7.

Construction operation would necessitate the closures of various facilities, such as the I-10 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 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	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
Project Cost	Not Applicable.	$567 million (approximately $659 million in future dollars).	$1.491 billion (approximately $1.729 billion in future dollars).	Not applicable.
Construction Duration	Not Applicable.	42 months.	60 months.	Not applicable.
Land Use	Inconsistent with regional and local planning goals and policies.	**Existing and Future Land Use** Permanent conversion, through partial acquisition, of approximately 0.33 acre 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 122 parcels to accommodate construction of the project. **Consistency with State, Regional, and Local Plans and Programs** Consistent with the goals, objectives, and policies of all surrounding communities' General Plans. Alternative 2 is consistent with the 2012 Regional Transportation Plan (RTP) and 2013 Federal Transportation Improvement Program (FTIP). **Parks and Recreational Facilities** ***Santa Ana River Trail*** Direct Use: None Temporary Use: Yes (temporary overnight closures of the trail would be required to widen the I-10 mainline bridge) Constructive Use: None ***Orange Blossom Trail*** Direct Use: None Temporary Use: Yes (1.12 miles of the trail would be affected by temporary closures and detours, which would be required to widen the I-10 mainline bridge) Constructive Use: None	**Existing and Future Land Use** Permanent conversion, through partial and full acquisition, of approximately 21.03 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 433 parcels to accommodate construction of the project. **Consistency with State, Regional, and Local Plans and Programs** Consistent with the goals, objectives, and policies of all surrounding communities' General Plans. Alternative 3 is consistent with the 2012 RTP and 2013 FTIP. **Parks and Recreational Facilities** ***MacArthur Park*** Direct Use: Yes (0.14-acre permanent acquisition, 0.04-acre footing easement) Temporary Use: Yes (0.16-acre temporary construction easement [TCE]) Constructive Use: None ***Edison Elementary School*** Direct Use: None Temporary Use: Yes (0.08-acre TCE) Constructive Use: None ***Santa Ana River Trail*** Direct Use: None Temporary Use: Yes (temporary overnight closures of the trail would be required to widen the I-10 mainline bridge) Constructive Use: None ***Orange Blossom Trail*** Direct Use: None Temporary Use: Yes (1.12 miles of the trail would be affected by temporary closures and detours, which would be required to widen the I-10 mainline bridge) Constructive Use: None	**LU-1:** San Bernardino Associated Governments (SANBAG) shall request the County of San Bernardino and the City of Montclair 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:** Return any landscaping temporarily disturbed or removed during construction to pre-project or better conditions. **LU-3:** Access and circulation for recreational users will be maintained at impacted locations identified in Section 3.1.1 and the Section 4(f) Technical Study. Detours for any temporary closures of the recreational facilities identified will be implemented. Post informational and detour signage in advance to inform users of any temporary closures and detour routes. **LU-4:** The trail closures would occur at night after sunset to avoid all impacts to users of the Santa Ana River Trail. Given that the Santa Ana River Trail is only open from sunrise to sunset, work outside of these hours would not require closure or detour of the trail. **LU-5:** The Right-of-Way Agent and Project manager will coordinate with the City of Montclair to provide the compensation required under the Park Preservation Act.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
Growth	The No Build Alternative is not consistent with the regional mobility goals in the study area; however, it is not anticipated to influence growth within the study area.	No impact.	No impact.	No measures required.
Farmlands/ Timberlands	No impact.	No impact.	8 farmland parcels would result in partial acquisition, footing easements, or temporary impacts.	**FARM-1:** Environmentally sensitive area (ESA) fencing will be installed at the limits of construction for all temporarily and permanently impacted farmlands prior to initiating work within or adjacent to these sites. No construction will occur within these ESAs. All construction equipment will be operated in a manner so as to prevent accidental damage to nearby ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within the ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of fill material in areas where vegetation is adjacent to planned grading activities. **FARM-2:** All existing citrus trees within the proposed partial acquisition and TCE at Assessor's Parcel Number (APN) 029-206-402 will be protected in place. **FARM-3:** All farmlands temporarily impacted by the project will be restored to pre-project conditions. **FARM-4:** Access to all temporarily and permanently impacted farmlands will be maintained during construction and operation.
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** Construction of Alternative 2 would not displace residents or businesses. **Relocations** Under Alternative 2, six partial acquisitions would be required, totaling 0.33 acres. In addition, permanent underground footing easements would be needed at four parcels, totaling 0.14 acre. No residential or nonresidential properties would be displaced. **Environmental Justice** Environmental justice populations exist within the study area, particularly in the western portion, while the eastern portion has a more affluent population consisting of fewer minorities. Both build alternatives would benefit most study area residents, including minority and low-income populations, by improving mobility and circulation throughout the study area. Alternative 2 would not cause disproportionately high and adverse effects on minority or low-income populations within the context and intent of Executive Order (EO) 12898.	**Community Character and Cohesion** Construction of Alternative 3 would displace 42 residential units (109 displacees) and 12 nonresidential properties, and it would result in physical changes that could permanently alter the character of the existing community. **Relocations** Under Alternative 3, 150 partial acquisitions would be required, totaling 9.82 acres. In addition, permanent underground footing easements would be needed at 134 parcels, totaling 4.39 acres. A total of 42 residential units (109 displacees) in the cities of Montclair, Ontario, and Fontana would be acquired to construct Alternative 3, including 23 single-family residences and 19 units in multi-family residences. Based on preliminary engineering, displacement of 12 businesses that are currently used for nonresidential purposes would be required to construct Alternative 3; although, the utility-related structure would be displaced to a different location on its existing parcel. These nonresidential displacements would occur in the cities of Montclair, Fontana, Rialto, and Colton. **Environmental Justice** Environmental justice populations exist within the study area, particularly in the western portion, including the cities of Pomona, Montclair, Ontario, Fontana, Bloomington, Rialto, Colton, and San Bernardino, while the	**Community Impacts** **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 (2015). **COM-3:** To keep residents, businesses, community services, and service providers within the affected area informed about the proposed project construction schedule and traffic-impacted areas, provide motorist information (i.e., existing changeable message signs [CMSs], portable CMSs, stationary ground-mounted signs, traffic radio announcements, and the Caltrans Highway Information Network [CHIN]). **COM-4:** 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 to maintain the number of lanes needed, allowing night work and extended weekend work, maintaining business access, and maintaining pedestrian and bicycle access) will be incorporated into project design to keep residents, businesses, community services, and service providers within the affected area informed about the proposed project construction schedule and traffic-impacted areas. **COM-5:** Implementation of alternate and detour routes strategies; street/intersection improvements (e.g., widening, pavement rehabilitation, removal of median) 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; 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-6:** 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. **Utilities** **COM-7:** Close coordination with utility service providers and the implementation of a public outreach program will be conducted to minimize impacts to surrounding communities. **Circulation and Access** **COM-8:** Caltrans shall implement a Transportation Management Plan (TMP) throughout the duration of the construction activities. The TMP would minimize project-related construction disruptions by including traffic strategies designed in coordination with local jurisdictions.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
			eastern portion has a more affluent population consisting of fewer minorities. Both build alternatives would benefit most study area residents, including minority and low-income populations, by improving mobility and circulation throughout the study area. Alternative 3 would not cause disproportionately high and adverse effects on minority or low-income populations within the context and intent of EO 12898.	**COM-9:** Close coordination with railroad owners and operators will be conducted during the PS&E and construction phases to minimize impacts to railroad operations. **COM-10:** During design and construction, the Project Manager, Resident Engineer, and Contractor 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 right-of-way (ROW) acquisition process. **COM-11:** Maintain a robust public outreach program to minimize objections to the unavoidable construction impacts. SANBAG will implement a community information plan to maintain good 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 notifications, and electronic messaging on the freeway. **COM-12:** Design all pedestrian facilities to meet or exceed requirements of the Americans with Disabilities Act (ADA) and current safety standards. Access to the pedestrian and bicycle facilities shall be maintained to the extent practicable during the construction period. **COM-13:** Coordinate with Metrolink, Foothill Transit, Omnitrans, and other affected transit providers to request and comply with applicable procedures for any required temporary bus stop relocations or other disruptions to transit service during construction. **Relocations** **COM-14:** 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 (USDOT) (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. **Environmental Justice** **COM-15:** Create a Low-Income Equity Program, which will include policies to enable low-income households to utilize the proposed project improvements, such as waiving account maintenance fees or allowing the use of cash to open and replenish toll accounts and/or implementing video license plate recognition as an alternative to toll-collection technology. Account maintenance fees often apply to toll road or Express Lane transponders that do not incur a minimum amount in tolls in a stated period of time. Waiving these fees would allow low-income and minority communities to utilize the Express Lanes without being required to spend a minimum amount per month. This, in addition to allowing the use of cash to open and replenish toll accounts and/or implementing video license plate recognition, would make the Express Lanes more accessible and equitable for these communities. **COM-16:** To minimize impacts to surrounding low-income or minority communities, continue to conduct outreach activities targeted to low-income residents during the planning, design, and implementation process for these corridors, regardless of which alternative is chosen. Community outreach will include providing timely information about anticipated construction activities to affected citizens and adjacent property owners. Notification methods could include, but are not limited to, Web site, fliers, mailers, e-mail notifications, and electronic messaging on the freeway.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
Utilities/ Emergency Services	No impact.	Approximately 69 utilities have the potential to be affected by the proposed improvements.	Approximately 159 utilities have the potential to be affected by the proposed improvements. The Monte Vista Pump House would be removed from its existing location, but it would be relocated on the same parcel.	**UT-1:** During PS&E, the Project Engineer will prepare utility relocation plans in consultation with the affected utility providers/owners for those utility facilities that will need to be relocated, removed, or protected in-place. If relocation is necessary, the final design will focus on relocating utilities within the State ROW or other existing public ROWs and/or easements. If relocation outside of existing or the additional public ROWs and/or easements required for the project is necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. **UT-2:** Protection of Metropolitan Water District (MWD) Upper Feeder Pipeline. To protect the integrity of the MWD pipeline, geotechnical exploration and analysis may be required during the PS&E phase, including: • Stress analysis to determine the increased load imposed on the affected reach of the pipeline. • Settlement/rebound analysis to determine potential settlement and lateral displacement. • Slope stability analysis to determine potential induced instability of the affected reach of the pipeline. **UT-3:** To minimize risk of fire prior to and during any construction activities, Caltrans will require implementation of the following to minimize the risk of fires during construction: • Coordinate with the applicable local fire department to identify and maintain defensible spaces around active construction areas. • Coordinate with the applicable local fire department to identify and maintain firefighting equipment (e.g., extinguishers, shovels, water tankers) in active construction areas. • Post emergency services phone numbers (i.e., fire, emergency medical, police) in visible locations in all active construction areas.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	The quality of accessibility to and mobility within area communities would continue to deteriorate.	Alternative 2 daily vehicle miles traveled (VMT) in the study corridor is forecast to be 8,451,000 in 2025 and 10,013,000 in 2045, compared to 8,195,000 in 2025 and 9,746,000 in 2045 under Alternative 1 (No Build). Operations for general purpose (GP) lanes under Alternative 2 in year 2025: • Level of service (LOS) F during both the AM and PM peak hours in both directions between the Los Angeles/San Bernardino (LA/SB) county line and California Street • LOS C in the eastbound (EB) direction during the AM peak hour and LOS C in the westbound (WB) direction during the PM peak hour between California Street and Ford Street Operations for high-occupancy vehicle (HOV) lanes under Alternative 2 in year 2025: • Between the LA/SB county line and Haven Avenue, operations are anticipated to be LOS F in the WB direction during both the AM and PM peak hour, LOS F in the EB direction during the PM peak hour, and LOS C in the EB direction during the AM peak hour • LOS B to F during the AM peak hour in	Alternative 3 daily VMT in the study corridor is forecast to be 8,937,000 in 2025 and 10,736,000 in 2045, compared to 8,195,000 in 2025 and 9,746,000 in 2045 under Alternative 1 (No Build). Operations for GP lanes under Alternative 3 in year 2025: • LOS F during both the AM and PM peak hours in both directions between the LA/SB county line and California Street in Redlands • LOS C during the AM peak hour in the EB direction and LOS C during the PM peak hour in WB direction between California Street to Ford Street Operations for HOV lanes under Alternative 3 in year 2025: • LOS D or better during both the AM and PM peak hours in both directions between the LA/SB county line and Ford Street Operations for GP lanes under Alternative 3 in year 2045: • LOS F during both the AM and PM peak hours in both directions between the LA/SB county line and California Street • LOS D during both the AM and PM peak hours in both directions between California Street to Ford Street Operations for HOV lanes under Alternative 3	**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:** Every effort will be made to incorporate the following TSM and TDM elements: • Improved ramp metering hardware and software and closed-circuit television (CCTV) systems for viewing ramps and nearby arterials • At locations of interchange improvements, upgraded traffic signals interconnected and coordinated with adjacent signals and ramp meters • Additional way-finding signs on freeways and arterials • Design of on- and off-ramps to limit impacts to nonmotorized travel and preserve access to bike lanes and trails • Intelligent Transportation System (ITS) elements, including fiber-optic and other communication systems for improved connectivity and remote management; changeable message signs (CMS); CCTV coverage of the entire freeway mainline, ramps, and adjacent arterials; video detection systems; and vehicle detection system (VDS) for volume, speed, and vehicle classification • Traveler Information Management System improvements to enhance dissemination of real-time information on roadway conditions • Vanpool initiatives • Carpooling programs • Promote and integrate public transit design features • CCTV with Pan-Tilt-Zoom (PTZ) capability • Ramp Metering System (RMS) • VDS

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		both directions and LOS D to F during the PM peak hour in both directions between Haven Avenue and Ford Street Operations for GP lanes under Alternative 2 in year 2045: • LOS F during both the AM and PM peak hours in both directions between the LA/SB county line and California Street • LOS D during the AM peak hour in the EB direction and LOS C during the PM peak hour in the WB direction between California Street and Ford Street Operations for HOV lanes under Alternative 2 in year 2045: • LOS F during both the AM and PM peak hour in both directions between the LA/SB county line and Haven Avenue • LOS F during both the AM and PM peak hour in both directions between Haven Avenue and Ford Street • LOS D in the EB direction during the AM peak hour between Haven Avenue and Ford Street • LOS E in the WB direction during the PM peak hour between California Street and Ford Street	in year 2045: • LOS D or better during both the AM and PM peak hours in both directions between the LA/SB county line and Ford Street	
Visual/ Aesthetics	No impact.	Differences in visual effects would primarily consist of roadway views pertaining to pavement width and bridge replacements. The project 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. Removal of the eucalyptus trees and other vegetation within the interchange areas would likely have the greatest impact on the visual quality; however, this effect would remain until trees grow back to existing conditions. Depending on the species selected, the point at which visual maturity is reached will vary between 15 to 25 years. Other elements, such as replacement structures, new retaining walls, and soundwalls, would be a permanent change to the elements within the existing viewsheds along the corridor. The summary below describes the anticipated changes to the visual environment by each project element.	Differences in visual effects would primarily consist of roadway views pertaining to pavement width and bridge replacements. The project 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. Removal of the eucalyptus trees and other vegetation within the interchange areas would likely have the greatest impact on the visual quality; however, this effect would remain until trees grow back to existing conditions. Depending on the species selected, the point at which visual maturity is reached will vary between 15 to 25 years. Other elements, such as replacement structures, new retaining walls, and soundwalls, would be a permanent change to the elements within the existing viewsheds along the corridor. The summary below describes the anticipated changes to the visual environment by each project element. **Overcrossings/Bridges:** Construction of	**VA-1:** For the application of aesthetics and landscape in the corridor, follow the guidelines from the Interstate 10 Corridor Master Plan, as developed by Caltrans, dated November 2011. **VA-2:** Beginning with preliminary design and continuing through PS&E and construction, save and protect as much existing vegetation in the corridor as feasible, especially eucalyptus and other skyline trees. **VA-3:** Survey exact locations for all existing trees and, in particular, the eucalyptus windrows/colonnades, and include in plan set. **VA-4:** Protect the drip zone of isolated trees during construction with temporary fencing. **VA-5:** Protect large infield areas of existing plantings to be preserved through the construction period with temporary fencing. **VA-6:** Beginning with preliminary design and continuing through PS&E and construction, develop construction plans that apply aesthetic treatments, including color, textures, and patterns, to the soundwalls that follow the guidelines in the Interstate 10 Corridor Master Plan. **VA-7:** As part of the project, include a redesign of the existing San Bernardino Gateway soundwall at the county line. **VA-8:** Include vine plantings on one or both faces of soundwalls wherever feasible (given Caltrans setback and maintenance requirements). If vines are only planted on one side of the wall, include vine portals in the design of the wall to accommodate vine access to both sides of the wall. **VA-9:** Beginning with preliminary design and continuing through PS&E and construction, develop construction plans that apply aesthetic treatments to the retaining walls that follow the guidelines for color, patterns, and textures, as outlined in the Interstate 10 Corridor Master Plan. **VA-10:** Beginning with preliminary design and continuing through PS&E and construction, develop construction plans that apply aesthetic treatments, including color, texture, and patterns, to the proposed bridges in the corridor that follow the guidelines in the Interstate 10 Corridor Master Plan.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		Overcrossings/Bridges: Construction of Alternative 2 would require the following improvements to overcrossings/bridges: • 3 structure replacements • 44 structure widening/modification **Vegetation:** Removal of approximately 374 eucalyptus trees. **Retaining Walls:** 67,000 linear feet of retaining walls. **Soundwalls:** 17 new soundwalls.	Alternative 3 would require the following improvements to overcrossings/bridges: • 12 structure replacements • 59 structure widening/modifications **Vegetation:** Removal of approximately 1,148 eucalyptus trees. **Retaining Walls:** 180,000 linear feet of retaining walls. **Soundwalls:** 27 new soundwalls.	**VA-11:** Design the aesthetics of the Euclid Avenue Bridge over I-10 that is consistent with the requirements of the local communities, including plantings on the bridge, decorative fencing, and replacement/reconstruction of existing historically contributing elements. **VA-12:** Include aesthetic treatment on concrete median barrier, including color, texture, and patterns, that are consistent with the Interstate 10 Corridor Master Plan. **VA-13:** Design fencing to match the ornamental fencing shown in the Interstate 10 Corridor Master Plan for all pedestrian fencing on all overcrossings, pedestrian bridges, or other elements associated with pedestrian traffic. **VA-14:** Beginning with preliminary design and continuing through PS&E and construction, landscape and revegetate disturbed areas to the greatest extent feasible, as directed by the Caltrans District Landscape Architect. SANBAG will facilitate coordination between various construction stages to ensure that planting is not completed until construction in that area is complete and no further disturbance will occur. **VA-15:** Provide replacement plants at the rate determined by the Caltrans District Landscape Architect. At a minimum, use a replacement ratio of 2:1, unless a higher ratio is required by the District Landscape Architect, to address the large number of removals that have occurred in the corridor. **VA-16:** Include skyline trees in the planting palette to bring down the scale of the new freeway elements. Where feasible, re-establish the existing colonnades/windrows of eucalyptus. **VA17:** Focus plantings on drought-tolerant and native species of trees and shrubs to the extent feasible. **VA-18:** Focus all replanting within the project ROW. Where insufficient space, locations, or water limits the plantings, give consideration to planting within the adjacent communities, beyond the ROW, if other agencies commit to maintenance of these plantings. **VA-19:** Plant trees to the maximum extent feasible, given space constraints, to provide screening of the facility and structures. **VA-20:** Commence replanting the corridor prior to the end of the construction period. **VA-21:** Install trees in a variety of sizes from 36-inch box, 24-inch box, and 15-gallon containers, with 24-inch box trees being the dominant size at installation. **VA-22:** Install required Caltrans Maintenance access roads through the landscape so that these elements are integral to the overall design. **VA-23:** Provide a permanent irrigation system to all plantings. All irrigation should follow the latest requirements for design and installation, including any requirements associated with drought, water restrictions, recycled water use, and water conservation as required by Caltrans. **VA-24:** Use reclaimed/recycled water as sources for all irrigation systems, where feasible, including any recycled/reclaimed water supply within 250 feet of the project corridor. **VA-25:** Include a 3-year plant and irrigation maintenance period as part of the construction period to provide a single source of maintenance through the establishment period. **VA-26:** Beginning with preliminary design and continuing through PS&E and construction, use drainage and water quality elements, where required, that maximize the allowable landscape. **VA-27:** Locate basins so that they would be at least 10 feet from the edge of the Caltrans plant setback to allow landscape screening to be installed. **VA-28:** Design infiltration/detention basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. Shape these elements in an informal, curvilinear manner to the greatest extent possible. **VA-29:** Incorporate slope rounding, variable gradients, and similar techniques to the surrounding topography of any basin slope to de-emphasize the edge. If a wall or hard feature is necessary, its design must appear integral to the overall design concept. **VA-30:** 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. **VA-31:** Design basins so that chain-link perimeter fencing is not required. **VA-32:** Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings. **VA-33:** Design rock slope protection to consist of aesthetically pleasing whole material with a variety of sizes.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
				VA-34: Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas, and design to appear natural to the greatest extent possible. **VA-35:** Revegetate any side slopes of detention and/or stormwater basins, as well as any bioswales, with landscaping other than native seeding, such as container planting. These plants must be integral to the other replacement plantings in the corridor. **VA-36:** To deter graffiti, include textures on walls and surfaces to a minimum depth of 1.25 inches and/or anti-graffiti coatings on all walls, barriers, and bridges. Where feasible, include vine plantings on walls to also deter graffiti. **VA-37:** For all new or relocated light fixtures and other sources of glare, provide shielded fixtures that prevent light trespass onto adjacent properties. **VA-38:** For portions of the freeway designated as a "Classified Landscaped Freeway" and where landscaping/trees will be removed, every effort will be made to keep this designation by creating areas for replacement landscaping.
Cultural Resources	No impact.	**Permanent** The project avoids all historic and archaeological resources within the project area of potential effects (APE). While there is potential for indirect effects on the Mill Creek Zanja and El Carmelo/The Peppers, the impacts from modifying the existing I-10 corridor are minimal. **Temporary** No impacts.	**Permanent** The project only has the potential to contribute to a permanent effect on Euclid Avenue/State Route (SR) 83, because it is the only property being directly affected for Alternative 3. The proposed project would require modification of the medians, curbs, and/or mature vegetation that are character-defining features of Euclid Avenue/SR-83. In addition, the Euclid Avenue/I-10 Overcrossing (Bridge No. 54 0445) would be replaced. While this bridge is not a character-defining feature of Euclid Avenue/SR-83, care must be given to the design and aesthetics of the replacement structure to ensure that the new structure does not impact the setting of the corridor. However, Alternative 3 would have No Adverse Effect with Non-Standard Conditions on Euclid Avenue/SR-83. **Temporary** The temporary construction improvements with Non-Standard Conditions would not adversely affect a historic property as defined in 36 *Code of Federal Regulations* (CFR) 800.5(a)(2).	**CUL-1:** Design of Replacement Euclid Avenue/I-10 Structure • The deck of the replacement structure will be landscaped in a manner consistent with the historic landscape design of Euclid Avenue to the north and the south of this bridge. • The existing median width will be maintained to the extent feasible. • Single or double tree line(s) will be recreated as feasible. • Cobblestone curbs will be recreated on raised median planters. • Raised median walls with shallow-rooted trees depicted in Figure 5 in Appendix G of the Finding of No Adverse Effect (FNAE) will be constructed. • The replacement structure shall be reviewed by the Caltrans Professional Qualified Staff (PQS) Architectural Historian to ensure compliance with Condition 1 during the PS&E phase. If the minimum criteria established herein are not met, State Historic Preservation Officer (SHPO) consultation will be required. **CUL-2:** Contributing Tree Replacement (Euclid Avenue) • All contributing trees required to be removed from the Euclid Avenue parkway and median will be replaced within the parkway or median. Trees to be removed and replaced are depicted in Figure 5 in Appendix G of the FNAE. Any additional contributing trees that are subsequently identified for removal during planning or construction will also be subject to this condition. • Replacement locations of contributing trees will be decided on by the Caltrans PQS Architectural Historian in consultation with the Caltrans Landscape Design, SANBAG, and the appropriate city (Ontario or Upland). • The Euclid Avenue median between 6th Street and the new I-10 bridge structure, where most of the contributing trees are to be removed, will be replanted with a double row of California pepper trees to recreate the historic planting scheme of the median. Where space does not allow for a double row of trees (i.e., areas of reduced median width), a single row of trees will be planted. Decisions regarding the planting of median trees will be overseen by the Caltrans PQS Architectural Historian in consultation with Caltrans Landscape Design, SANBAG, and the appropriate city (Ontario or Upland). • Planting activities shall be spot monitored by the Caltrans PQS architectural historian. **CUL-3:** Replacement of Stone Curbs (Euclid Avenue) • All sections of contributing cobblestone curbs along Euclid Avenue/SR-83 removed by this undertaking will be replaced in-kind using the Secretary of the Interior's Standards (SOIS) for Rehabilitation based on plans provided and approved by the cities. • Existing concrete median curbs that will be removed and replaced as part of this undertaking between 6th Street and the I-10 OC will be replaced/restored with cobblestone curb using the SOIS for Rehabilitation based on plans provided by the cities to recreate a continuous cobblestone curb along the entire section of median affected. • Reconstruction of the stone curbs shall be spot monitored by the Caltrans PQS architectural historian. **CUL-4:** Replacement of Streetlights (Euclid Avenue) • Historic period streetlights that are removed to enable construction will be replaced in-kind per the SOIS for

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
				Rehabilitation. **CUL-5:** Signs (Euclid Avenue) • National Register signs will be installed on Euclid Avenue. • The Euclid Avenue Historic District rock monument sign will be installed to match other historic districts. **CUL-6:** Monitoring • A cultural resources monitoring plan will be developed by SANBAG and approved by the Caltrans PQS Architectural Historian prior to commencement of any construction-related activities at Euclid Avenue. The monitoring plan will, at a minimum, specify timeframes, locations, and durations of monitoring and specify requirements for monitoring logs. • Upon completion of all construction related to the conditions in the FNAE, a Monitoring Report will be prepared to document that all conditions have been met. The monitoring report will be approved by the Caltrans PQS Architectural Historian and submitted to the SHPO to document compliance with the FNAE conditions. • Construction plans and activities in the vicinity of the remaining historic properties in the APE (the Mill Creek *Zanja*, 1055 E. Highland Avenue, and The Peppers/El Carmelo) will be spot monitored by the Caltrans PQS. **CUL-7:** Designate and Enforce ESA (Curtis Homestead) in Accordance with the ESA Action Plan. • Establishment of the ESA shall be executed by a qualified archaeologist. • Enforcement of the ESA shall be spot monitored by a qualified archaeologist. **CUL-8:** 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.
Hydrology and Floodplains	No impact.	Alternative 2 would impact several channels and drains and their floodplain at varying degrees; however, the proposed freeway widening would have very small impact on: • Life and property; • Interruption or termination of a transportation facility; or • Natural and beneficial floodplain values. Alternative 2 is anticipated to result in 13 transverse and 5 longitudinal floodplain encroachments. **Potential Floodplain Encroachment:** • California Commerce Center Storm Drain • East Etiwanda Creek • San Sevaine Channel • I-10 Channel • Colton Southwest Storm Drain • 11th Street Storm Drain • Warm Creek • Santa Ana River (SAR) • San Timoteo Creek • Mission Zanja • The Zanja	Alternative 3 would impact several channels and drains and their floodplain at varying degrees; however, the proposed freeway widening would have very small impact on: • Life and property; • Interruption or termination of a transportation facility; or • Natural and beneficial floodplain values. Alternative 3 is anticipated to result in 13 transverse and 5 longitudinal floodplain encroachments. **Potential Floodplain Encroachment:** • West Cucamonga Creek • Cucamonga Creek/Deer Creek • Lower Deer Creek • California Commerce Center Storm Drain • East Etiwanda Creek • San Sevaine Channel • I-10 Channel • Colton Southwest Storm Drain • 11th Street Storm Drain • Warm Creek • SAR • San Timoteo Creek • Mission Zanja	**HYD-1:** Provide positive drainage during construction and refrain from filling designated floodplains. **HYD-2:** Implement recommended BMPs as identified in the Storm Water Data Report (SWDR). **HYD-3:** Include erosion control and water quality protection during in-river construction and post-construction as identified in the SWDR. **HYD-4:** Contractor shall develop a contingency plan for unforeseen discovery of underground contaminants in the Stormwater Pollution Prevention Plan (SWPPP). **HYD-5:** Limit construction activities between October and May to those actions that can adequately withstand high flows and entrainment of construction materials. The Contractor shall prepare a Rain Event Action Plan (REAP) and discuss high flows mitigation. **HYD-6:** Provide adequate conveyance capacity at bridge crossings to ensure no net increase in velocity. A hydraulic analysis shall be completed to assess existing and post hydraulic conditions.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
			• The Zanja	
Water Quality and Stormwater Runoff	Currently, there are no treatment BMPs within the project corridor; this would remain the case.	**Permanent** Alternative 2 would increase the impervious surface area by 51 acres and potentially increase stormwater runoff from construction. **Temporary** During construction, the total disturbed soil area is estimated to be 346 acres for Alternative 2.	**Permanent** Alternative 3 would increase the impervious surface area by 140 acres and potentially increase stormwater runoff from construction. **Temporary** During construction, the total disturbed soil area is estimated to be 661 acres for Alternative 3.	**WQ-1: Implement Stormwater Best Management Practices (BMPs).** The project would be required to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities, Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002, as well as implementation of the BMPs specified in the Caltrans SWMP. **WQ-2: Discharge of Construction Water.** If dewatering is expected for the Preferred Alternative, the Contractor shall fully conform to the requirements specified in the Los Angeles Regional Water Quality Control Board (RWQCB) Order R4-2013-0095 (NPDES No. CAG994004) (if dewatering occurs in Los Angeles) or the Santa Ana RWQCB's dewatering permit Order R8-2005-0041 (NPDES No. CAG998001). **WQ-3: Implement Treatment BMPs.** The project would be required to conform to the requirements of the Caltrans Statewide NPDES Storm Water Permit, Order No. 2012-0011-DWQ, NPDES No. CAS000003, adopted by the State Water Resources Control Board (SWRCB) on September 19, 2012, and any subsequent permit in effect at the time of project operation. **WQ-4: Comply with Local Jurisdiction Requirements.** The project would be subject to Los Angeles County and San Bernardino County conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution associated with street and road construction, as appropriate. These conditions and approvals are referenced in the Waste Discharge Requirements (WDRs) associated with the Municipal Separate Storm Sewer System (MS4) permits per Order No. R4-2012-0175 for the coastal watersheds of Los Angeles County (NPDES Permit No. CAS004001) and Order No. R8-2010-0036 (NPDES No. CAS618036) for the County of San Bernardino and the incorporated cities of the County of San Bernardino. **WQ-5: Implement Erosion Control Plan.** Slopes steeper than 4:1 require an Erosion Control Plan that is approved by the Caltrans District Landscape Architect.
Geology/Soils/ Seismic/ Topography	No impact.	**Liquefaction** The area close to the SAR has a shallow groundwater table. Several structures are located in the shallow groundwater area, including Mt. Vernon Avenue OC, Warm Creek Bridge, Santa Ana River Bridge, I-10/I-215 Interchange, Waterman Avenue Undercrossing (UC), and San Timoteo Creek Bridge. Liquefaction potential at these bridge sites is expected to range from medium to high, and seismically induced settlement could be up to 3 inches. The liquefaction potential and resulting seismically induced settlement should be confirmed during the PS&E phase using site-specific subsurface data. Areas with a potential for high liquefaction during a seismic event would be designed to meet current design standards for both Caltrans and the cities adjacent to the project corridor to minimize liquefaction hazards. The current risks associated with liquefaction at the interchange area would remain the same as existing conditions if any of the proposed build alternatives were constructed; therefore, the proposed build alternatives would not have the potential to introduce new liquefaction-related hazards. **Seismicity**	**Liquefaction** The area close to the SAR has a shallow groundwater table. Several structures are located in the shallow groundwater area, including Mt. Vernon Avenue OC, Warm Creek Bridge, Santa Ana River Bridge, I-10/I-215 Interchange, Waterman Avenue UC, and San Timoteo Creek Bridge. Liquefaction potential at these bridge sites is expected to range from medium to high, and seismically induced settlement could be up to 3 inches. The liquefaction potential and resulting seismically induced settlement should be confirmed during the PS&E phase using site-specific subsurface data. Areas with a potential for high liquefaction during a seismic event would be designed to meet current design standards for both Caltrans and the cities adjacent to the project corridor to minimize liquefaction hazards. The current risks associated with liquefaction at the interchange area would remain the same as existing conditions if any of the proposed build alternatives were constructed; therefore, the proposed build alternatives would not have the potential to introduce new liquefaction-related hazards. **Seismicity** Although the proposed project site is located	**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 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 plans during the PS&E phase to address seismic safety, liquefaction, and load-bearing concerns present in the project area. **GEO-2:** Selection of earth-retaining system types will 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:** Corrosion mitigation for steel and concrete structures will generally follow Caltrans Corrosion Guidelines (2003 or latest). The latest Caltrans Highway Design Manual (HDM) (Section 855) provides corrosion requirements for roadway structures (e.g., culverts, signs) for a 50-year design life. **GEO-4:** 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 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-5:** If corrosive soils are found near foundations of bridges and walls, reinforced concrete (including piles) requires corrosion mitigation in accordance with Bridge Design Specifications, Article 8.22; when steel piles are specified, sacrificial corrosion allowance is required per Caltrans Corrosion Guidelines. **GEO-6:** Earthwork shall be conducted in accordance with Sections 6 and 19 of the latest Caltrans Standard Specifications: • Consideration of existing utilities in the area must be incorporated into project plans. • In areas where compacted fill will be placed, removal of compressible surficial materials, including topsoil, loose or soft alluvium or fill soil, dry or saturated soil, and unsuitable fill, is required prior to fill placement. • A minimum overexcavation of 2 feet is recommended within areas to receive fill; the overexcavation shall extend horizontally a minimum distance of 2 feet from edges of new fills or structures. • Fill placed on sloping ground shall be properly keyed and benched into existing ground and placed as specified in Section 19-6 of the Caltrans Standard Specifications.

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Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		Although 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. **Embankment Settlement** The project involves constructing new earthen embankments for median lanes and widening existing embankments to create new alignments and configurations. The proposed embankments are anticipated to be up to approximately 30 feet high. Because the subsurface soils are predominantly granular, the soils are not expected to undergo large consolidation settlement (i.e., settlement over long periods of time); however, the soils can undergo "immediate" elastic settlement, which usually occurs during earthwork activities and shortly thereafter. **Earth Retaining Structures** Cantilevered retaining walls are proposed at various locations throughout the project, including along the on- and off-ramps. Retaining walls are proposed to be standard Caltrans retaining walls; however, other types will be investigated during the PS&E phase. Based on the subsurface information shown on the available as-built Log of Test Boring (LOTB) sheets, spread footings are suitable for supporting standard Caltrans retaining walls with heights equal to or less than 20 feet. Pile foundation might be required to support taller retaining walls. Some amount of remedial earthwork below the proposed spreading footings to remove loose near-surface soils should be anticipated; remedial overexcavations will most likely be less than 3 feet.	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. **Embankment Settlement** The project involves constructing new earthen embankments for median lanes and widening existing embankments to create new alignments and configurations. The proposed embankments are anticipated to be up to approximately 30 feet high. Because the subsurface soils are predominantly granular, the soils are not expected to undergo large consolidation settlement (i.e., settlement over long periods of time); however, the soils can undergo "immediate" elastic settlement, which usually occurs during earthwork activities and shortly thereafter. **Earth Retaining Structures** Cantilevered retaining walls are proposed at various locations throughout the project, including along the on- and off-ramps. Retaining walls are proposed to be standard Caltrans retaining walls; however, other types will be investigated during the PS&E phase. Based on the subsurface information shown on the available as-built LOTB sheets, spread footings are suitable for supporting standard Caltrans retaining walls with heights equal to or less than 20 feet. Pile foundation might be required to support taller retaining walls. Some amount of remedial earthwork below the proposed spreading footings to remove loose near-surface soils should be anticipated; remedial overexcavations will most likely be less than 3 feet. **Ground Rupture** Based on the detailed geophysical investigations conducted at the Highland Avenue structure, it was concluded that although there were some possible	• Overexcavations shall be observed by qualified geotechnical personnel to verify that firm and unyielding bottoms are exposed. • Overexcavated areas shall be cleaned of loose soils and debris and should be observed to be firm and unyielding before receiving fill. • These onsite materials can be excavated using conventional heavy-duty earth-moving equipment, and the materials are not expected to pose a rippability problem. **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 PS&E package. **GEO-8:** Standard Caltrans BMPs shall be followed to minimize soil loss and erosion during construction. To minimize potential soil erosion, all finish slopes shall be planted as soon as practical after grading. **GEO-9:** The liquefaction potential and resulting seismically induced settlement of structures located in the shallow ground area, including Mt. Vernon Avenue OC, Warm Creek Bridge, Santa Ana River Bridge, I-10/I-215 Interchange, Waterman Avenue UC, and San Timoteo Creek Bridge, shall be confirmed during the PS&E phase using site-specific subsurface data. **GEO-10:** Before ground-disturbance activities in an area where hazardous or toxic materials are present, a specialist in hazardous waste or materials will be consulted for proper handling and disposal. **GEO-11:** Exploratory borings throughout the project area shall be performed during the PS&E phase of the project to investigate site-specific soils and conditions and to collect samples of subsurface soils for laboratory testing. • The locations and depths of the borings will be selected once locations of proposed improvements have been finalized. • Because groundwater is anticipated to be deep for most locations, a truck-mounted drilling rig equipped with hollow-stem augers will be adequate; however, for the area adjacent to the Santa Ana River, a mud-rotary drilling rig is recommended due to the shallow groundwater table. • Soil samples recovered during the supplemental field investigation shall be tested to determine soil type, soil shear strength, compressibility characteristics, and corrosion potential. **GEO-12:** Per Topic 304 of Caltrans HDM, 4H:1V side slopes or flatter will be used where possible. These side slopes will be globally and surficially stable. Caltrans design exception and approval process will be required for side slopes with gradients steeper than 4H:1V. However, proper maintenance with erosion protection and drainage control in accordance with Section 21 of Caltrans Standard Specifications (2015) will still be implemented throughout the project area for long-term performance. **GEO-13:** If earthen embankments will be constructed using compacted fill having a minimum friction angle of 32 degrees and minimum cohesion of 200 pounds per square foot (psf), slopes up to 30 feet high and with inclinations of 2H:1V or flatter will be globally stable (i.e., minimum factor-of-safety is 1.5 and 1.1 under static and pseudo-static conditions, respectively). **GEO-14:** Use of minimum friction angles of 32 degrees and minimum cohesion of 200 psf, slopes with inclinations of 2H:1V or flatter will be surficially stable based on the infinite slope method. Shear strength parameters or fines content and plasticity of soils that will be used to construct the earthen embankments will need to be verified during construction.

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Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		Ground Rupture Based on the detailed geophysical investigations conducted at the Highland Avenue structure, it was concluded that although there were some possible geophysical anomalies at the Highland Avenue site, these features did not project through the overcrossing or its abutments, so no further investigations were done at the site. Geophysical data and trenching study at the Warm Creek site indicated that the fault projects well south of the Warm Creek Bridge; therefore, it was concluded that there is little potential for fault rupture at the Warm Creek Bridge.	geophysical anomalies at the Highland Avenue site, these features did not project through the overcrossing or its abutments, so no further investigations were done at the site. Geophysical data and trenching study at the Warm Creek site indicated that the fault projects well south of the Warm Creek Bridge; therefore, it was concluded that there is little potential for fault rupture at the Warm Creek Bridge.	
Paleontology	No impact.	**Permanent** Alternative 2 has the potential to impact paleontological resources during construction; however, because fossils are located subsurface, there is no way to know the full extent of the effect of the two build alternatives on fossil resources until excavation is underway. The fact that no fossils were observed during the paleontological reconnaissance is typical because most fossils are subsurface. Existing fossil localities nearby in the same rock units present within the project study area have produced significant vertebrate paleontological resources. On this basis, the San Timoteo Formation has high sensitivity or potential to produce significant fossils. This sensitivity increases with increasing depth below the ground surface.	**Permanent** Alternative 3 has the potential to impact significant paleontological resources during construction; however, because fossils are located subsurface, there is no way to know the full extent of the effect of the two build alternatives on fossil resources until excavation is underway. The fact that no fossils were observed during the paleontological reconnaissance is typical because most fossils are subsurface. Existing fossil localities nearby in the same rock units present within the project study area have produced significant vertebrate paleontological resources. On this basis, the San Timoteo Formation has high sensitivity or potential to produce significant fossils. This sensitivity increases with increasing depth below the ground surface.	**PA-1:** The Paleontological Mitigation Plan (PMP) will be prepared, by a qualified paleontologist, prior to completion of the PS&E phase of this project once specific information about excavation locations and depth is available and monitoring efforts can be properly estimated. The PMP will detail the measures to be implemented and shall include, at a minimum, the following elements: • Required 1-hour preconstruction paleontological awareness training for earth-moving personnel, including documentation of training, such as sign-in sheets and hardhat stickers, to establish communications protocols between construction personnel and the Principal Paleontologist. • A signed repository agreement with a qualified institution to establish a curation process in the event of sample collection. • Monitoring, by a Principal Paleontologist, of Pleistocene Epoch during excavation. • Field and laboratory methods that meet the curation requirements of the repository will be implemented for monitoring, reporting, collection, and curation of collected specimens. • All elements of the PMP will follow the PMP format published in the Caltrans Standard Environmental Reference (Caltrans, 2003).
Hazardous Waste/ Materials	No impact.	Eleven (11) potential recognized environmental condition (REC) parcels have been preliminarily identified for acquisition in the Alternative 2 project area. All acquisition properties identified for Alternative 2 are partial acquisitions. The potential environmental concerns for Alternative 2 are described below: • Nine of the 11 properties are located within 25 feet of rail lines and should be sampled for pesticides containing arsenic if Alternative 2 is selected. • One parcel contains at least one aboveground storage tank (AST), which may or may not be within the portion identified for acquisition.	Fifty-three (53) potential REC parcels have been preliminarily identified for acquisition in the Alternative 3 project area; 38 of these parcels are partial acquisitions and 15 are full acquisitions. The potential environmental concerns for Alternative 3 are described below: • Thirty-five (35) parcels contain structures to be demolished and should be sampled for asbestos-containing materials (ACM) and lead-based paint (LBP). • Two parcels contain at least one AST, which may or may not be within the portion identified for acquisition. • Nine identified parcels contain at least one UST on the property.	**HAZ-1:** During the project approval/environmental document (PA/ED) phase, surveys for hazardous building materials, including ACM and LBP, will be conducted for the residential and commercial structures and bridge structures that will be removed as part of the proposed project. **HAZ-2:** During the PA/ED phase, parcels identified for partial or full acquisition will be surveyed to determine whether any USTs, ASTs, or arsenic-contaminated soils are located within an area identified for acquisition. If any hazardous materials are located within the area to be acquired, proper removal procedures in accordance with standard provisions and requirements would minimize any direct or indirect adverse temporary impacts. **HAZ-3:** During PS&E and prior to any ground-disturbance activities, SANBAG's Resident Engineer will require the contractor to conduct inspections for potential polychlorinated biphenyls (PCBs) in utility pole-mounted transformers that will be relocated or removed as part of the project. SANBAG's Resident Engineer will require the design-build contractor to consider leaking transformers a PCB hazard unless tested and confirmed otherwise, and to handle them accordingly. **HAZ-4:** Prior to construction, testing of yellow traffic stripes and pavement marking material shall be performed by SANBAG. **HAZ-5:** Prior to PS&E, sampling for ADL shall be conducted by SANBAG within the unpaved shoulders of the I-10

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		• One parcel identified for partial acquisition has at least one underground storage tank (UST) on the property. If Alternative 2 is selected, these 11 parcels will need to be surveyed to determine whether any USTs, ASTs, or arsenic-contaminated soils are located within an area identified for acquisition. If any hazardous materials are located within the area to be acquired, proper removal procedures in accordance with standard provisions and requirements would minimize any direct or indirect adverse temporary impacts.	If Alternative 3 is selected, all parcels identified for full or partial acquisition will need to be surveyed to determine whether any USTs, ASTs, or other contaminated materials, such as ACM or LBP, are located within an area identified for acquisition. If any hazardous materials are located within the area to be acquired, proper removal procedures in accordance with standard provisions and requirements would minimize any direct or indirect adverse temporary impacts.	Corridor Project (I-10 CP). A Site Assessment for ADL will be prepared and will include the following: • A detailed description of where the ADL is located on the project site, including the length, width, and depth of the contamination; • A determination of the Caltrans "soil type" (X, Y1, Y2, Z2, or Z3) that is found during the survey; • A discussion of how the soil will be reused on the project in accordance with the Department of Toxic Substances Control (DTSC)-issued variance or if the soil will require offsite disposal; and • A discussion of the Caltrans Special Provisions required to be followed. **HAZ-6:** Several full and partial acquisition parcels that have or have had USTs or ASTs located on them will be surveyed to determine whether any USTs or ASTs are located within an area identified for acquisition. If USTs are located within the area to be acquired, proper removal procedures in accordance with Section 2672 (for USTs) of Title 23 of the CCR as implemented by the local RWQCB will be followed. Minimum requirements for AST removal include removal of tank contents (including material in associated piping, rinsate, and decontamination products), to be managed as hazardous waste; and tank atmosphere to be rendered vapor free (for tanks that held flammable/combustible products). If the USTs or ASTs contain hazardous materials, soils surrounding the tanks will be collected and analyzed for said hazardous materials after removal of the tanks to determine proper handling and disposal requirements. **HAZ-7:** Herbicides and pesticides may be present along the project location where historic and current agricultural activities occur. Prior to completion of the PS&E phase, soil samples will be collected and analyzed for herbicides and pesticides to determine proper handling and disposal requirements. **HAZ-8:** During completion of site investigations, coordination will occur with all appropriate regulatory agencies. **HAZ-9:** If signs of potential impacts (e.g., odors, discolored soil) are observed during construction activity, construction shall cease and Caltrans' Unknown Hazards 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 2 would result in negligible changes in regional emissions for VOC, NOx, and CO (i.e., 1 to 2 percent decrease in 2025 and 2 to 4 percent increase in 2045) from no build conditions. The decrease in regional emissions for PM_{10} and $PM_{2.5}$ would be 7 and 4 percent in 2025, and 1 and 5 percent in 2045, respectively. The change in no build to build mobile source air toxic (MSAT) emissions ranges from a decrease of 7 percent to an increase of 8 percent in 2025, and 2045 emissions range from 3 to 8 percent increases. Alternative 2 would result in a diesel particulate matter change of 5 percent in 2025 and 8 percent in 2045. **Temporary** Construction of the proposed project is anticipated to last 42 months. As a result, project construction would not last more than 5 years and is considered temporary. Construction emissions would be associated with the following stationary or mobile-powered onsite construction equipment:	**Permanent** Alternative 3 would increase regional VOC, NOx, and CO emissions by approximately 9 to 12 percent in 2025 and 2045 from no build conditions. The increase in regional PM_{10} emissions in 2025 and 2045 would be 5 and 4 percent, respectively. PM2.5 emissions would grow by 1 percent in years 2025 and 2045. The change in no build to build MSAT emissions ranges from an increase of 7 to 14 percent in 2025 and an increase of 8 to 14 percent in 2045. Alternative 3 would result in a diesel particulate matter change of 8 percent in 2025 and 7 percent in 2045. **Temporary** Construction of the proposed project is anticipated to last 60 months. As a result, project construction would not last more than 5 years and is considered temporary. Construction emissions would be associated with the following stationary or mobile-powered onsite construction equipment: • Trucks • Tractors • Signal Boards	**AQ-1:** The construction contractor must comply with the Caltrans Standard Specifications in Section 14-9 (2015). **AQ-2:** Section 14-9-02 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. **AQ-3:** Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18. **AQ-4:** The construction contractor must comply with South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust). Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emissions or at the ROW line depending on local regulations. **AQ-5:** Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas. **AQ-6:** Trucks will be washed as they leave the ROW as necessary to control fugitive dust emissions. **AQ-7:** A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities. **AQ-8:** Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly. **AQ-9:** Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used. **AQ-10:** All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (i.e., space from the top of the material to the top of the truck) will be provided to minimize emission of dust (i.e., particulate matter [PM]) during transportation. **AQ-11:** Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to decrease PM. **AQ-12:** Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate

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Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		• Trucks • Tractors • Signal Boards • Excavators • Backhoes • Concrete Saws • Crushing and/or Processing Equipment • Graders • Trenchers • Pavers • Other Paving Equipment	• Excavators • Backhoes • Concrete Saws • Crushing and/or Processing Equipment • Graders • Trenchers • Pavers • Other Paving Equipment	in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw. Hydroseeding may be used as an alternative to mulch. **AQ-13:** Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations (CCR) Title 17, Section 93114. **AQ-14:** ESAs or their equivalent will be established within 1,000 feet of sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible. **AQ-15:** To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times. **AQ-16:** Under the California Air Resources Board's (ARB) idling emissions rule, 2008 and newer model year heavy-duty diesel engines will be equipped with a nonprogrammable engine shutdown system that automatically shuts down the engine after 5 minutes of idling, or optionally meet a stringent nitrogen oxides (NO_X) idling emission standard. This rule applies to diesel-fueled commercial motor vehicles that operate in California with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. **AQ-17:** To the extent feasible, all construction signal/message boards shall be solar powered. **AQ-18:** To the extent feasible, electricity shall be obtained from power poles rather than temporary diesel or gasoline generators. **AQ-19:** To the extent feasible, commuter incentives and ITS programs, such as traffic management centers or incident management systems, will be incorporated per FHWA's MSAT guidance. **AQ-20:** If Alternative 3 is selected, congestion pricing per FHWA's MSAT guidance will be implemented as a means to counter the effects of MSAT emissions. **AQ-21:** Implement Best Available Control Technology (BACT) during construction and operation of projects where feasible, including: solicit bids that include use of energy and fuel-efficient fleets; solicit preference construction bids that use BACT, particularly those seeking to deploy zero- and/or near zero emission technologies; employ use of alternative fuel vehicles; use lighting systems that are energy efficient, such as LED technology; use CEQA Guidelines Appendix F, Energy Conservation, to create an energy conservation plan; use an adopted emissions calculator to estimate construction-related emissions; use the minimum feasible amount of GHG-emitting construction materials that is feasible; use of cement blended with the maximum feasible amount of flash or other materials that reduce GHG emissions from cement production; use of lighter-colored pavement where feasible; recycle construction debris to maximum extent feasible; and plant shade trees in or near construction projects where feasible.
Noise	Noise conditions within the corridor are projected to experience a 1- to 4-decibel (dB) increase under the 2045 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 compared to the future no-build noise condition. With incorporation of the abatement, maximum changes in future build noise range from a 3-dB increase to a 12-dB decrease. *Recommended Soundwalls:* • 17 New **Temporary** Construction noise varies greatly depending on the construction process, type, and condition of the equipment used, and layout of the construction site.	**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 compared to the future no-build noise condition. With incorporation of the abatement, maximum changes in future build noise range from a 4-dB increase to a 10-dB decrease. *Recommended Soundwalls:* • 27 New (1 Gap Closure) • 19 Replace In-kind **Temporary** Construction noise varies greatly depending on the construction process, type, and condition of the equipment used, and layout of	**N-1:** Noise barriers presented in Appendix L, Sections L3 and L4, will be considered for noise abatement. **N-2:** Sound control will conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications. **N-3:** The following are control measures that will be implemented to minimize noise disturbances at sensitive areas during construction: • All equipment shall have sound-control devices no less effective than those provided on the original equipment. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the jobsite without an appropriate muffler. • Construction methods or equipment that will provide the lowest level of noise impact (e.g., avoid impact pile driving near residences and consider alternative methods that are also suitable for the soil condition) will be used. • Idling equipment shall be turned off. • Truck loading, unloading, and hauling operations shall be restricted through residential neighborhoods to the greatest possible extent. • Construction activities shall be coordinated to build recommended permanent soundwalls during the first phase of construction to protect sensitive receivers from subsequent construction noise, dust, light, glare, and other impacts, to the extent feasible. • Temporary noise barriers shall be used and relocated, as needed. Noise barriers can be made of heavy plywood, moveable insulated sound blankets, or other best available control techniques.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		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.	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.	• Newer equipment with improved noise muffling shall be used, and all equipment items shall have the manufacturers' recommended noise abatement measures (e.g., mufflers, engine covers, and engine vibration isolators) intact and operational. All construction equipment shall be inspected at periodic intervals to ensure proper maintenance and presence of noise-control devices (e.g., mufflers and shrouding). • Construction activities shall be minimized in residential areas during evening, nighttime, weekend, and holiday periods. Coordination with each city shall occur before construction can be performed in noise sensitive areas. • Construction lay-down or staging areas shall be selected in industrially zoned districts. If industrially zoned areas are not available, commercially zoned areas may be used, or locations that are at least 100 feet from any noise-sensitive land use (e.g., residences). • Contractor shall prepare a Noise and Vibration Monitoring and Mitigation Plan by a qualified Acoustical Engineer and submit it for approval. The Plan must outline noise and vibration monitoring procedures at predetermined noise and vibration sensitive sites, as well as historic properties. The Plan also must include calculated noise and vibration levels for various construction phases and mitigation measures that may be needed to meet the project specifications. The Contractor shall not start any construction work or operate any noise-generating construction equipment at the construction site before approval of the Plan. The Plan will be updated every 3 months or sooner if there are any changes. **N-4:** The following are some procedures that will be used to minimize the potential impacts from construction vibration: • Hours of vibration-intensive activities, such as vibratory rollers, will be restricted to minimize adverse impacts to the residents (e.g., weekdays during daytime hours only when as many residents as possible are away from home). • The owner of a building close enough to a construction vibration source where damage to that structure due to vibration is possible would be entitled to a preconstruction building inspection to document the preconstruction condition of that structure. • Conduct vibration monitoring during vibration-intensive activities.
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, traffic flow improvements), including ramp metering, auxiliary lanes, and other Transportation System Management (TSM)/ Transportation Demand Management (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).	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, traffic flow improvements), including ramp metering, 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.	No measures required.
Natural Communities	No impact.	**Permanent** The area of permanent impact of Riversidean sage scrub (RSS) habitat was calculated to be 0.23 acre for Alternative 2. Approximately 35 acres of vegetation communities would be permanently affected by Alternative 2. **Temporary** There would be temporary impacts to	**Permanent** The area of permanent impact of RSS habitat was calculated to be 0.25 acre for Alternative 3. Approximately 150 acres of vegetation communities would be permanently affected by Alternative 3. **Temporary** There would be temporary impacts to riparian plant communities, including southern willow	**NC-1:** During PS&E, SANBAG's Design Engineer will coordinate with the qualified biologist to delineate all ESAs within the project footprint and immediately surrounding areas in the project specifications. ESAs include riparian vegetation communities and RSS vegetation that are not identified as temporarily or permanently impacted in the environmental document. Prior to clearing vegetation or construction within or adjacent to ESAs, the Contractor will install highly visible barriers (e.g., orange construction fencing) adjacent to the project footprint to designate ESAs to be preserved in place. No grading or fill activity of any type will be permitted within these ESAs. In addition, no construction activities, materials, or equipment will be allowed within the ESAs. All construction equipment will be operated in a manner to prevent accidental damage to nearby ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within the ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		riparian plant communities, including southern willow scrub and mule fat scrub. In addition, 2.85 acres of RSS habitat would be temporarily affected for Alternative 2.	scrub and mule fat scrub. In addition, 2.85 acres of RSS habitat would be temporarily affected for Alternative 3.	fill material in areas where vegetation is adjacent to planned grading activities. A qualified biologist will supervise the placement of ESA fencing. **NC-2:** Prior to the completion of construction, the Resident Engineer will require the Contractor to hydroseed all temporarily impacted vegetation communities with appropriate native plant species that are approved by the Caltrans District 8 Biologist. Plant species used in the seeding should be similar to what was present in each area prior to the impact unless prohibited by Measures VA-17, VA-34, and VA-35.
Wetlands and Other Waters	No impact.	**Permanent** Based on preliminary engineering, Alternative 2 would result in 0.07 acre of permanent impacts to CDFW and RWQCB jurisdiction. **Temporary** Based on preliminary engineering, Alternative 2 would result in 4.56 acre of temporary impacts to United States Army Corps of Engineers (USACE) jurisdictional areas. Alternative 2 would result in 8.45 acres of temporary impacts to waters pursuant to CDFW and RWQCB jurisdiction.	**Permanent** Based on preliminary engineering, Alternative 3 would result in 0.09 acre of permanent impacts to waters pursuant to CDFW and RWQCB jurisdiction. **Temporary** Based on preliminary engineering, Alternative 3 would result in 20.41 acres of temporary impacts to USACE jurisdictional areas. Alternative 3 would result in 27.40 acres of temporary impacts to waters pursuant to CDFW and RWQCB jurisdiction.	**WET-1:** During PS&E, the Design Engineer will coordinate with the qualified biologist to delineate all ESAs within the project footprint and immediately surrounding areas in the project specifications. ESAs will include the Santa Ana River, Warm Creek Channel, and other Waters of the U.S. and Waters of the State that are not identified as temporarily or permanently impacted in the environmental document. Prior to clearing vegetation or construction within or adjacent to ESAs, the Contractor will be required to install highly visible barriers (e.g., orange construction fencing) adjacent to the project footprint to designate ESAs to be preserved in place. No grading or fill activity of any type will be permitted within these ESAs. In addition, no construction activities, materials, or equipment will be allowed within the ESAs. All construction equipment will be operated in a manner to prevent accidental damage to nearby ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within the ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of fill material in areas where vegetation is adjacent to planned grading activities. A qualified biologist will supervise the placement of ESA fencing. **WET-2:** A SWPPP will be prepared and implemented for the project, which will include all applicable water pollution control measures for the project. In addition, construction activities within the Santa Ana River will be designed and conducted to maintain downstream flow conditions. All construction activities will be effectively isolated from water flows to the greatest extent feasible. This may be accomplished by working in the dry season or dewatering the work area in the wet season. When work in standing or flowing water is required, structures for isolating the in-water work area and/or diverting the water flow must not be removed until all disturbed areas are cleaned and stabilized. The diverted water flow must not be contaminated by construction activities. Structures used to isolate the in-water work area and/or diverting the water flow (e.g., coffer dam, geotextile silt curtain) must not be removed until all disturbed areas are stabilized. **WET-3:** If groundwater dewatering is required for the project, the Applicant shall consult with the RWQCB to determine if additional permits are required. If additional RWQCB permits relating to dewatering are required, the designated RWQCB staff contact identified in this Certification must be notified and copied on pertinent correspondence pertaining to those other required permits. When dewatering is necessary, the water must be pumped or channeled through a sediment settling or filtration device prior to return discharge to the water body. The enclosure and the supporting material for settling or filtration devices must be removed when the dewatering activity is completed. Removal must proceed from upstream to downstream when multiple devices are deployed. Construction plans and specifications for dewatering and nonstormwater construction BMPs for clearwater diversion and dewatering operations will be implemented. **WET-4:** Prior to the completion of construction, Resident Engineer will require the Contractor to hydroseed temporarily impacted, earthen-bottom Waters of the U.S., Waters of the State, and other drainages with appropriate native plant species that are approved by the Caltrans District 8 Biologist. Plant species used in the seeding should be similar to what was present in each area prior to the impact. Specific revegetation criteria and plant establishment requirements may be required as part of the project's 401, 404, and 1602 permit conditions. **WET-5:** To offset impacts to jurisdictional resources and riparian vegetation communities, compensation for impacts will be made by purchasing mitigation credits from a mitigation bank or in-lieu fee program at a minimum 1:1 impact to mitigation ratio, or as otherwise indicated in the project's 401, 404, and/or 1602 permits.
Plant Species	No impact.	No impact.	No impact.	No measures required.

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
Animal Species	No impact.	**Permanent** *Burrowing Owl* Under Alternative 2, there would be 11.68 acres of permanent impacts to potential BUOW habitat. The build alternatives could result in indirect permanent effects to burrowing owls (BUOWs) through the loss of potential habitat. *Nesting Birds and Swallows* Raptors and migratory birds potentially using shrubs within the Biological Study Area (BSA) could be affected by their removal and/or proximity to construction activities. The proposed project would require removal of 374 eucalyptus trees adjacent to I-10. These trees harbor a higher potential to support nesting bird species due to their age and size. *Bats* The proposed widening of bridges to accommodate the additional EB and WB lanes could result in bat mortality if they are not excluded from the structures prior to the bridge widening activities. *Other Special-Status Animal Species* Permanent indirect effects to other non-listed special-status species could occur as a result of habitat loss and habitat fragmentation under the proposed build alternatives. **Temporary** Temporary effects to several special-status animal species may occur during construction of the build alternatives. *Burrowing Owl* The build alternatives could result in temporary construction effects to BUOWs through the unavailability of potential habitat during construction. Under Alternative 2, there would be 309.84 acres of temporary impacts to potential BUOW habitat. With implementation of the proposed measures, no substantial effects on BUOWs are anticipated. *Nesting Birds and Swallows* No raptor nests or other nests in trees or shrubs were observed during biological surveys, indicating that these resources may be less suitable for nesting than other	**Permanent** *Burrowing Owl* Under Alternative 3, there would be 39.43 acres of permanent impacts to potential BUOW habitat. The build alternatives could result in indirect permanent effects to BUOWs through the loss of potential habitat. *Nesting Birds and Swallows* Raptors and migratory birds potentially using shrubs within the BSA could be affected by their removal and/or proximity to construction activities. The proposed project would require removal of,1,148 eucalyptus trees adjacent to I-10. These trees harbor a higher potential to support nesting bird species due to their age and size. *Bats* The proposed widening of bridges to accommodate the additional EB and WB lanes could result in bat mortality if they are not excluded from the structures prior to the bridge widening activities. *Other Special-Status Animal Species* Permanent indirect effects to other non-listed special-status species could occur as a result of habitat loss and habitat fragmentation under the proposed build alternatives. **Temporary** Temporary effects to several special-status animal species may occur during construction of the build alternatives. *Burrowing Owl* The build alternatives could result in temporary construction effects to BUOWs through the unavailability of potential habitat during construction. Under Alternative 3, there would be 312.47 acres of temporary impacts to potential BUOW habitat. With implementation of the proposed measures, no substantial effects on BUOWs are anticipated. *Nesting Birds and Swallows* No raptor nests or other nests in trees or shrubs were observed during biological surveys, indicating that these resources may be less suitable for nesting than other	**Nesting Birds and Swallow Species** **AS-1:** To avoid effects to nesting birds, SANBAG's Resident Engineer will require the Contractor to conduct any native or exotic vegetation removal or tree-trimming activities outside of the nesting bird season (i.e., February 15 through August 31). If vegetation clearing or the start of construction in a previously undisturbed area is necessary during the nesting season, SANBAG's Resident Engineer will require the Contractor to have a qualified biologist conduct a preconstruction survey within 300 feet of construction areas no more than 30 days prior to construction at the location to identify the locations of nests, if any. A qualified biologist is one that has previously surveyed for nesting bird species within southern California. Should nesting birds be found, an exclusionary buffer will be established by the qualified biologist around each nest site. The buffer will be clearly marked in the field by construction personnel under guidance of the contractor's qualified biologist, and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active. The qualified biologist will monitor the nests on a weekly basis to ensure that construction activities do not disturb or disrupt nesting activities. If the qualified biologist determines that construction activities are disturbing or disrupting nesting activities, then the biologist will notify the Resident Engineer to stop or modify construction to reduce the noise and/or disturbance to the nests. Responses may include, but are not limited to, increasing the size of the exclusionary buffer, curtailing nearby work activities, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest and the construction activities, and/or working in other areas until the young have fledged. If more than 30 days lapses between the preconstruction survey and construction start date at that location, the survey will be reconducted. **AS-2:** Because work may occur during the swallow/swift nesting season (March 1 through August 31), swallows will be excluded from structures, if necessary, by a qualified biologist during the nonbreeding season no earlier than 5 days prior to the start of construction. Exclusion structures (e.g., netting and weep hole plugs) will be left in place and maintained through August 31 of each breeding season or until the work is complete. All nest exclusion techniques will be coordinated among the Caltrans District 8 Biologist, SANBAG's Project Manager, SANBAG's Resident Engineer, the Contractor, and CDFW. **Burrowing Owl** **AS-3:** Although current known areas of BUOW habitat have been mapped as part of this study, land development or other factors could modify the distribution of habitat within the study corridor. During PS&E, the Design Engineer will coordinate with the Designated Qualified Biologist to reassess potential BUOW habitat within the project footprint or in the immediately surrounding areas and will designate those areas on the project specifications. To ensure that any BUOW that may occupy the site in the future are not affected by construction activities, Resident Engineer will require the Contractor to have preconstruction BUOW surveys conducted by a qualified biologist within 30 days prior to any phase of construction in the areas identified as potential BUOW habitat in the project specifications. These preconstruction surveys are also required to comply with the federal Migratory Bird Treaty Act (MBTA). If any of the preconstruction surveys determine that BUOW are present, SANBAG's Resident Engineer will contact CDFW to identify appropriate avoidance and minimization measures, such as establishing an avoidance buffer and/or work in the vicinity with a biological monitor on hand. SANBAG's Resident Engineer will ensure that any BUOW measures determined to be required based on the results of the preconstruction surveys and the required coordination described above are properly implemented by the Contractor prior to and during construction in areas occupied by BUOW, as identified in the preconstruction surveys. **Bats** **AS-4: Bat Surveys.** During PS&E, the Project Manager will coordinate with the designated qualified biologist to identify all areas of potential bat habitat within and immediately adjacent to the project footprint and will designate those areas on the project specifications, including, but not limited to, the following assessment features: bridge type, geographic region, and potential deterrents. Structures currently considered to contain potential bat habitat include bridges that span surface water within the vicinity including, but not limited to, the Warm Creek Channel, Santa Ana River, San Sevaine Channel, Etiwanda Wash, Rialto Channel, Mission Channel, San Timoteo Creek, and Zanja Creek. Ornamental trees that will be impacted where roosting may occur will also be included in the bat surveys. Prior to construction at structures with potential bat habitat as identified in the project specifications, the Project Manager will require the Contractor to have a qualified bat biologist conduct a series of surveys of all potential bat

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
		resources located outside the BSA and farther away from I-10. Temporary effects on swallows would occur during exclusion activities. Depending on the timing of construction, swallow exclusion would not likely be required for more than two nesting seasons. *Bats* Both build alternatives would have impacts on bridges that are likely used as habitat by bats. *Other Special-Status Animal Species* Temporary direct impacts to other special-status animal species would include temporary loss of habitat, including trees and shrubs used for nesting and burrows used by ground-dwelling mammals and reptiles. Species that are relatively mobile (e.g., birds and many small mammals and reptiles) would likely disperse into nearby areas. Some mortality of less mobile and burrowing species may occur. Temporary impacts would be limited to the construction period and include increased noise levels and increased human disturbance, and no substantial temporary effects on nesting birds are anticipated. Temporary indirect effects on wildlife beyond the BSA could result from impacts to water quality during construction.	resources located outside the BSA and farther away from I-10. Temporary effects on swallows would occur during exclusion activities. Depending on the timing of construction, swallow exclusion would not likely be required for more than two nesting seasons. *Bats* Both build alternatives would have impacts on bridges that are likely used as habitat by bats. *Other Special-Status Animal Species* Temporary direct impacts to other special-status animal species would include temporary loss of habitat, including trees and shrubs used for nesting and burrows used by ground-dwelling mammals and reptiles. Species that are relatively mobile (e.g., birds and many small mammals and reptiles) would likely disperse into nearby areas. Some mortality of less mobile and burrowing species may occur. Temporary impacts would be limited to the construction period and include increased noise levels and increased human disturbance, and no substantial temporary effects on nesting birds are anticipated. Temporary indirect effects on wildlife beyond the BSA could result from impacts to water quality during construction.	habitat areas. Surveys will occur during the bat breeding season (preferably May or June) immediately preceding the start of construction, to assess the potential for the presence of roosts. The qualified bat biologist must have previously conducted bat surveys for the bat species most likely to be present within the study corridor. Bat surveys may be conducted acoustically, using an acoustic bat-call detector such as an Anabat device, or may be conducted visually by inspection of suspected bat roost areas. The qualified bat biologist will also perform preconstruction surveys at structures and ornamental trees potentially containing bats because bat roosts can change seasonally. The surveys will include structure inspection, sampling, exit counts, and acoustic surveys. **AS-5: Bat Exclusion.** If bat roosts are found, a qualified bat biologist will be onsite for the duration of construction activities that may impact bats. If it is determined that the roosts are present and, based on consultation with CDFW, exclusion is warranted, bats will be excluded from the bridge using CDFW-approved exclusionary devices to the extent necessary to prevent mortality to the colony. Exclusion will take place prior to April 15. Caltrans will confer with CDFW to identify and implement appropriate avoidance and minimization efforts that are satisfactory to CDFW. Examples of exclusion devices are provided in Figures 4-5, 4-6, and 4-7 of the Natural Environment Study (NES). **AS-6: Bat Replacement Roosting Structures.** If bat exclusion is conducted, replacement roosting habitat may also be required by CDFW to offset and minimize impacts to excluded bats in the project's Lake and Streambed Alteration Agreement. Replacement roosts will be built according to bat house standards (e.g., those endorsed by Bat Conservation International) and will be placed within close proximity to impact areas. Bat houses must be constructed, painted, and placed carefully in specific locations based on the aspect of a given site, the expected temperatures within the bat house location, and the exposure to weather elements. All bat exclusion techniques and replacement roosting habitat will be coordinated among the Caltrans District 8 Biologist, SANBAG's Project Manager, SANBAG's Resident Engineer, the Contractor, the Contractor's Designated Qualified Bat Biologist, and CDFW. Replacement roosting habitat will adhere to guidance provided in the *Bat and Bridges Technical Bulletin: Hitch Hikers Guide to Bat Roosts* (September 2002).
Threatened and Endangered Species	No impact.	Alternative 2 would result in 0.39 acre of temporary impacts and less than 0.01 acre of permanent effects to mapped Santa Ana Sucker Critical Habitat (CH). Alternative 2 would result in 48.10 acres of temporary effects to potentially suitable Delhi Sands Flower-Loving Fly (DSF) habitat. Alternative 2 would result in 0.33 acre of temporary effects to mapped Southwestern Willow Flycatcher CH.	Alternative 3 would result in 0.59 acre of temporary impacts and less than 0.01 acre of permanent effects to mapped Santa Ana Sucker CH. Alternative 3 would result in 48.15 acres of temporary effects to potentially suitable DSF habitat. Alternative 3 would result in 0.59 acre of temporary effects to mapped Southwestern Willow Flycatcher CH.	**TE-1:** During PS&E, SANBAG's Design Engineer will coordinate with the qualified biologist to delineate all ESAs within the project footprint and immediately surrounding areas in the project specifications. ESAs will include the Santa Ana River, Warm Creek Channel, and DSF potentially suitable habitat that are not identified as temporarily or permanently impacted in the environmental document. Prior to clearing vegetation or construction within or adjacent to ESAs, the Contractor will install highly visible barriers (e.g., orange construction fencing) adjacent to the project footprint to designate ESAs to be preserved in place. No grading or fill activity of any type will be permitted within these ESAs. In addition, no construction activities, materials, or equipment will be allowed within the ESAs. All construction equipment will be operated in a manner to prevent accidental damage to nearby ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within the ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of fill material in areas where vegetation is adjacent to planned grading activities. A qualified biologist will supervise the placement of ESA fencing. **TE-2:** A preconstruction survey will be conducted by a qualified biologist for the Santa Ana River woolly-star within the BSA in the vicinity of Warm Creek Channel and the Santa Ana River. The preconstruction survey will be conducted during the blooming season (i.e., May to September) prior to initiation of construction activities within the area of Warm Creek Channel and the Santa Ana River. If the species is found within the construction footprint during the preconstruction surveys, then Caltrans will reinitiate consultation with the United States Fish and Wildlife Service (USFWS) and CDFW in accordance with the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA). If present, one or more of the following mitigation strategies will be required: purchase of credits from a mitigation bank; onsite conservation of existing Santa Ana River woolly-star through avoidance and designation of ESAs; and/or translocation of Santa Ana River woolly-star outside of the project ROW to areas of suitable habitat, as identified by a Contractor-supplied plant biologist with knowledge of and experience with

Table S-1 Project Impact Summary Table

Resource Impacts	Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)	Avoidance, Minimization and/or Mitigation Measures
				translocation of local flora species of the region. **TE-3:** A preconstruction survey will be conducted by a qualified biologist for the slender-horned spineflower within the BSA in the vicinity of Warm Creek Channel and the Santa Ana River. The preconstruction survey will be conducted during the blooming season (i.e., May through September) prior to initiation of construction activities within the area of Warm Creek Channel and the Santa Ana River. If the species is found within the construction footprint during the preconstruction surveys, then Caltrans will reinitiate consultation with USFWS and CDFW in accordance with FESA and CESA. If present, one or more of the following mitigation strategies will be required: purchase of credits from a mitigation bank; onsite conservation of existing slender-horned spineflower through avoidance and designation of ESAs; and/or translocation of slender-horned spineflower outside of the project ROW to areas of suitable habitat, as identified by a Contractor-supplied plant biologist with knowledge of and experience with translocation of local flora species of the region. **TE-4:** Presence/absence surveys for the DSF will be conducted in areas identified by the habitat assessment as potentially suitable habitat during the 2015 and 2016 survey periods. Presence/absence surveys will conform with the latest USFWS guidelines for conducting these surveys, likely to include surveys two times per week from July 1 to September 20 for 2 consecutive years under suitable conditions. If surveys find that DSF are present, Caltrans will initiate formal consultation with USFWS pursuant to FESA Section 7. If presence/ absence surveys determine that DSF are present, mitigation credits will be purchased at a minimum 1:1: ratio for all permanent impacts to occupied suitable DSF habitat. Potential regional DSF conservation programs that may be used for compensatory mitigation include the Reichel Habitat Conservation Plan (HCP), the Angelus Block Property, the Owl Company Property, the Laing Homes (King is Coming) Site, the Hospital Site, the Colton Substation Site, and/or the Vulcan Materials DSF Mitigation Bank. Concurrence by USFWS is required. Caltrans will not begin construction on the proposed project until a Biological Opinion (BO) has been completed, which will require providing documentation to the satisfaction of USFWS regarding successful implementation and funding of the conservation strategy.
Invasive Species	No impact.	The plant palette used for revegetation would not include invasive species; therefore, the build alternatives for the proposed project would not have a substantial effect on invasive species.	The plant palette used for revegetation would not include invasive species; therefore, the build alternatives for the proposed project would not have a substantial effect on invasive species.	**IS-1:** In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from FHWA, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity (i.e., near or adjacent to drainages), extra precautions will be taken if invasive species are found in or next to the construction areas. This will include the inspection and cleaning of construction equipment and eradication strategies, as required by the Caltrans Biological Monitor, to be implemented should an invasion occur. Any cleaning of equipment or site watering will be conducted in adherence to any applicable drought conditions and related regulations.
Cumulative Impacts	Continued and increasing congestion, travel times, and related air emissions.	No adverse cumulative impacts are anticipated.	No adverse cumulative impacts are anticipated.	Project-specific measures described within this table would reduce and minimize potential cumulative impacts.

S-5 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 have been accomplished through a variety of formal and informal methods, including monthly Project Development Team (PDT) meetings, Community Advisory Group (CAG) 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, Comments and Coordination, summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

In compliance with 23 U.S.C. 139, 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 23 U.S.C. 139 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 San Bernardino 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 two public scoping meetings, and given the opportunity to submit comments in a variety of formats.

Between November 2012 and April 2016, SANBAG and Caltrans continued a robust public outreach effort. To date, 903 meetings have been held and fall within the general classifications provided below.

- Public Scoping Meetings – Formal Scoping Meetings, advertised for public input.
- Agency Scoping Meeting – Formal Scoping Meeting.
- CAG Meetings – Meetings to inform local community leaders about the project and gather input from the local community leaders.

- Briefings – Meetings with key stakeholders, including local governments (elected officials and City staff), boards, committees, community-based groups, and other entities.
- Grassroots Canvassing – Visits to each of the cities and communities along the I-10 corridor, including 'downtown' districts and small business strips, as well as public attractions within that community (e.g., city halls, libraries, senior centers, community centers).
- SANBAG Board Meetings – Business matters and/or updates on the project at regularly scheduled SANBAG Board and Committee meetings. Input provided by SANBAG Board Members.
- 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

The concept of Express Lanes proposed under Alternative 3 is a new concept in San Bernardino County; therefore, the level of public acceptance is unknown. This may be perceived as a substantial adverse impact.

Project Schedule

Table S-2 summarizes the general schedule for the project, subject to funding availability and obtaining all required approvals and permits.

Table S-2 Project Schedule

Milestone	Date
Circulation of Draft EIR/EIS	Spring 2016
Identify Preferred Alternative	Spring 2016
Circulation of Final EIR/EIS	Spring 2017
Issue ROD	Summer 2017
Completion of anticipated permits, licenses, and approvals after ROD	2018
Anticipated begin construction	2019

Permits and Approvals Needed

The permits and/or approvals listed in Table S-3 are anticipated to be required for project construction. Caltrans will work closely with all of 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-3 Permits and Approvals

Agency	Permits/Approval	Status
Federal Agency Permits/Approvals		
United States Army Corps of Engineers (USACE)	Section 404 Permit for filling or dredging waters of the U.S.	Section 404 Permit will be obtained prior to project construction. Application for 404 Permit is anticipated after Final EIR/EIS distribution.
FHWA	Project-Level Air Quality Conformity Finding	FHWA concurrence needed prior to approval of Final EIR/EIS and ROD.
	Project Management Plan, Initial Financial Plan, and Cost Estimate Review	These documents are required and will be submitted to FHWA after approval of the Final EIR/EIS.
State Agency Permits/Approvals		
California Department of Fish and Wildlife (CDFW)	Section 1602 Streambed Alteration Agreement	Application for Section 1602 agreement anticipated after Final EIR/EIS distribution. The Section 1602 Agreement will be obtained prior to construction.
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. This permit will be obtained prior to construction.

Table S-3 Permits and Approvals

Agency	Permits/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)	The relocation may qualify for an exemption from the CPUC Certificate of Public Convenience and Necessity (CPCN) requirements discussed in Section III.A of CPUC General Order 131-D and/or pursuant to related case law. Compliance with CPUC General Order 131-D regarding relocation electrical lines 50 kilovolts (kV) or greater	SCE will make the determination of CPUC permitting upon review of further engineering and the Final EIR/EIS. Prior to relocation of electrical lines 50 kV or greater, permit approval must be obtained from CPUC. Coordination to obtain the permit is ongoing.
	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. Coordination has not begun.
UPRR and BNSF	Memorandum of Understanding (MOU) and Construction and Maintenance Agreement with the Railroad	Must be completed prior to construction within or above railroad ROW. Coordination with UPRR and BNSF will begin after approval of the Final EIR/EIS.
County Agency Permits/Approvals		
San Bernardino County Flood Control District (SBCFCD)	Encroachment Permit	Letter or permit will be obtained during final design or construction within SBCFCD property. Coordination has not begun. Coordination with SBCFCD will begin after approval of the Final EIR/EIS.
SANBAG	Maintenance, Operations, and Law Enforcement Agreements (Alternative 3 only)	Maintenance, toll operations, and law enforcement agreements between SANBAG, the toll operator, CHP, and Caltrans will be required if Alternative 3 is selected as the Preferred Alternative. These will be obtained prior to opening of the Express Lanes.

Table S-3 Permits and Approvals

Agency	Permits/Approval	Status
Utility Company/County and Municipal Service Provider Permits/Approvals		
Atchison, Topeka and Santa Fe Railway, Colton Electric Utility, Southern California Edison, Southern California Gas Company, Union Carbide, American Cablevision, Comcast, IC, Level 3 Communications/Wiltel, Sprint Telecom Corp, Time Warner Cable, Time Warner Telecom, Western Union Telegraph, Verizon (including MCI/GTE), AT&T (including Pacific Bell), Chino Basin Municipal Water District, CCH, City of Ontario, City of Montclair, City of Riverside, City of San Bernardino, City of Upland, CWD, Fontana Water Company, Marygold Mutual Water Company, Metropolitan Water District of Southern California, Monte Vista Water District, Metropolitan Water District, Riverside Highland Water Company, San Gabriel Valley Water, San Antonio Water Company, Southern California Water, SPTC, West Valley Water, Water Facilities Authority, Chino Basin Municipal Water District, City of Colton Water, City of Colton Public Works Department, City of Fontana, City of Ontario, City of Loma Linda Water, City of Montclair, City of Ontario, City of San Bernardino, City of Upland, City of Rialto Department of Public Works, Fontana Public Works, Western Pacific Sanitation, California-Nevada Pipeline, Southern Pacific Railroad, Santa Ana Watershed Project Authority	Approval to relocate, protect in place, or remove utility facilities	Approval will be obtained prior to any construction within utility conflict areas. Coordination will begin following the selection of a Preferred Alternative.
Local Jurisdiction Permits/Approvals		
Cities of Pomona, Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, and Redlands	Freeway Agreements	Agreements will be concluded with each of the cities in which project construction will take place. Freeway agreements will be developed following the completion of final design. Coordination has not begun.
Cities of Montclair and Redlands, County of San Bernardino, and Ontario-Montclair School District	Section 4(f) Technical Study finding	Concurrence with finding of impacts to Section 4(f) resources (parks) prior to Preferred Alternative being selected.

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List of Technical Studies

Air Quality Technical Study (Terry A. Hayes Associates, Inc., March 2016)

Archaeological Survey Report (Applied Earthworks, Inc., April 2015)

Community Impact Assessment (Parsons, October 2015)

District Preliminary Geotechnical Report (Earth Mechanics, Inc., April 2015)

Finding of No Adverse Effect with Non-Standard Conditions (Applied EarthWorks, Inc., May 2015)

Floodplain Evaluation Report (Parsons, December 2014)

Historical Resources Evaluation Report (Applied EarthWorks, Inc., April 2015)

Historic Property Survey Report (Applied Earthworks, Inc., April 2015)

Initial Site Assessment (Parsons, September 2014)

Jurisdictional Delineation Report (Ecorp, Inc., October 2015)

Natural Environment Study (Ecorp, Inc., December 2015)

Noise Abatement Decision Report (Parsons, July 2015)

NADR Addendum (Parsons, August 2015)

Noise Study Report (Parsons, July 2015)

NSR Addendum (Parsons, August 2015)

Paleontological Identification and Paleontological Evaluation Report (Cogstone, December 2014)

Relocation Impact Statement (Parsons, September 2015)

Traffic Study (Parsons, August 2014)

Visual Impact Assessment (Parsons, March 2015)

Water Quality Assessment Report (Parsons, May 2015)

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Chapter 1 Proposed Project

1.1 Introduction

California Department of Transportation (Caltrans), in cooperation with the San Bernardino Associated Governments (SANBAG), proposes to improve Interstate 10 (I-10) by relieving traffic congestion and implementing operational improvements on I-10 from approximately the city of Pomona to the city of Redlands. Please refer to Figures 1-1 and 1-2 for project location and vicinity maps. The Interstate 10 Corridor Project (I-10 CP) proposes a No Build Alternative (Alternative 1) and two build alternatives (Alternatives 2 and 3). The build alternatives associated with the I-10 CP would reduce traffic congestion, increase throughput, and enhance trip reliability for the planning design year of 2045 and is expected to be open to traffic by year 2025.

Caltrans is the lead agency under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). SANBAG is the project sponsor.

1.1.1 Project Location and Setting

I-10 is a transcontinental freeway extending eastward from Santa Monica, California, to Jacksonville, Florida. The 1990 Federal Surface Transportation Assistance Act (STAA) identifies I-10 as a "National Network" route for STAA trucks. The Federal Functional Clarification for I-10 is a Rural Principal Arterial and extension of a Rural Principal Arterial into an urban area. Within southern California, I-10 is included in the National Highway System and the Rural and Single Interstate Routing System.

Within the project study area, I-10 is a major east-west freeway facility that has major junctions with Interstate 15 (I-15), Interstate 215 (I-215), and State Route (SR) 210, designated as either the San Bernardino Freeway or Redlands Freeway.

The project limits, including transition areas, extend from approximately 0.4 mile west of White Avenue in the city of Pomona at LA Post Mile (PM) 44.9 to Live Oak Canyon Road in the city of Yucaipa at SBd PM R37.0. Within the project limits, I-10 is generally an eight-lane divided controlled-access freeway with four general purpose (GP) lanes in each direction and auxiliary lanes along selected portions of the route. Between the Los Angeles/San Bernardino (LA/SB) county line and Haven Avenue, there is one high-occupancy vehicle (HOV) lane in each direction, which is separated from the GP lanes via a 2- to 4-foot-wide striped buffer. The existing lane

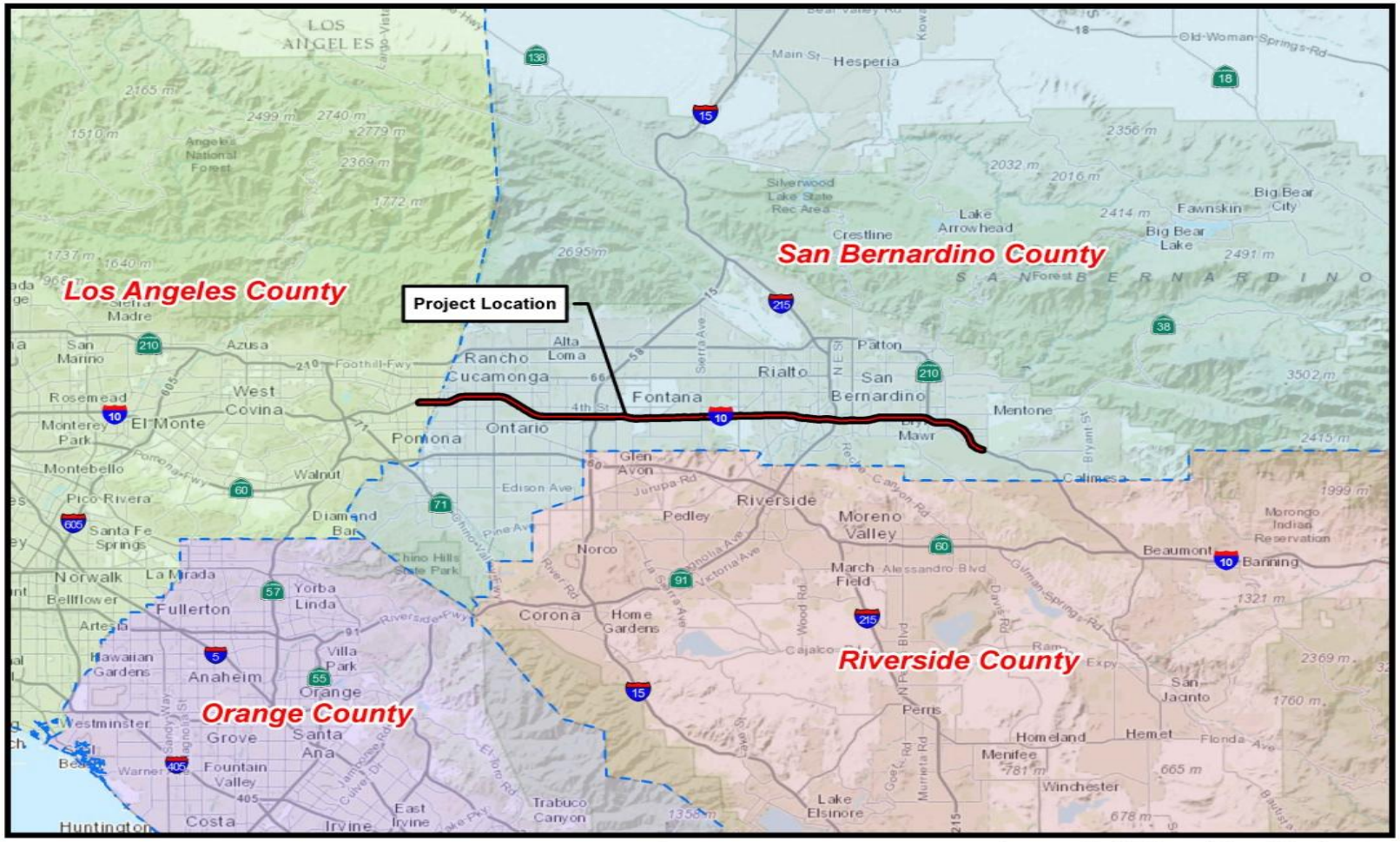

Figure 1-1 Vicinity Map

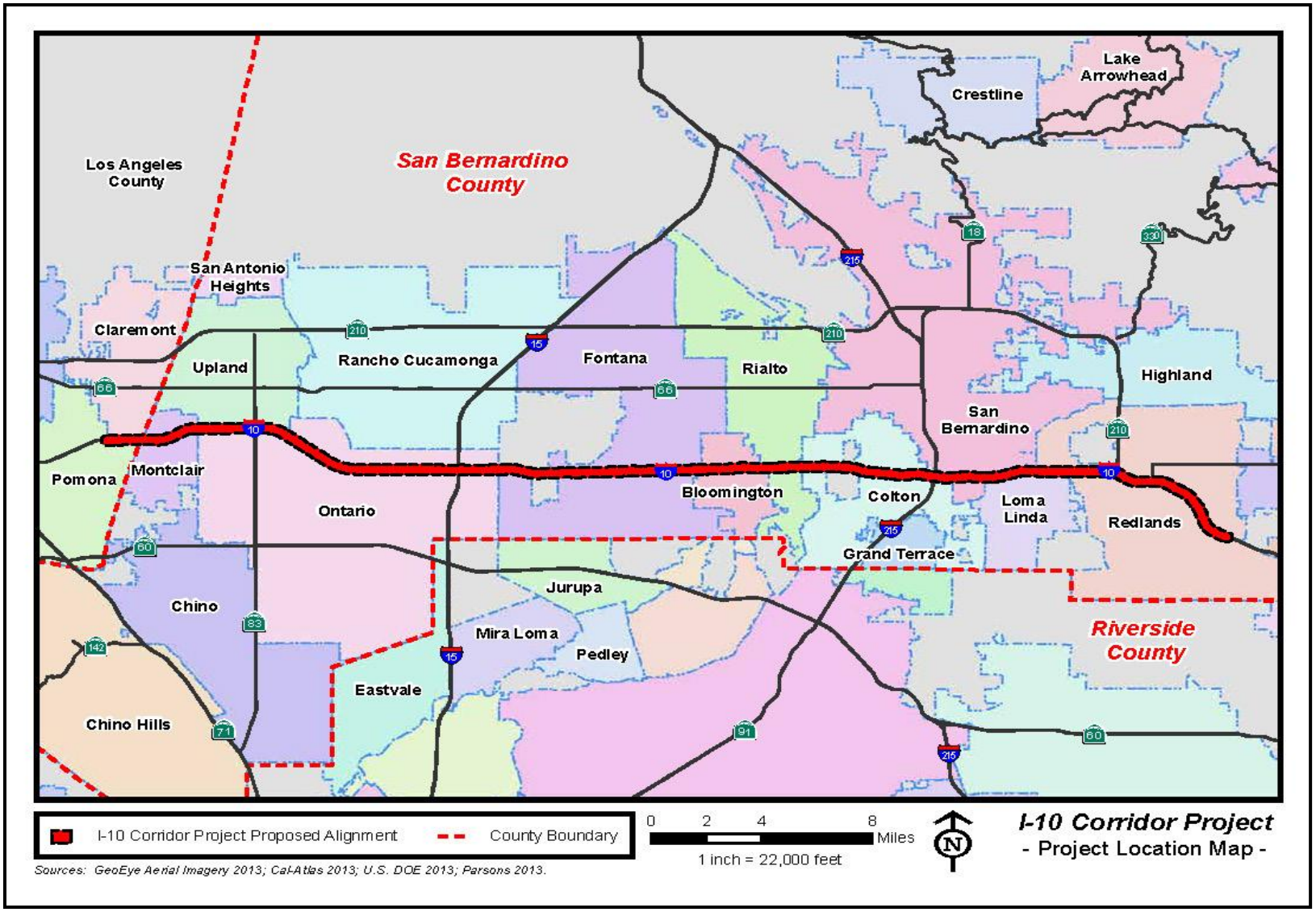

Figure 1-2 Location Map

width is generally 12 feet throughout the corridor, except for the HOV lanes west of I-15, which are 11 feet wide. The outside shoulder has the standard width of 10 feet, while the inside shoulder varies from 8 feet west of I-15 to 17 feet (not entirely paved) east of I-15. There are 45 existing auxiliary lanes along the project corridor, including 21 in the westbound (WB) direction and 24 in the eastbound (EB) direction. All of the existing auxiliary lanes would be re-established as part of the project improvements. The project traverses the communities of Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Bloomington, Rialto, Colton, San Bernardino, Loma Linda, and Redlands. Land uses in the project study area include residential, commercial, industrial, undeveloped/vacant, and governmental west of I-15; a mix of residential, commercial, and industrial land uses between I-15 and SR-210; and residential communities between SR-210 and Ford Street.

1.1.2 Programming Status

The proposed I-10 CP is included in the 2012 Regional Transportation Plan (RTP) (RTP ID 4H01001) and 2015 Federal Transportation Improvement Program (FTIP). On September 11, 2014, the Southern California Association of Governments (SCAG) Regional Council approved Amendment #2 to the 2012-2035 RTP/Sustainable Communities Strategy (SCS) after a 30-day public review and comment period. Amendment #2 was developed as a response to changes to projects in the 2012-2035 RTP/SCS but also includes the complete list of modeled projects. The 2012-2035 RTP/SCS includes both Alternatives 2 and 3. Alternative 2 is identified by RTP ID 4H01001 and is described as "I-10 HOV Lane Addition – from Haven (Ontario) to Ford Street (Redlands) – Widening from 8-10 lanes, aux lanes widening, undercrossing, and reconstruction of ramps where needed." Alternative 3 is identified by RTP IDs 4122004 and 4122005 and is described as "I-10 Express Lane Addition from Garey Avenue to the Ford Street Undercrossing – Express Lane widening to implement two (2) express lanes in each direction for a total of 12 lanes including auxiliary lane widening, undercrossings, overcrossings, and reconstruction of ramps where needed."

1.1.3 Planning Background

The current Route Concept Report identifies the ultimate concept facility for I-10 within the project area as a 12-lane freeway, with 4 HOV and 8 mixed-flow lanes. In 2000, HOV lanes were constructed on I-10 between the LA/SB county line and Haven Avenue in Ontario. In 2007, the I-10 corridor widened from 6 lanes to 8 lanes from Orange Street to Ford Street in Redlands.

An Initial Study/Environmental Assessment (IS/EA) was initiated for the I-10 HOV Lane Addition Project in 2008. This 25-mile-long project proposed to construct HOV lanes in both directions of I-10 in San Bernardino County, in addition to adding auxiliary lanes between freeway ramps at various locations. In 2010, SANBAG evaluated the feasibility of including a 33-mile-long Express Lane Alternative as part of the I-10 HOV Lane Addition Project. SANBAG also evaluated funding strategies for implementing an Express Lane project. SANBAG concluded that the Express Lane Alternative would be appropriate to include as an alternative to be studied within the I-10 HOV Lane Addition Project. This conclusion was reached based on preliminary studies showing the physical feasibility, operational benefits, and economic viability of this alternative, including its consistency with the I-10 Project purpose and need. In August 2011, the SANBAG Board of Directors voted in favor of moving forward with a comprehensive study and included the Express Lane Alternative in the I-10 CP.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the I-10 CP is to improve traffic operations on I-10 in San Bernardino County to:

- Reduce congestion;
- Increase throughput;
- Enhance trip reliability; and
- Accommodate long-term congestion management of the corridor.

In furtherance of the project's purpose, the objectives of the project are to:

- Reduce volume-to-capacity (v/c) ratios along the corridor;
- Improve travel times within the corridor;
- Relieve congestion and improve traffic flow on the regional transportation system;
- Address increased travel associated with existing and planned development;
- Provide a facility that is compatible with transit and other modal options;
- Provide consistency with the SCAG RTP, where feasible and in compliance with Federal and State regulations;
- Provide a cost-effective project solution;

- Minimize environmental impacts and right-of-way (ROW) acquisition; and
- Promote sustainable travel and livability for the corridor.

1.2.2 Need

I-10 is a critical link in the state transportation network and is used by interstate travelers, local commuters, and regional and inter-regional trucks. The efficient movement of traffic through San Bernardino County is limited by the existing capacity of the transportation networks.

Existing deficiencies of I-10 include:

- GP lanes peak-period traffic demand currently exceeds capacity; and
- I-10 HOV lanes operation is reduced during peak periods.

Forecasted deficiencies of the I-10 include:

- Local and regional traffic demand is expected to increase due to population growth;
- Increase in delays;
- Increase in accidents;
- Regional/local circulation will worsen as additional traffic avoids congestion on the freeway;
- Interchange/junctions traffic service will worsen as additional traffic attempts to enter and exit the freeway;
- Bus/multimodal travel time will increase due to congestion and become unreliable due to additional congestion; and
- I-10 HOV will continue to degrade as speed decreases on the facility due to the increase in traffic volumes.

1.2.2.1 Existing Capacity and Level of Service

Currently, there is insufficient capacity on I-10 to accommodate existing and future travel demands within the project limits with the current configuration.

The ability of a highway to accommodate traffic is typically measured in terms of traffic levels of service (LOS)[1]. Figure 1-3 shows a pictorial representation of the six LOS for freeways. An analysis of the existing LOS on I-10 from the LA/SB county line to Ford Street (see Table 1-1 for mainline GP and Table 1-2 for mainline HOV analysis) was conducted.

Tables 1-1 and 1-2 show that the current configuration on I-10 has insufficient capacity to accommodate existing travel demands. Based on 2012 traffic volumes, traffic capacity analysis shows that sections of I-10 currently operate at unacceptable LOS with v/c[2] ratios in excess of 1.00 on all segments during one or both of the peak hours.

Under the current configuration, an HOV lane exists between the LA/SB county line and Haven Avenue within the project area. The existing EB HOV lane experiences congestion during the afternoon peak hours. Based on the 2013 California HOV Degradation Determination Report prepared by Caltrans, the existing HOV lane in the EB direction of I-10 between 4th Street (PM 5.0) and Milliken Avenue (PM 9.9) experienced considerable congestion in 2013 and is considered to be "degraded," requiring corrective actions in accordance with the mandates of the federal Moving Ahead for Progress in the 21st Century Act (MAP-21).

By year 2045, traffic is projected to grow by approximately 36 to 60 percent in response to population and employment increases in the corridor and region. Tables 1-1 and 1-2 show that by 2025 all segments of I-10 in the project area will be operating at unacceptable LOS F in both directions during one or both peak hours, with v/c ratios in excess of 1.00. This is indicative of extensive congestion.

[1] LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six LOS are defined for each type of facility that has analysis procedures available.

Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of those conditions. (HCM 2-2)

[2] V/C ratio is a measure of the amount of traffic (volume) compared to the ability of the roadway (capacity) to serve the volume. A value below 1.00 indicates that the roadway can accommodate additional volume, and a value in excess of 1.00 indicates that the roadway will have substantial congestion and unstable traffic flow. Under future conditions, v/c in excess of 1.00 indicates that forecast traffic demand exceeds capacity. Under existing conditions, v/c in excess of 1.00 indicates that the volume exceeds the maximum sustainable flow rate, and congested conditions are likely.

LEVELS OF SERVICE
for Freeways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

Source: Caltrans Standard Environmental Reference, 2008.

Figure 1-3 LOS Thresholds for a Basic Freeway Segment

Table 1-1 I-10 Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio

Segment	EB or WB	Existing 2012				Year 2025 No Build				Year 2045 No Build			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		LOS	V/C	LOS	V/C	LOS	D/C	LOS	D/C	LOS	D/C	LOS	D/C
LA/SB County Line to Haven Avenue	EB	D	1.00	F	0.99	D	0.94	F	1.03	F	1.17	F	1.09
	WB	F	1.11	F	1.01	F	1.18	F	1.32	F	1.23	F	1.49
Haven Avenue to California Street	EB	F	1.06	F	1.16	F	1.27	F	1.39	F	1.37	F	1.41
	WB	F	1.17	E	0.99	F	1.29	F	1.25	F	1.44	F	1.39
California Street to Ford Street	EB	B	0.52	F	1.02	C	0.58	F	1.23	D	0.78	F	1.42
	WB	F	1.08	C	0.64	F	1.31	C	0.73	F	1.54	F	0.91

EB – Eastbound; WB – Westbound; Den – Density; LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio
* GP lane LOS is based on density, except when traffic demand v/c or d/c is greater than 1.00, which is LOS F.

Source: I-10 Corridor Traffic Study, 2014.

Table 1-2 I-10 Mainline HOV Lane Density, LOS, and Volume-to-Capacity Ratio

Segment	EB or WB	Existing 2012				Year 2025 No Build				Year 2045 No Build			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		LOS	V/C	LOS	V/C	LOS	D/C	LOS	D/C	LOS	D/C	LOS	D/C
LA/SB County Line to Haven Avenue	EB	C	0.72	F	0.78	C	0.68	F	1.02	E	0.95	F	1.12
	WB	D	0.81	C	0.63	E	0.92	F	1.31	F	1.04	F	1.46

EB – Eastbound; WB – Westbound; Den – Density; LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio;
* HOV lane LOS is based on v/c ratios (or d/c ratios).

Source: I-10 Corridor Traffic Study, 2014.

Population and Traffic Forecasts

According to population growth forecasts published by SCAG, the population within the southern California region is expected to increase by 4.3 million new residents between 2008 and 2035. The SCAG region consists of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. Key demographic projections for San Bernardino County and the SCAG region are provided in Table 1-3.

Table 1-3 Key Demographic Data

Area	Population	Resident Population	Households	Residents Employed
Existing – 2012				
San Bernardino County	2,015,994	1,962,290	605,913	700,600
SCAG Region	16,964,830	16,640,598	548,465	7,386,196
2035				
San Bernardino County	2,749,810	2,685,254	847,405	1,059,329
SCAG Region	21,852,486	21,497,514	7,230,262	9,310,132
Percent Growth from 2012 to 2035				
San Bernardino County	36	37	40	51
SCAG Region	29	29	29	26

Source: SCAG, Regional Growth Forecasts, 2012-2035
http://www.scag.ca.gov/DataAndTools/Pages/GrowthForecasting.aspx.

Although the regional growth rate stabilized in the last 20 years, from 1990 to 2010 the urbanization and suburbanization of the region has continued (SCAG RTP). In 2010, San Bernardino County exceeded 2 million people and increased its share of the population from 17.7 percent in 1990 to 23.4 percent in 2010. According to SCAG, the fast growth of population relative to employment in Riverside and San Bernardino counties has led to an imbalance of jobs and housing in the region, which has led to increased congestion that is expected to continue.

I-10 is continuing to experience increased congestion as a result of population growth, particularly in San Bernardino County, and due to an increase in jobs in San Bernardino and Los Angeles counties. Based on the demographic projections for the SCAG region shown in Table 1-3, the number of residents in San Bernardino County is expected to increase by approximately 37 percent by 2035, which would result in increased congestion and delays on I-10. Those projections show that population and employment in San Bernardino County and the SCAG region are forecast to increase substantially by 2035, by 26 to 51 percent, as shown in Table 1-3.

Average daily traffic (ADT) volumes and vehicle miles traveled (VMT) projections along the I-10 corridor for opening year 2025 and design year 2045 conditions compared to existing (2012) conditions are summarized in Table 1-4.

Table 1-4 ADT and VMT Existing (2012), 2025 No Build, and 2045 No Build

Segment	Existing (2012)		Year 2025 No Build		Year 2045 No Build	
	ADT	VMT[1]	ADT	VMT[1]	ADT	VMT[1]
LA/SB County Line and Haven Avenue	230,000	2,258,000	288,000	2,736,000	313,000	3,067,000
Haven Avenue and California Street	181,000	3,875,000	221,000	4,313,000	257,000	5,303,000
California Street and Ford Street	151,000	1,146,000	191,000	1,146,000	241,000	1,376,000

[1]Average weekday vehicle miles traveled.

Source: I-10 Corridor Traffic Study, 2014.

Projected Capacity Needs, Delay, and Level of Service

Without any improvements in the I-10 corridor, additional traffic congestion resulting from regional growth will further degrade traffic LOS and worsen operational deficiencies in the future, as shown in Tables 1-1 and 1-2. In years 2025 and 2045, traffic is forecast to operate at LOS F along the entire corridor for both the GP lanes and HOV lanes during one or both peak hours, with v/c ratios ranging from 1.02 to 1.42.

Average Speed, Travel Time, and Delay

Given SCAG's projections of population growth, travel speeds are forecasted to decrease considerably, operating at an unacceptable LOS F. The *I-10 Corridor Project Traffic Study* (August 2014) used peak-hour speeds, travel time, annual delay in time, and annual cost of delay to compare the current and projected trip reliability.

Table 1-5 summarizes the year 2012, year 2015 and forecast peak-hour speeds during the morning (AM) and evening (PM) peak hours for existing and no-build conditions. Year 2015 speeds are also provided in Table 1-5 as supplemental data to year 2012 existing condition speeds. The year 2015 speeds do not replace the year 2012 speeds. The speed data provide supplemental and more current information than the year 2012 existing condition data. As shown in Table 1-5, the entire corridor speeds have decreased in year 2015. The decreases in speeds predominantly occur in Segment 1 in both directions in the GP and HOV lanes and in the EB direction in the GP lanes during the PM peak hour in all segments.

Table 1-5 I-10 Freeway Mainline Speed[1]
2012, 2015, and No-Build Conditions (2025 and 2045)

I-10 Average Speed (miles-per-hour)	2012				2015[2]				2025 Alternative 1				2045 Alternative 1			
	GP		HOV		GP		HOV		GP		HOV		GP		HOV	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EASTBOUND																
Segment 1 (County Line to I-15)	57	54	65	63	54	34	56	41	52	41	65	52	28	33	57	44
Segment 2 (I-15 to I-215)	60	56			58	36			46	31			14	16		
Segment 3 (I-215 to SR-210)	63	42			63	28			58	16			40	10		
Segment 4 (SR-210 to Ford)	65	42			60	45			65	21			63	10		
Entire Corridor[3]	**60**	**53**	**61**	**56**	**59**	**36**	**58**	**37**	**52**	**33**	**55**	**38**	**29**	**21**	**36**	**27**
WESTBOUND																
Segment 1 (County Line to I-15)	48	46	62	65	30	38	49	51	20	13	53	13	15	10	43	10
Segment 2 (I-15 to I-215)	59	59			56	60			46	39			29	15		
Segment 3 (I-215 to SR-210)	32	62			49	62			20	55			10	42		
Segment 4 (SR-210 to Ford)	34	65			38	64			13	64			10	56		
Entire Corridor[3]	**48**	**57**	**52**	**59**	**43**	**56**	**45**	**55**	**32**	**38**	**37**	**32**	**21**	**24**	**27**	**21**

[1] The average peak-hour travel speed is calculated based on the demand-to-capacity (d/c) ratios and Modified Bureau of Public Roads (Modified BPR) Curve. This curve calculates the speed relative to the d/c ratios. The data used for the calculation is based on the SBTAM post-processed forecast data.

[2] Year 2015 travel speeds are provided as supplemental data to year 2012 travel speeds and do not replace the year 2012 travel speeds. The 2015 travel speeds provide supplemental and more current information than the year 2012 travel speeds. Year 2015 GP travel speeds are based on a speed survey conducted in October 2015 on the I-10 corridor for the *I-10 and I-15 Express Lanes Traffic Revenue Study* developed by CDM Smith. Year 2015 HOV travel speeds are based on speed data from the Caltrans Freeway Performance Management System (PeMS).

[3] The entire corridor HOV travel speeds for year 2012, year 2015, and Alternative 1 (years 2025 and 2045) are a combination of HOV lane speeds west of Haven Avenue and GP lane speeds east of Haven Avenue, weighted for the distance of each.

Source: I-10 Corridor Traffic Study Addendum, 2016.

As discussed above, a portion of the existing HOV lane in the EB direction is identified as degraded based on the 2013 California HOV Degradation Determination Report. The report states that the EB HOV lane between 4th Street and Milliken Avenue is considered to be "slightly degraded" during the first half of year 2013 and "very degraded" during the second half of year 2013. It is anticipated that this degradation in the HOV lane will continue to worsen as traffic volume increases in future years. Based on the 2014 California HOV Degradation Determination Report, by the end of year 2014, the entire segment of the HOV lane in both directions within San Bernardino County was deemed degraded.

In comparing year 2012 existing condition speeds to the forecasted years 2025 and 2045 Alternative 1 (No Build) speeds, speeds are projected to worsen in both the GP and HOV lanes in both directions due to the higher volume forecasted for the I-10 corridor in years 2025 and 2045. Under Alternative 1, the segment speeds in the GP lanes range from 13 to 65 miles per hour (mph) in year 2025 and 10 to 63 mph in year 2045 compared to 32 to 65 mph in year 2012 and 28 to 64 mph in year 2015. In the HOV lanes west of Haven Avenue, the speed ranges from 13 to 65 mph in year 2025 and 10 to 57 mph in year 2045, compared to 62 to 65 mph in year 2012 and 41 to 56 mph in year 2015.

Table 1-6 shows the travel time through the corridor between the LA/SB county line and Ford Street. In comparing year 2012 existing condition travel times to the forecasted years 2025 and 2045 Alternative 1 (No Build) travel times, travel times are projected to worsen in the GP and HOV lanes in both directions due to the decrease in the corridor speed resulting from higher volume forecasted for the I-10 corridor in years 2025 and 2045. Under Alternative 1, the segment travel times in the GP lanes range from 2 to 37 minutes in year 2025 and 2 to 57 minutes in year 2045 compared to 2 to 14 minutes in year 2012 and 2 to 22 minutes in year 2015. In the HOV lanes west of Haven Avenue, the speed ranges from 7 to 37 minutes in year 2025 and 8 to 49 minutes in year 2045, compared to 7 to 8 minutes in year 2012 and 8 to 12 minutes in year 2015.

Table 1-7 shows existing and forecast vehicle hours of delay (VHD) and cost of delay. Under the existing condition, there are approximately 4.8 million VHD on I-10, which represents an annual cost of delay of approximately $76 million. Without any improvements to the corridor, delay is anticipated to increase to 5.4 million vehicle hours in 2025 and 8.0 million vehicle hours in 2045. The annual cost of those hours of delay in 2025 is estimated at $85 million and $125 million in 2045.

Table 1-6 I-10 Freeway Mainline Travel Time[1] 2012, 2015, and No-Build Conditions (2025 and 2045)

I-10 Travel Time (minutes)	2012				2015				2025 Alternative 1				2045 Alternative 1			
	GP		HOV		GP		HOV		GP		HOV		GP		HOV	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
WESTBOUND																
Segment 1 (County Line to I-15)	10	11	8	7	16	13	10	10	24	37	9	37	32	49	11	49
Segment 2 (I-15 to I-215)	14	14			15	14			18	21			29	56		
Segment 3 (I-215 to SR-210)	9	5			6	5			14	5			28	7		
Segment 4 (SR-210 to Ford)	4	2			4	2			12	2			15	3		
Entire Corridor	**37**	**31**	**34**	**30**	**41**	**31**	**39**	**32**	**56**	**46**	**47**	**55**	**85**	**72**	**66**	**84**
EASTBOUND																
Segment 1 (County Line to I-15)	8	9	7	8	9	14	8	12	9	12	7	9	17	14	8	11
Segment 2 (I-15 to I-215)	13	14			14	22			17	26			57	50		
Segment 3 (I-215 to SR-210)	5	7			5	11			5	19			8	31		
Segment 4 (SR-210 to Ford)	2	3			2	3			2	6			2	12		
Entire Corridor	**29**	**33**	**28**	**31**	**29**	**48**	**29**	**46**	**33**	**52**	**31**	**46**	**59**	**80**	**47**	**63**

1 Corridor travel time is calculated using speeds shown in Table 1-5 and the length of the corridor within the project limits.

2 Year 2015 travel times are provided as supplemental data to year 2012 travel times and do not replace the year 2012 travel times.

3 The entire corridor HOV travel times for year 2012, year 2015 and Alternative 1 (years 2025 and 2045) are a combination of travel times for the HOV lane west of Haven Avenue and GP lanes east of Haven Avenue, weighted for the distance of each.

Source: I-10 Corridor Traffic Study Addendum, 2016.

Table 1-7 Vehicle Hours of Delay – Existing and Years 2025 and 2045 on Weekdays in the Area of Proposed Improvements

	Existing	2025 No Build	2045 No Build
Daily Vehicle Hours of Delay on Weekdays[1]	19,295	21,705	31,871
Annual Vehicle Hours of Delay on Weekdays[2]	4,823,646	5,426,194	7,967,850
Annual Costs of Delay[3]	$76,000,000	$85,000,000	$125,000,000

[1] Source: SBTAM.

[2] Based on 250 weekdays per year.

[3] Cost based on weekday hours of delay times cost of hourly delay from Caltrans "Life-Cycle Benefit-Cost Analysis Economic Parameters 2012" (available at http://www.dot.ca.gov/hq/tpp/offices/eab/benefit_cost/LCBCA-economic_parameters.html) assuming 9 percent trucks, which is the corridor average.

Source: I-10 Corridor Traffic Study, 2014.

Safety

Corridors that are highly congested generally have higher congestion-related accident rates. Congestion-related accidents typically include rear-end collisions and sideswipes. Operational inefficiencies, such as weaving conflicts or comingling of commuter and goods movement traffic, also increase the accident rate. The 2045 projected increase in traffic volumes along the I-10 corridor would likely increase the number of congestion-related accidents within the project area.

The accident data provided by Caltrans Traffic Accident Surveillance and Analysis Systems (TASAS) indicates that the prevalent cause of accidents along the I-10 mainline is traffic congestion, resulting in rear-end, sideswipe, and hit object collisions. Although the project is not intended to directly address safety issues along I-10, it is anticipated that implementing the I-10 CP would improve traffic flow, thereby reducing traffic accidents on the I-10 corridor.

1.2.2.2 Legislation and Project Funding

In November 1989, San Bernardino County voters approved Measure I, a half-cent sales tax, to ensure that needed transportation projects were implemented countywide through 2010. In 2004, San Bernardino County voters overwhelmingly approved the extension of the Measure I sales tax, with 80.03 percent voting to extend the measure through 2040. The proposed I-10 CP is a key component of SANBAG's recent extension of the Measure I Plan. In 2000, HOV lanes were constructed on I-10 between the LA/SB county line and Haven Avenue in Ontario. In 2007, I-10 was widened from six lanes to eight lanes from Orange Street to Ford Street in Redlands.

In August 2011, the SANBAG Board of Directors voted to move forward with including an Express Lane Alternative for the project.

This project is a major element of the SANBAG 10-Year Delivery Plan, with an estimated construction cost range of $537 million to more than $1.49 billion (estimated nominal construction cost range is approximately $650 million to $1.8 billion in future dollars), depending on the alternative chosen. Future plans, specifications, and estimate (PS&E), ROW, and construction of the proposed project are anticipated to be funded with a combination of Measure I, State, and federal funds and potential toll revenues.

1.2.2.3 Modal Interrelationships and System Linkages

I-10 is part of the National Highway System and is considered a direct route through the heart of Los Angeles and San Bernardino, providing intra-regional and inter-

regional access for people and goods traveling within or to Los Angeles, San Bernardino, and the surrounding communities. I-10 represents a major link to other freeway systems within the San Bernardino County area and is a strategic component of the County's transportation system. As a major regional east-west freeway corridor, I-10 is an important route for facilitating commuter traffic, transit service, goods movement, and major truck movement between the Inland Empire and the greater Los Angeles region, as well as from southern California to the rest of the nation. Improvements along the I-10 freeway corridor proposed by both build alternatives would provide benefits to commuter traffic, transit services, and goods movement by reducing congestion, increasing throughput, and enhancing trip reliability. Alternative 2 would provide additional capacity by extending the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands, a distance of approximately 25 miles. Alternative 3 would provide more capacity than Alternative 2 by constructing two Express Lanes in each direction of I-10 from the LA/SB county line to California Street in Redlands and one Express Lane from California Street to Ford Street in Redlands.

Under the proposed HOV lane (Alternative 2) and Express Lanes (Alternative 3), mass transit vehicles may access the additional lane(s). Transit operators depend on travel time reliability to meet scheduled stops for a given route. Maintaining a consistent travel time for transit could be achieved through alleviating traffic congestion. An LOS analysis was conducted to analyze the level of congestion along the proposed additional HOV lane or Express Lanes, which would indicate whether the project would result in enhanced trip reliability for transit. Based on the results of the LOS analysis for both alternatives, the single HOV lane in Alternative 2 provides less benefit to HOV and transit vehicles than the dual Express Lanes included in Alternative 3. Table 3.1.6-5 shows that in 2025 the single HOV lane in Alternative 2 is projected to operate at LOS F in the EB direction during the PM peak hour along two of the three study segments; it is projected to operate at LOS F in the WB direction during both the AM and PM peak hours along two of the three study segments. Table 3.1.6-13 shows that in 2045 the single HOV lane is projected to operate at LOS F in the EB direction during the AM peak hour along one of the three study segments and during the PM peak hour along all three of the study segments; it is projected to operate at LOS F in the WB direction during the AM peak hour in all three of the study segments and during the PM peak hour along two of the three study segments. The dual Express Lanes in Alternative 3 are projected to operate at LOS D or better in both directions in 2025 and 2045 along all study segments. Therefore,

HOV and transit vehicles would encounter less congestion and operate with greater trip reliability in the Express Lanes under Alternative 3 compared to the HOV lanes under Alternative 2.

The greater capacity provided under Alternative 3, compared with Alternative 2, will provide greater transportation benefits to commuters, transit, and goods moving both through the corridor and to/from destinations along the corridor.

Freight and Logistics Movement

With approximately 40 percent of the national imports arriving at the Los Angeles/ Long Beach seaport facilities, the continuous movement of goods along I-10 is a crucial aspect of continued economic development for San Bernardino County, the southern California region, and the nation as a whole. Freight movement via truck transport is a major component for maintaining the region's complex trade and goods production and movement system, including southern California's seaports, airports, rail yards, logistics facilities, and distribution centers. If no improvements are made to the I-10 corridor, trucks traveling through the I-10 corridor will experience severe traffic congestion before the design year 2045.

The project study area, as well as all of southern California, has experienced dramatic growth in the last 30 years, and this trend is expected to continue, including expansion of seaports, airports, rail yards, logistics facilities, and distribution centers, which will increase truck traffic. During the past several decades, the SCAG region, including Orange, Imperial, Riverside, San Bernardino, Los Angeles, and Ventura counties, has been one of the fastest-growing regions in the nation. Cities within San Bernardino County are projected to increase at a faster rate than cities within Los Angeles County (see Table 3.1.2-1 in Section 3.1.2, Growth). It is therefore crucial that I-10, as a vital east/west artery for intra-regional and inter-regional travel for goods and people, including to and from some of the largest ports in the country, be improved for this projected growth.

While freight generally moves in the GP lanes, some freight in lighter trucks (e.g., local FedEx and UPS vehicles) would be allowed to use the HOV and Express Lanes with both Alternative 2 and Alternative 3. The addition of an Express Lane west of Haven Avenue would provide benefits to freight movement by directly serving some local delivery freight vehicles, as well as by freeing up capacity in GP lanes for heavier longer distance trucks. The provision of an HOV lane east of Haven Avenue would free up capacity in the GP lanes for all trucks, but the dual Express Lanes

between Haven Avenue and I-215 would free up even more capacity in the GP lanes for heavier trucks and directly serve some lighter trucks.

LA/Ontario International Airport

LA/Ontario International Airport is located in Ontario just south of the I-10 freeway alignment. Access to the airport is less than 0.5 mile south from I-10, with the primary entrance located at Archibald Avenue. With projected growth of population and jobs within San Bernardino County and the region, the airport is anticipated to serve as an important transportation hub for the region. The proposed improvements associated with the I-10 CP between Haven Avenue and Vineyard Avenue are considered an integral component for the success of the airport because it would greatly enhance access and east-west mobility leading directly to LA/Ontario International Airport.

The build alternatives would improve access to and from LA/Ontario International Airport and the surrounding area, which also includes major logistics, UPS airlines, and distribution businesses developed around the airport.

Metrolink and Regional Rail Transit Services

Metrolink is a southern California commuter rail system consisting of 7 service lines and 55 rail stations in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. The San Bernardino Line, which is the heaviest utilized of the 7 lines, runs parallel to the I-10 corridor, extending from downtown Los Angeles to downtown San Bernardino. The San Bernardino Line stops at stations near the I-10 CP, including Pomona (North), Claremont, Montclair, Upland, Rancho Cucamonga, Fontana, Rialto, and San Bernardino.

Improvements to the I-10 corridor under either build alternative would increase travel speeds, reduce congestion, and thereby improve access to and from Metrolink stations along the corridor. This is anticipated to encourage a greater growth and regional expansion of efficient transit options at the same time. In comparison, Alternative 3 would have additional benefit and greater capacity compared to Alternative 2 by providing improved access to/from the Metrolink stations along the corridor and enhanced trip reliability. Alternative 2 provides some benefits east of Haven Avenue; however, it will not provide the same level of long-term congestion relief as Alternative 3; the GP lanes have projected-congestion less than 10 years after opening the HOV lane.

The build alternatives also complement other regional rail transit services planned for San Bernardino and Los Angeles counties by enhancing access to these services. One project that would benefit from the I-10 CP build alternatives is the proposed Metro Gold Line Foothill Extension Project, which will ultimately extend the existing Gold Line light rail system from its current terminus in Pasadena to Montclair. Both build alternatives would support this planned system by improving vehicular access for San Bernardino County commuters to and from the ultimate eastern terminus of the light rail in Montclair, which will be located north of the I-10/Monte Vista Avenue interchange. Specifically, Alternative 3 would include ramp and structure improvements at the I-10/Monte Vista Avenue interchange, which would also facilitate better access to the planned Montclair Station.

Omnitrans

Omnitrans also provides transit services along the I-10 corridor within the San Bernardino Valley. As the largest transit agency in San Bernardino County, the Omnitrans fixed-route service consists of 27 bus routes covering 15 cities and unincorporated areas of the county. Fixed-route bus service runs primarily along major east-west and north-south corridors. The average wait for each route (headway) varies from 15 minutes to hourly service, with approximately 18 hours of service on weekdays, 13 hours on Saturdays, and 12 hours on Sundays.

Omnitrans began providing express bus passenger services along the I-10 corridor in September 2015. This freeway express bus route along I-10 connects the downtown San Bernardino Transit Center with Arrowhead Regional Medical Center, Ontario Mills, and the Montclair Transit Center (see Figures 1-4 and 1-5). Omnitrans is considering several locations along I-10 that may be suitable for implementing key bus stop locations, allowing greater transit connectivity and opportunities to accommodate trip transfers for existing and future customers. As part of the I-10 CP, bus stops would be constructed at the WB and EB on-ramps of the Mountain Avenue interchange in Alternative 3 and at the WB and EB on-ramps of the Sierra Avenue interchange in Alternatives 2 and 3. Associated intersection improvements, pedestrian access enhancement, and traffic signal modifications would be included in the project design to accommodate the Omnitrans express bus services and facilitate the trip transfers to and from local bus services. Once either of the build alternatives is constructed, the proposed Omnitrans route would be able to use approximately 24 miles of the HOV or Express Lanes on I-10, resulting in a reduced travel time of approximately 50 percent compared to local bus services. The route is designed to maximize transfer potential to Foothill Transit's SilverStreak in Montclair, Metrolink

trains, and other Omnitrans routes for better connectivity regionally. Omnitrans also offers a freeway express bus route along Route 215, which connects downtown San Bernardino with downtown Riverside.

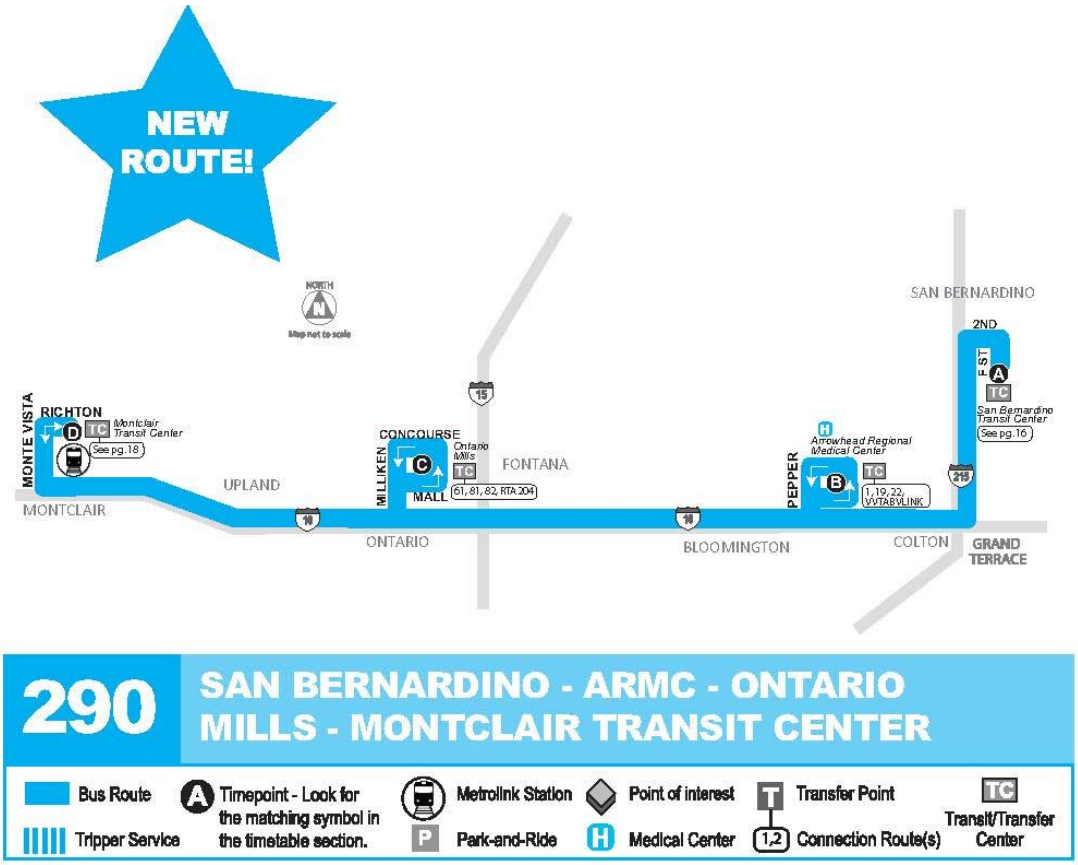

Figure 1-4 Omnitrans Freeway Express Bus Route along I-10

Figure 1-5 Omnitrans Freeway Express Bus

Another express bus line, the sbX Green line, San Bernardino County's first-ever Bus Rapid Transit (BRT) Line, travels a 15.7-mile route along the E Street Corridor, from Cal State University San Bernardino in the north to Loma Linda University & Medical Center in the south. BRT is a premium transit service that includes the development of coordinated improvements to a bus transit system's infrastructure, equipment, operations, and technology to provide a faster, more attractive, high-quality, high-capacity bus service. Service runs weekdays, Monday through Friday, with service every 10 minutes during peak hours and every 15 minutes during off-peak hours. Additionally, the sbX Green line has stations in close proximity to the I-10 corridor and crosses the corridor in some locations.

Omnitrans has also proposed additional BRT services, including two routes paralleling and serving the I-10 corridor: the Holt Boulevard/4th Street corridor and the San Bernardino Avenue corridor. The proposed lines would link the Pomona Transcenter in Los Angeles County with Metrolink Stations and downtown San Bernardino.

Additionally, Omnitrans provides its Access Service, which is a public transportation service for people unable to independently use the fixed-route bus service for all or some of their trips, and mandated by the Americans with Disabilities Act (ADA). Access Service provides curb-to-curb service to complement the Omnitrans fixed-

route bus system and is available during the same periods that fixed-route service operates.

By improving the I-10 corridor, it is anticipated that the project will enhance Omnitrans' current service and access to and from transit centers and encourage increased ridership, thereby increasing transit usage along the I-10 corridor and surrounding communities. Several Omnitrans routes utilize facilities that would be improved by either build alternative, though the Alternative 2 improvements would provide less capacity than Alternative 3 and would not provide the same level of long-term trip reliability as Alternative 3 because the HOV lanes are projected to become congested less than 10 years after opening. Conversely, Alternative 3 would provide the greatest capacity for the existing express bus services and trip reliability along I-10, adding potential for expanded express bus services connecting primary transit stops at the San Bernardino, Pepper, Sierra, Ontario Mills Shopping Center, and Monte Vista transit hubs.

Vanpool Programs

Vanpool programs are designed to transport groups of people to work in shared vans. It is an example of "shared mobility," an emerging transportation strategy to provide the public with alternatives to driving alone. The Federal Transportation Administration (FTA) considers vanpools a public transportation mode when a vanpool is subsidized on an ongoing basis and meets certain FTA public transit requirements. Employees that live and work near one another and share similar schedules can form a group that commutes together between home and work. In most vanpool programs, such as those operated by the San Diego Association of Governments (SANDAG), Orange County Transportation Authority (OCTA), and Los Angeles County Metropolitan Transportation Authority (Metro), which has the largest public vanpooling program in North America, riders pay a low monthly fare based on distance and number of participants. This monthly fare covers all costs of the vanpool, including fuel, maintenance, insurance, tolls, roadside assistance, and other assorted costs.

In San Bernardino County, SANBAG and the Victor Valley Transit Authority partnered to develop and administer the San Bernardino Regional Vanpool Program (Victor Valley Phase), which began in September 2012. By March 2014, the program had 139 active vanpools. Of these vanpools, the average occupancy was 80 percent and the participants traveled roughly 300,000 miles annually. Based on the success of this pilot program, SANBAG is currently working to expand the program countywide

and possibly extend it into Riverside County in partnership with the Riverside County Transportation Commission (RCTC).

Vanpools traveling along the I-10 corridor would benefit to some extent under both of the build alternatives because both build alternatives would result in reduced congestion, increased throughput, and enhanced trip reliability. Although Alternative 2 would provide limited capacity for the near term, Alternative 3 would provide the greatest benefit for vanpools by providing additional capacity and long-term trip reliability in the Express Lanes. Implementation of either of the build alternatives is anticipated to potentially increase vanpool usage within the I-10 corridor.

Carpool Programs

The purpose of carpool lanes, also known as HOV lanes, is to decrease the number of vehicles on freeways by providing incentives for commuters to carpool instead of commuting alone. Alternative 2 would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands, a distance of approximately 25 miles. The extended HOV lanes would result in reduced congestion, increased throughput, and enhanced trip reliability for carpoolers; however, the HOV lanes proposed for Alternative 2 would only provide congestion relief for less than 10 years after opening before they become congested. For Alternative 3, the current toll policy is to open the Express Lanes for carpools with three or more occupants (HOV3+) for free, with the exception of heavy peak-period traffic. During heavy peak-period traffic (e.g., weekends and some holidays), HOV3+ may pay a discounted toll. Though both build alternatives would benefit commuter connectivity for carpoolers along the corridor by reducing congestion, providing increased trip reliability, and improving access to and from carpool facilities along the corridor, Alternative 3 provides a greater overall improvement in every regard.

Park-and-Ride Facilities

There are three existing park-and-ride lots in the vicinity of the I-10 corridor between the LA/SB county line and Ford Street as listed below:

- Montclair Transportation Center, 5091 Richton Street, Montclair
- Bloomington Facility, 10175 Cedar Avenue, Bloomington
- sbX Redlands Boulevard Parking Facility, 10554 Anderson Street, Loma Linda

These park-and-ride lots are part of SANBAG's mobility program that promotes public transit and carpooling/van pooling throughout San Bernardino County. Caltrans and SANBAG will continue to work together to identify the need for park-and-ride lots for the future. No improvements to the existing parking lots are proposed as part of this project.

1.3 Independent Utility and Logical Termini

A transportation project is required by the Federal Highway Administration (FHWA) (23 *Code of Federal Regulations* [CFR] 771.111) to meet standards that establish a project's "independent utility" and "logical termini." For a project to have "independent utility," it must be usable and a reasonable expenditure, even if there are no additional transportation benefits that "stand alone" and are not dependent on or trigger the implementation/need of other projects. Additionally, a project must not preclude other potential transportation projects from being implemented in the future.

Both of the build alternatives propose improvements in the corridor that would be fully usable regardless of any other planned future improvements in the corridor. The additional lanes represent a reasonable expenditure of transportation funds because of the peak-period congestion that currently exists in the corridor and is forecast to become more extensive over time. Additionally, the I-10 CP is, and would be, independent of other actions/projects by meeting the objectives of the project's stated purpose and need, and by not creating/introducing congestion for areas outside of the project limits.

As described in Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, and Section 3.2.6, Air Quality, the proposed project would provide many benefits, including:

- Reducing travel time in the corridor by providing additional travel lane(s) in each direction on I-10.
- Promoting carpooling and transit, thereby helping to achieve air quality benefits.
- Reducing congestion and increasing travel speeds in the corridor during peak periods.
- Increasing mobility in the corridor.
- Improving access to the facility.

These benefits would be provided by the proposed project and would not require the completion of any other projects.

1.3.1 Logical Termini

Logical termini are required for project development to establish project boundaries that allow for a comprehensive response to transportation deficiencies. Rational endpoints are required for transportation improvements and the review of environmental impacts.

The project corridor is of sufficient length to adequately address transportation issues that have been identified in the stated purpose and need.

Both of the build alternatives would be of sufficient length to provide considerable congestion relief on this corridor, within the project limits. Both of the build alternatives would result in improvements to current traffic conditions along the I-10 corridor without further additional transportation improvements being made in the area. For Alternative 2, the proposed western terminus at Haven Avenue would remove the lane drop that occurs with the termination of the existing HOV lane by extending the lane to the east.

For Alternative 3, the proposed western terminus near the LA/SB county line is in an area where WB peak-hour freeway traffic currently drops approximately 5 percent and is forecast in 2045 to drop by approximately 9 percent, or roughly 1,400 vehicles per hour through successive interchanges.

The proposed eastern terminus of both build alternatives is at Ford Street in Redlands. Ford Street represents logical termini because it coincides with the start of the existing EB truck climbing lane, which extends to Live Oak Canyon Road in Yucaipa. The truck climbing lane provides the fifth lane; therefore, there would be no reduction in lanes where the proposed additional lanes end.

“Segmentation” is when a transportation need extends throughout an entire corridor, but environmental issues and transportation needs are inappropriately discussed for just a segment of that corridor. Such segmentation could result in analyses that downplay total impacts, but result in more (smaller) projects with the same or more total impact, to address traffic needs within a corridor. The proposed project has been determined to have independent utility and logical termini and analyzes and addresses issues holistically within a large corridor, avoiding “segmentation.”

Furthermore, the proposed build alternatives would not restrict any other foreseeable transportation improvements, or trigger the need for any, in the corridor. Alternative 2 would not preclude the implementation of the Express Lanes on I-10 that are included in the SCAG RTP because the Express Lanes would incorporate the proposed HOV lane in each direction. The change in management of the existing HOV lane to an Express Lane from the Los Angeles county line to Haven Avenue proposed under Alternative 3 would not prevent the HOV lane in Los Angeles County from continuing to operate as an HOV lane or, with a change in management, to operate as an Express Lane. Likewise, completion of an Express Lane to Ford Street in Redlands proposed under Alternative 3 would not prevent the addition of GP, HOV, or Express Lanes east of the project terminus.

Chapter 2 Project Alternatives

2.1 Project Description

This chapter describes the alternatives that were developed to address the project's purpose and need, described in Chapter 1, Proposed Project. The evaluation of project alternatives included an assessment of traffic level of service (LOS) and other congestion-relief performance criteria, environmental impacts, and effectiveness in addressing the project's purpose and need. The alternatives considered viable for the I-10 Corridor Project (I-10 CP) are Alternative 1 (No Build), Alternative 2 (One High-Occupancy Vehicle [HOV] Lane in Each Direction), and Alternative 3 (Two Express Lanes in Each Direction), with Transportation Systems Management (TSM)/Traffic Demand Management (TDM) elements included in each alternative, except the No Build Alternative. Conceptual Design Plans for each of the proposed build alternatives are provided in Appendix O, Major Project Features Maps.

The project is located in Los Angeles and San Bernardino counties along the existing Interstate 10 (I-10) corridor from approximately 0.4 mile west of White Avenue in Pomona at LA Post Mile (PM) 44.9 to Live Oak Canyon Road in Yucaipa at SBd PM R37.0. Within the project limits, I-10 is generally an eight-lane divided controlled-access freeway with four general purpose (GP) lanes in each direction and auxiliary lanes along selected portions of the route. Between the Los Angeles/San Bernardino (LA/SB) county line and Haven Avenue, there is one HOV lane in each direction, which is separated from the GP lanes via a 2- to 4-foot-wide striped buffer. The existing lane width is generally 12 feet throughout the corridor except for the HOV lanes west of I-15 which are 11 feet wide. The outside shoulder has the standard width of 10 feet while the inside shoulder varies from 8 feet west of I-15 to 17 feet (not entirely paved) east of I-15. There are 45 existing auxiliary lanes along the project corridor, including 21 in the westbound (WB) direction and 24 in the eastbound (EB) direction.

In San Bernardino County, I-10 (also known as the San Bernardino Freeway) is approximately 50 miles long, from the LA/SB county line to the San Bernardino/ Riverside county line. In this 50-mile stretch, I-10 has important interchanges with other major freeways in the region. These include Interstate 15 (I-15), Interstate 215 (I-215), State Route (State Route) 210, and SR-38. The initial construction of I-10 began in 1953 as SR-26, with two GP lanes in each direction. The highway was converted to I-10 through a route adoption in 1958 and infrastructure upgrade in the

mid 1960s. Inside and outside widening for the third and fourth GP lanes took place throughout the 1970s through 2000s. The addition of the HOV lanes between the LA/SB county line and Haven Avenue was completed in 2000.

The purpose of the I-10 CP is to improve traffic operations on I-10 in San Bernardino County to reduce congestion, increase throughput, enhance trip reliability, and accommodate long-term congestion management of the corridor for the planning design year of 2045.

Project Study Report/Project Development Support

A Project Study Report/Project Development Support (PSR/PDS) for the I-10 improvements from Haven Avenue to Ford Street (EA 08-0C2500) was approved in December 2006. The PSR/PDS proposed extending the existing HOV lanes on I-10 from its current terminus at Haven Avenue in Ontario to Ford Street in Redlands to relieve congestion along the I-10 corridor in San Bernardino County. This alternative would become known as Build Alternative 2.

A Supplemental PSR/PDS was prepared in early 2013 and approved in April 2013 to include an additional alternative (Express Lanes Alternative) to the study. The new alternative would extend the corridor project limits westerly to the LA/SB county line and provide two Express Lanes in each direction from the LA/SB county line to SR-210 and a single Express Lane in each direction from SR-210 to Ford Street. This would become known as Build Alternative 3.

2.2 Project Alternatives

All of the build alternatives are evaluated on criteria that would achieve the objectives of the project to reduce congestion, increase throughput, enhance trip reliability, and accommodate long-term congestion management of the corridor. Some of these criteria include the ability to relieve traffic congestion for the long term, project cost, environmental impacts, and to achieve acceptable LOS along the I-10 corridor. If an alternative does not achieve the intended purpose established for the project, it is eliminated from further consideration.

Two build options are proposed (Alternatives 2 and 3), as well as a No Build Alternative 1. A TSM/TDM Alternative was also considered, but it did not meet the project purpose as a stand-alone alternative; therefore, it has been eliminated from further review. Components from the TSM/TDM Alternative have been incorporated into each of the build alternatives. Descriptions of Alternatives 2 and 3 are provided

in Sections 2.2.1.2 and 2.2.1.3. The TSM/TDM Alternative and the No Build Alternative are described in Sections 2.2.1.3 and 2.2.1.4, respectively. The potential effectiveness of each alternative was rigorously explored and objectively evaluated to achieve the project purpose and address the project need based on informed decision making by the Project Development Team (PDT); input garnered from various State, federal, and local agencies; and comments received from the public during the public scoping meetings. A comparison between the build alternatives and the No Build Alternative is provided in Table 2-11.

2.2.1 Build Alternatives

Alternative 2 – One High-Occupancy Vehicle Lane in Each Direction

Alternative 2 would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands, a distance of approximately 25 miles, by adding a lane in each direction. Alternative 2 would add one HOV lane in each direction from Haven Avenue to Ford Street and construct a new WB auxiliary lane between Rancho Avenue and La Cadena Drive.

Alternative 3 – Two Express Lanes in Each Direction

Alternative 3 would provide two Express Lanes in each direction of I-10 between the LA/SB county line to California Street in Redlands, and one Express Lane in each direction from California Street to Ford Street in Redlands. Transition areas would be provided on I-10 at the LA/SB county line and at Ford Street to transition the Express Lanes back to existing lane configuration.

2.2.1.1 Common Design Features of the Build Alternatives

Both build alternatives propose to reduce congestion, increase throughput, and enhance trip reliability by providing improvements to the corridor and constructing additional lanes on EB and WB I-10. Though the alignment and design characteristics differ by alternative, there are common design features to each of the two build alternatives, as noted below.

- Provide/maintain pedestrian facilities on overcrossings and along arterials within interchanges.
- Existing sidewalks within the project limits will be maintained or replaced in-kind.
- Existing bike lanes and trails within the project limits will be maintained.
- Pedestrian facilities on arterials being improved would meet current Americans with Disabilities Act (ADA) standards.

- To the extent feasible, existing concrete barriers, temporary railings, metal beam guardrails, and metal thrie-beam barriers in the median of I-10 will be replaced with 56-inch-high concrete barrier to reduce glare.
- In both build alternatives, new chain link fence will be installed along the existing or proposed right-of-way (ROW) where needed.
- Maintenance vehicle pullouts (MVP) would be included in various locations under each build alternative. These locations will be determined during the plans, specifications, and estimate (PS&E) phase.
- Relocation of existing utilities, which includes electric, gas, telephone, cable, water, sewer, oil, gas, and waste water.
- Modification of existing stormwater drainage channels and construction of new drainage and/or retention facilities, and water quality Best Management Practices (BMPs).
- New or reconstructed soundwalls and retaining walls.
- Median lighting is proposed at selected locations along the corridor. Lighting is anticipated to improve headlight sight distance in sag vertical curves (i.e., vertical curves with descending slopes forming a bowl or a valley bottom). Median lighting is anticipated to be on 35-foot-tall poles.
- Replacement and/or new shielded light fixtures.
- Landscaping and hardscaping elements.
- Due to ROW constraints and existing nonstandard features, design exceptions are being requested as part of the proposed project. Examples of such design exceptions include:
  - Horizontal stopping sight distance
  - Vertical stopping sight distance
  - Super-elevation rate
  - Traveled way width
  - Shoulder width and minimum horizontal clearance
  - Median width
  - Vertical clearance
  - Corner sight distance
  - Interchange spacing
  - Partial interchange and isolated off-ramp
  - Ramp lane width
  - Weaving length
  - Access control

  - Access rights opposite ramp terminal
  - Curb ramps
  - Decision sight distance
  - Super-elevation transition
  - Super-elevation of compound curves
  - Compound curves
  - Tangent length between reversing curves
  - Minimum grade
  - Vertical curve length
  - Bridge median
  - Minimum outer separation width
  - Design of freeway entrances and exits
  - Vertical curve beyond exit nose SSD
  - Crossroad grade at ramp terminal
  - Single-lane ramps
  - Successive on-ramps
  - Freeway connector design speed
  - Single-lane connections
  - Branch connections number of lanes
  - Branch connections merge/diverge
  - Access control
- Under both Build Alternatives, Omnitrans express routes would be able to use the HOV or Express Lanes on I-10.
- Although TSM and TDM measures alone do not satisfy the purpose and need of the project, TSM and TDM measures will be incorporated into each of the build alternatives for the proposed project. Every effort will be made to incorporate the following TSM and TDM elements:
  - Improved ramp metering hardware and software and closed-circuit television (CCTV) systems for viewing ramps and nearby arterials
  - At locations of interchange improvements, upgraded traffic signals interconnected and coordinated with adjacent signals and ramp meters
  - Additional way-finding signs on freeways and arterials
  - Design of on- and off-ramps to limit impacts to pedestrian and nonmotorized travel and preserve access to bike lanes and trails
  - Intelligent Transportation System (ITS) elements, including fiber-optic and other communication systems for improved connectivity and remote

management; changeable message signs (CMS); CCTV coverage of the entire freeway mainline, ramps, and adjacent arterials; video detection systems; and vehicle detection system (VDS) for volume, speed, and vehicle classification
- Traveler Information Management System improvements to enhance dissemination of real-time information on roadway conditions
- Vanpool initiatives
- Carpooling programs
- Promote and integrate public transit design features
- CCTV with Pan-Tilt-Zoom (PTZ) capability
- Ramp Metering System (RMS)
- VDS

2.2.1.2 Unique Features of the Build Alternatives

A comparison of impacts for each build alternative and the No Build Alternative is provided in Table 2-11.

Alternative 2

Alternative 2 would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands, a distance of approximately 25 miles.

Alternative 2 improvements extend through 3 system interchanges (I-10/I-15 interchange, I-10/I-215 interchange, I-10/SR-210 interchange), in addition to 21 local street interchanges from Haven Avenue to Ford Street.

Alternative 2 Mainline Improvements

- Add one HOV lane in each direction from Haven Avenue to Ford Street.
- Re-establish existing auxiliary lanes along the corridor.
- Construct new WB auxiliary lane at Cedar Avenue westbound on-ramp
- Construct new WB auxiliary lane between Rancho Avenue and La Cadena Drive.

The proposed improvements under Alternative 2 would involve construction work within the following routes and post miles:

- 08-SBd-10 PM 4.7/R37.0
- 08-SBd-15 PM 0.7/4.0
- 08-SBd-38 PM 0.0/0.3
- 08-SBd-210 PM R33.0/R31.5

- 08-SBd-215 PM 2.1/5.7

In addition to the addition/extensions of the HOV lanes, the project includes reconstruction of demolished structures and/or modification of 3 system interchanges, 19 local street interchanges from Haven Avenue to Ford Street, 2 local street improvements, and structure improvements necessary to accommodate the proposed HOV lanes. Structure improvements for Alternative 2 include replacement of 3 structures and modification of 43 structures along the corridor. Alternative 2 includes new or reconstruction of retaining walls and soundwalls where appropriate. The existing concrete barrier, temporary railings, metal beam guardrails, and thrie-beam barriers in the median of I-10 would be replaced with a Type 60G concrete barrier for enhanced safety. Existing auxiliary lanes would be replaced in kind, in addition to the construction of additional auxiliary lanes at some locations to improve merging and diverging of vehicles.

Preliminary cost estimates for this alternative are $567 million (approximately $652 million in future dollars), including $446 million in construction, $14 million in ROW and utility relocation, and $100 million in support costs. Figure 2-1 displays the proposed I-10 lane configurations associated with Alternative 2. The HOV lane extension proposed in Alternative 2 is a TSM/TDM measure that would reduce system demand by promoting carpooling.

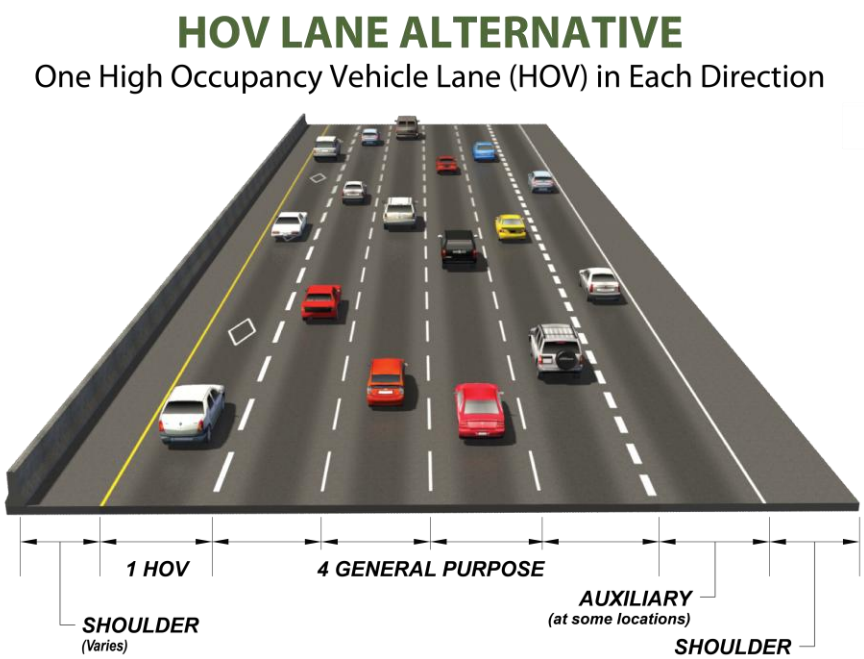

Figure 2-1 Alternative 2 – One HOV Lane in Each Direction

Alternative 2 Connector and Interchange Ramp Improvements

Alternative 2 would require reconstruction of several connector and interchange ramps due to the I-10 widening. Table 2-1 summarizes the proposed connector and ramp improvements along the project corridor.

Table 2-1 Alternative 2 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 2 Ramp Construction			
			None	Gore	Partial	Full
Haven	1	Haven EB off-ramp	x			
	2	Haven EB loop on-ramp	x			
	3	Haven EB on-ramp	x			
	4	Haven WB on-ramp	x			
	5	Haven WB loop on-ramp	x			
	6	Haven WB off-ramp	x			
Milliken	7	Milliken EB off-ramp		x		
	8	Milliken EB loop on-ramp				x
	9	Milliken WB on-ramp		x		
	10	Milliken WB loop off-ramp		x		
I-15	11	E10-N15 Connector			x	
	12	E10-S15 Connector			x	
	13	N15-E10 Connector			x	
	14	S15-E10 Connector			x	
	15	N15-W10 Connector			x	
	16	S15-W10 Connector			x	
	17	W10-N/S15 Connector C-D			x	
	18	W10-N15 Connector	x			
	19	W10-S15 Connector	x			
Etiwanda	20	Etiwanda EB C-D off-ramp			x	
	21	Etiwanda EB off-ramp			x	
	22	Etiwanda EB loop on-ramp	x			
	23	Etiwanda EB on-ramp	x			
	24	Valley EB off-ramp	x			

Table 2-1 Alternative 2 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 2 Ramp Construction			
			None	Gore	Partial	Full
	25	Etiwanda EB C-D on-ramp			x	
	26	Etiwanda WB on-ramp	x			
	27	Etiwanda WB loop on-ramp	x			
	28	Valley WB on-ramp	x			
	29	Etiwanda WB off-ramp	x			
Cherry	30	Cherry EB off-ramp		x		
	31	Cherry EB on-ramp	x			
	32	Cherry WB on-ramp		x		
	33	Cherry WB loop on-ramp			x	
	34	Cherry WB off-ramp		x		
Citrus	35	Citrus EB off-ramp		x		
	36	Citrus EB on-ramp		x		
	37	Citrus WB on-ramp		x		
	38	Citrus WB loop on-ramp			x	
	39	Citrus WB off-ramp			x	
Sierra	40	Sierra EB off-ramp				x
	41	Sierra EB on-ramp				x
	42	Sierra WB on-ramp				x
	43	Sierra WB off-ramp				x
Cedar	44	Cedar EB off-ramp		x		
	45	Cedar EB on-ramp			x	
	46	Cedar WB on-ramp			x	
	47	Cedar WB off-ramp			x	
Riverside	48	Riverside EB off-ramp		x		
	49	Riverside EB on-ramp			x	
	50	Riverside WB on-ramp			x	
	51	Riverside WB off-ramp			x	

Table 2-1 Alternative 2 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 2 Ramp Construction			
			None	Gore	Partial	Full
Pepper	52	Pepper EB off-ramp			x	
	53	Pepper EB on-ramp				x
	54	Pepper WB on-ramp		x		
	55	Pepper WB off-ramp			x	
Rancho	56	Rancho EB off-ramp				x
	57	Rancho EB on-ramp				x
	58	Rancho WB on-ramp				x
	59	Rancho WB off-ramp				x
La Cadena/9th	60	9th EB off-ramp				x
	61	9th EB on-ramp				x
	62	La Cadena WB on-ramp	x			
	63	9th WB off-ramp		x		
Mt. Vernon	64	Mt. Vernon EB off-ramp			x	
	65	Mt. Vernon EB on-ramp	x			
	66	Mt. Vernon WB on-ramp		x		
	67	Sperry WB off-ramp			x	
I-215	68	E10-N/S215 Connector C-D	x			
	69	E10-N215 Connector	x			
	70	E10-W215 Connector	x			
	71	N215-E10 Connector			x	
	72	S215-E10 Connector	x			
	73	S215-W10 Connector		x		
	74	N215-W10 Connector			x	
	75	W10-N/S215 Connector C-D		x		
	76	W10-N215 Connector	x			
	77	W10-S215 Connector	x			
	78	Sunwest WB on-ramp			x	

Table 2-1 Alternative 2 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 2 Ramp Construction			
			None	Gore	Partial	Full
Waterman	79	Redlands EB off-ramp	x			
	80	Waterman EB C-D off-ramp			x	
	81	Waterman EB loop on-ramp	x			
	82	Waterman EB loop off-ramp	x			
	83	Waterman EB on-ramp	x			
	84	Waterman EB C-D on-ramp			x	
	85	Waterman WB on-ramp to N/S215			x	
	86	Carnegie WB hook on-ramp				x
	87	Carnegie WB hook off-ramp			x	
Tippecanoe	88	Tippecanoe EB off-ramp		x		
	89	Tippecanoe EB on-ramp			x	
	90	Tippecanoe WB on-ramp		x		
	91	Tippecanoe WB loop on-ramp			x	
	92	Tippecanoe WB off-ramp			x	
Mountain View	93	Mountain View EB off-ramp			x	
	94	Mountain View EB on-ramp				x
	95	Mountain View WB on-ramp			x	
	96	Mountain View WB off-ramp			x	
California	97	California EB off-ramp			x	
	98	California EB on-ramp			x	
	99	California WB on-ramp			x	
	100	California WB off-ramp			x	
Alabama	101	Alabama EB off-ramp			x	
	102	Alabama WB on-ramp			x	
	103	Alabama WB off-ramp			x	
SR-210	104	E10-W210 Connector			x	
	105	E210-W10 Connector		x		
	106	E210-E10 Connector			x	

Table 2-1 Alternative 2 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 2 Ramp Construction			
			None	Gore	Partial	Full
Tennessee	107	Tennessee EB off-ramp				x
	108	Tennessee EB on-ramp				x
	109	Tennessee WB off-ramp			x	
Eureka/Orange/6th	110	Eureka EB off-ramp		x		
	111	6th EB on-ramp	x			
	112	Orange WB on-ramp	x			
	113	Orange WB loop on-ramp	x			
	114	6th WB off-ramp	x			
University/Cypress	115	University EB off-ramp	x			
	116	Cypress EB on-ramp	x			
	117	University WB on-ramp	x			
	118	Cypress WB off-ramp	x			
Ford	119	Ford EB off-ramp				x
	120	Ford EB on-ramp				x
	121	Ford WB on-ramp				x
	122	Ford WB off-ramp	x			

Alternative 2 Local Street Improvements

Richardson Street, as a local street, and Tennessee Street, as a collector street, are two arterials crossing over I-10 that would need to be replaced with a longer-span structure to accommodate the widened freeway under Alternative 2.

Alternative 2 Structure Improvements

Alternative 2 would necessitate replacement of 3 structures and modification of 44 structures along the corridor. Table 2-2 summarizes the proposed structure improvements under Alternative 2.

Table 2-2 Alternative 2 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
1	8.16	Haven Ave OC (Lt)	54-1201L	None
2	8.16	Haven Ave OC (Rt)	54-1201R	None
3	9.17	Milliken Ave OC	54-0539	Tie-back wall
4	9.87	E10-N15 Connector OC	54-0913G	None
5	9.91	N15-W10 Connector OC	54-0908G	None
6	9.92	W10-S15 Connector OC	54-1065F	None
7	9.93	Route 15/10 Sep (Lt)	54-0909L	None
8	9.94	Route 15/10 Sep (Rt)	54-0909R	None
9	9.96	S15-E10 Connector OC	54-0910F	None
10	9.98	W10-S15 Bridge over Day Canyon	54-0914F	None
11	10.13	Day Canyon Channel Bridge	54-0351	Widen
12	10.12	W10-S15 Bridge over Day Canyon	54-0351F	None
13	10.13	W10-N15 Bridge over Day Canyon	54-0927F	None
14	10.99	Etiwanda Wash Bridge (Lt)	54-0378L	Widen
15	10.99	Etiwanda Wash Bridge (Rt)	54-0378R	Widen
16	10.99	Etiwanda Wash Bridge (EB Off-Ramp)	54-0378S	Widen
17	11.13	Etiwanda Ave OC	54-0463	None
18	11.35	Valley Blvd WB On-Ramp Separation	54-1214K	None
19	11.50	Valley Blvd EB Off-Ramp UC (Lt)	54-0030L	Widen
20	11.50	Valley Blvd EB Off-Ramp UC (Rt)	54-0030R	Widen
21	11.64	Etiwanda-San Sevaine Channel (Lt)	54-0454L	Widen
22	11.64	Etiwanda-San Sevaine Channel (Rt)	54-0454R	Widen
23	11.64	Etiwanda-San Sevaine Channel (EB On-Ramp)	54-0454S	None
24	11.74	Kaiser Spur OH	54-0416	Widen
25	11.82	San Sevaine Creek Channel	54-0434	Abandon
26	12.14	Mulberry Creek Channel	54-0425M	Abandon
27	13.17	Cherry Ave OC	54-0543	None
28	15.18	Citrus Ave OC	54-0538	None
29	15.70	Cypress Ave OC	54-1280	None
30	16.22	Sierra Ave OC	54-1169	None
31	18.49	Cedar Ave OC	54-0035	Tie-back wall

Table 2-2 Alternative 2 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
32	19.90	Rialto Channel RCB Bridge	54-1116	None
33	19.97	Riverside Ave OC	54-0536	None
34	20.97	Pepper Ave OC	54-0531	None
35	21.46	Slover Mountain UP	54-0835	None
36	21.96	Rancho Ave OC	54-0817	Tie-back wall
37	22.36	Colton OH (Rt)	54-0464R	Widen
38	22.38	Colton OH (Lt)	54-0464L	Widen
39	22.62	La Cadena Dr UC	54-0462	Widen
40	22.62	La Cadena Dr UC (EB Off-ramp)	54-0462S*	Replace
41	22.71	9th St UC	54-0461	Widen
42	22.82	Pavillion OH (9th WB Off-Ramp)	54-0861K	None
43	22.86	Pavillion Spur OH	54-0460	Widen or abandon
44	23.25	Mt. Vernon Ave OC	54-0459	Tie-back wall
45	23.60	Warm Creek Bridge (Lt)	54-0830L	Widen
46	23.60	Warm Creek Bridge (Rt)	54-0830R	Widen
47	23.80	Santa Ana River Bridge (E10-N/S215)	54-0292G	None
48	23.82	Santa Ana River Bridge (Rt)	54-0292R	Widen
49	23.83	Santa Ana River Bridge (Lt)	54-0292L	Widen
50	24.19	E10-N215 Connector OC	54-0823G	None
51	R24.23	S215-E10 Connector OC	54-0824F	None
52	24.23	Route 215/10 Sep (Lt)	54-0479L	None
53	24.25	Route 215/10 Sep (Rt)	54-0479R	None
54	24.27	W10-N215 Connector OC	54-1064F	None
55	24.30	W10-S215 Connector OC	54-0822F	None
56	24.57	E St/Sunwest Ln WB On-Ramp UC	54-0821F	None
57	24.76	Hunts Ln UC	54-0601	None
58	25.26	Waterman Ave UC	54-0600	Widen
59	25.46	San Timoteo Creek (Carnegie Dr WB On-Ramp)	54-1105K	Widen
60	25.54	San Timoteo Creek	54-0599	Widen
61	26.27	Tippecanoe Ave UC	54-0598	Widen
62	26.81	Richardson St OC	54-0597*	Replace

Table 2-2 Alternative 2 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
63	27.30	Mountain View Ave UC	54-0596	Widen
64	27.64	West Redlands OH/Mission Channel	54-0570	Widen
65	28.30	California St UC	54-0595	Widen
66	28.80	Nevada St UC	54-0594	Widen
67	29.31	Alabama St OC	54-0593	None
68	29.58	E210-W10/Alabama St WB Off-Ramp OC	54-0937G	None
69	29.70	E10-W210 Connector OC	54-0938G	None
70	29.76	E210-E10 Connector OC	54-0929G	None
71	29.82	Tennessee St OC	54-0592*	Replace
72	29.83	W10-W210 over Tennessee St UC	54-0930F	None
73	30.10	New York St/Colton Ave UC	54-0591	None
74	30.38	Texas St UC	54-0583	Widen
75	30.66	Eureka St UC	54-0580	Modify for new soundwall
76	30.88	Orange St UC (Route 10/38 Sep)	54-0581	None
77	31.01	6th St UC	54-0579	Reconstruct median
78	31.41	Church St UC	54-0578	Modify median
79	31.52	Mill Creek Zanja Channel/Redlands OH	54-0472	Modify median
80	31.87	University St UC	54-0582	Modify median
81	31.99	Citrus Ave UC	54-0584	Reconstruct median
82	32.11	Cypress Ave UC	54-0585	Reconstruct median
83	32.36	Palm Ave UC	54-0586	Modify median
84	32.61	Highland Ave UC	54-0587	Reconstruct median
85	33.13	Ford St UC	54-0588	Widen
86	33.29	Redlands Blvd WB Off-Ramp UC	54-0589	Widen

*Structure to be replaced will be assigned a new bridge no.

Alternative 2 Railroad Involvement

Four railroad crossings over or under I-10 would be impacted by the proposed freeway widening, as summarized in Table 2-3. Improvements to railroad crossing facilities would be required to construct Alternative 2.

Table 2-3 Alternative 2 Railroad Crossing Improvements

Railroad and Crossing Location	Proposed Work
UPRR Kaiser Spur OH	Widen
BNSF Colton Crossing OH	Widen
Pavillion Spur OH	Widen or Abandon
BNSF West Redlands OH	Widen

Alternative 2 Drainage Improvements

Several drainage structures along the project corridor would be widened or lengthened as part of the proposed project, as shown in Table 2-4:

Table 2-4 Alternative 2 Drainage Structures

No.	Channel Facility	Approximate Location	Proposed Work
Crossing System			
1	Haven Ave RCB	West of Haven Ave parallel Turner Ave	None
2	California Commerce SD	East of I-15	Extend RCB
3	Day Creek Channel	East of I-15	Widen I-10 bridges
4	Etiwanda Creek	East of I-15	Widen I-10 bridges
5	Etiwanda-San Sevaine Wash	East of Etiwanda Ave	Widen I-10 bridges
6	San Sevaine Creek RCB	East of Etiwanda Ave	Abandon culvert
7	Mulberry Creek RCB	East of Etiwanda Ave	Abandon culvert
8	Rialto Channel RCB	West of Riverside Ave	None
9	Colton SW and NW SD	East of BNSF/Colton Crossing	Lengthen culvert
10	11th Street SD	East of 9th Street	Lengthen culvert
11	Warm (Lytle) Creek	East of Mt. Vernon Ave	Widen I-10 bridge
12	Santa Ana River	East of Mt. Vernon Ave	Widen I-10 bridges
13	San Timoteo Creek	East of Waterman Ave	Widen I-10 bridges
14	Mission Channel	West of California St	Widen I-10 bridge
15	Mill Creek Zanja Channel	West of University Ave	None
Parallel System			
1	I-10 Channel	Etiwanda Ave to Riverside Ave (inside State ROW)	Reconstruct portions

Alternative 2 Pedestrian and Bicycle Facilities

Existing sidewalks within the project limits will be maintained. Under Alternative 2, the project includes reconstruction of Richardson Street, which has one sidewalk along the west side of the roadway, and Tennessee Street, which has one sidewalk along the east side of the roadway. The project would replace the existing sidewalk on these streets in kind. Pedestrian facilities on arterials being improved will meet current ADA standards. In addition, there is a project currently in planning to retrofit existing curb ramps on various cross streets along the I-10 corridor (EA 1C490).

Existing bike lanes and trails within the project limits will be maintained. In addition, new bike lanes (Class II or III) will be incorporated in the design of the proposed arterial improvements at Tennessee Street in Alternative 2. These streets have been identified in their respective local circulation plans as having a bicycle facility.

Transit Operator Planning

As noted, under Alternative 2, Omnitrans express routes would be able to use approximately 24 miles of the HOV lanes on I-10. The I-10 CP would add bus stops at the Sierra Avenue interchange and incorporate associated intersection, pedestrian access, and traffic signal improvements to accommodate the Omnitrans express bus services.

Alternative 3

Alternative 3 would provide two Express Lanes in each direction of I-10 from the LA/SB county line to California Street in Redlands, and one Express Lane in each direction from California Street to Ford Street in Redlands, a total of 33 miles. West of Haven Avenue, a single new lane would be constructed and combined with the existing HOV lane to provide two Express Lanes in each direction; east of Haven Avenue, all Express Lanes would be constructed by the project. The Express Lanes would be price-managed lanes, otherwise known as Express Lanes, in which vehicles not meeting the minimum occupancy requirement, such as an HOV 3+, would need to pay a toll. This is done to encourage ride-sharing along the freeway. Addition of managed lanes is a TDM feature in and of itself, and is a sustainable transportation system management strategy focusing on long-term reliability. Managed lanes promote car-pooling and transit patronage, reduce GHG emissions, and maximize the efficiency of a freeway by increasing person and vehicle throughput, while reducing congestion and delay. “Pricing” provides the ability to actively manage demand and encourage ridesharing and transit. Providing “free-flow” conditions in these lanes provides an incentive for transit agencies to implement future bus services and routes.

Travel is possible through the corridor, even when congestion is severe on the freeway, with obvious benefits to the community as bus and emergency services are not severely delayed. This sustainable solution would enhance livability for people within the corridor. Preliminary cost estimates for this alternative are $1.491 billion (approximately $1.729 billion in future dollars), including $1.175 billion in construction, $88 million in ROW and utility relocation, and $220 million in support costs. Table 2-5 compares the cost (in current dollars) of Alternatives 2 and 3. Figure 2-2 displays the proposed I-10 lane configurations associated with Alternative 3.

Table 2-5 Cost Comparison of Build Alternatives

	Alternative 2	Alternative 3
Preliminary Cost	$567 million	$1.493 billion
Construction	$446 million	$1.177 billion
ROW and Utility Relocation	$14 million	$88 million
Support Costs	$100 million	$220 million

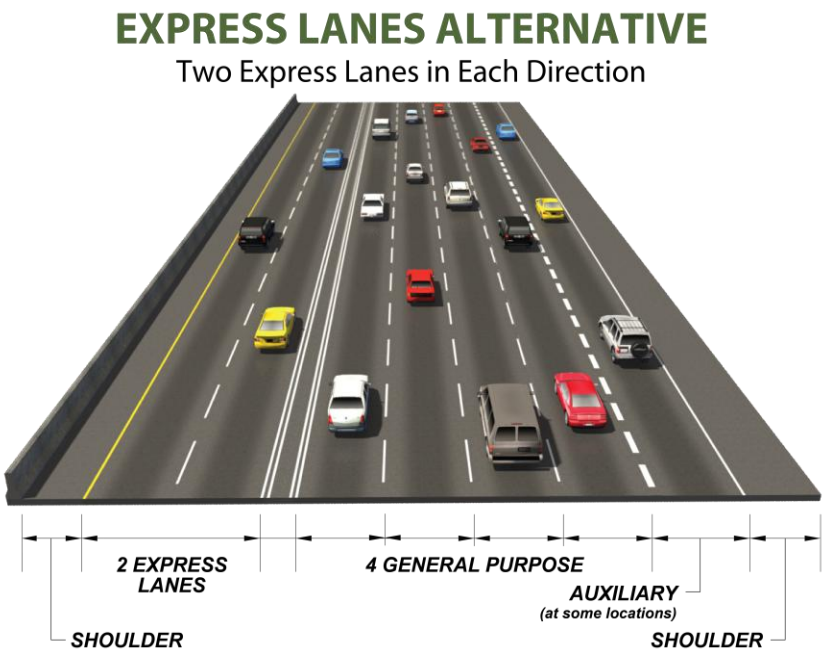

Figure 2-2 Alternative 3 – Two Express Lanes in Each Direction

Alternative 3 project limits pass through 3 system interchanges (I-10/I-15 interchange, I-10/I-215 interchange, and I-10/SR-210 interchange) and 29 local street interchanges, including 1 interchange (Indian Hill Boulevard) in Los Angeles County.

Alternative 3 would require reconstruction of several freeway-to-freeway connectors and interchange ramps to accommodate the I-10 widening.

The proposed improvements under Alternative 3 would involve construction work within the following routes and post miles:

- 07-LA-10 PM 44.9/48.3
- 08-SBd-10 PM 0.0/R37.0
- 08-SBd-15 PM 0.7/4.0
- 08-SBd-38 PM 0.0/0.3
- 08-SBd-83 PM 10.7/11.5
- 08-SBd-210 PM R33.0/R31.5
- 08-SBd-215 PM 2.1/5.7

To accommodate two Express Lanes, the project includes reconstruction and/or modification of existing interchange ramps, local arterials, and structures, including new or reconstruction of retaining walls and soundwalls. Existing concrete barrier, temporary railings, metal beam guardrails, and thrie-beam barriers in the median of I-10 would be replaced with Type 60G concrete barriers, and median lighting at intermediate access points would be provided. Existing auxiliary lanes would be re-established in kind and additional ones added where warranted.

Alternative 3 Mainline Improvements

- Add one Express Lane in each direction from the LA/SB county line to Haven Avenue to operate jointly with existing HOV lanes as two Express Lanes in each direction
- Add two Express Lanes in each direction from Haven Avenue to California Street
- Add one Express Lane in each direction from California Street to Ford Street
- Provide 10 at-grade access points, with an additional weave lane and 1 as a weave zone
- Provide California Highway Patrol (CHP) enforcement/observation areas in the median at selected locations along the corridor
- Re-establish existing auxiliary lanes along the corridor
- Construct new EB auxiliary lane between Mountain Avenue and Euclid Avenue
- Modify existing WB auxiliary lane at Haven Avenue WB on-ramp to begin at Haven Avenue WB loop on-ramp
- Modify existing EB auxiliary lane at Haven Avenue EB on-ramp to begin at Haven Avenue EB loop on-ramp

- Construct new WB auxiliary lane at Cedar Avenue westbound on-ramp
- Extend WB auxiliary lane preceding the Riverside Avenue off-ramp to Pepper Avenue
- Construct new WB auxiliary lane between Rancho Avenue and La Cadena Drive

Ingress/Egress Access Points

Ten at-grade ingress/egress (I/E) access points are proposed in each direction along the project corridor, typically spaced at 3- to 4-mile intervals, to provide access to and from the Express Lanes for all freeway-to-freeway and local street interchanges along the corridor. Median lighting is proposed at I/E access points to and from the Express Lanes and is anticipated to be on 35-foot-tall poles. Nine access points would be provided with an additional weave lane and one as a weave zone. The following locations of these access points were selected to serve heavy traffic interchanges along the corridor and major destinations such as the LA/Ontario International Airport, while meeting the requirements for geometric, safety, and operational constraints:

- Mountain Avenue, Upland
- 6th Street, Ontario
- Haven Avenue, Ontario
- Etiwanda Avenue, Fontana
- Citrus Avenue, Fontana
- Cedar Avenue, Bloomington
- Pepper Avenue, Colton
- Tippecanoe Avenue, San Bernardino
- California Street (transition from 2 to 1 Express Lane)
- Orange Street (weave zone)

Except for the California Street I/E and Orange Street I/E, all other access points are proposed with an additional weave or speed change lane provided between the No. 1 GP lane and the No. 2 Express Lane.

At the California Street I/E, a separate I/E access configuration is provided in the EB direction. At the egress location, the No. 1 EB Express Lane continues while the No. 2 Express Lane becomes a GP lane. A separate ingress opening is provided downstream. In the WB direction, the No. 2 Express Lane is opened up just upstream of the California Street I/E and is anticipated to operate as a weave lane.

The Orange Street I/E is proposed as a weave zone in both directions without a weave lane between the No. 1 GP lane and the No. 2 Express Lane. It will operate similarly to existing HOV lane I/E locations. A weave zone is a portion of the freeway where a single lane is used by vehicles slowing down to exit while other vehicles are using the same lane to increase speed while entering the highway.

Alternative 3 Connector and Interchange Ramp Improvements

Alternative 3 would require reconstruction of several freeway-to-freeway connector and interchange ramps to accommodate the two Express Lanes. Table 2-6 provides a summary of connector and ramp improvements that are required in Alternative 3.

Table 2-6 Alternative 3 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 3			
			None	Gore	Partial	Full
Indian Hill	1	Indian Hill EB off-ramp	x			
	2	Indian Hill EB on-ramp		x		
	3	Indian Hill WB on-ramp	x			
	4	Indian Hill WB off-ramp		x		
Monte Vista	5	Monte Vista EB off-ramp				x
	6	Monte Vista EB on-ramp			x	
	7	Monte Vista WB on-ramp				x
	8	Monte Vista WB off-ramp				x
Central	9	Central EB off-ramp		x		
	10	Central EB on-ramp				x
	11	Central WB on-ramp				x
	12	Central WB off-ramp			x	
Mountain	13	Mountain EB off-ramp				x
	14	Mountain EB on-ramp				x
	15	Mountain WB on-ramp				x
	16	Mountain WB off-ramp				x
Euclid	17	Euclid EB off-ramp				x
	18	Euclid EB on-ramp				x
	19	Euclid WB on-ramp				x
	20	Euclid WB loop on-ramp				x
	21	Euclid WB off-ramp				x

Table 2-6 Alternative 3 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 3			
			None	Gore	Partial	Full
4th	22	4th EB off-ramp				x
	23	4th EB on-ramp				x
	24	4th WB on-ramp				x
	25	4th WB off-ramp				x
Vineyard	26	Vineyard EB off-ramp				x
	27	Vineyard EB on-ramp				x
	28	Vineyard WB on-ramp				x
	29	Vineyard WB loop on-ramp				x
	30	Vineyard WB off-ramp				x
Archibald	31	Archibald EB off-ramp	x			
	32	Holt EB on-ramp			x	
	33	Archibald EB on-ramp			x	
	34	Archibald WB on-ramp	x			
	35	Holt WB off-ramp			x	
	36	Archibald WB off-ramp			x	
Haven	37	Haven EB off-ramp			x	
	38	Haven EB loop on-ramp				x
	39	Haven EB on-ramp			x	
	40	Haven WB on-ramp				x
	41	Haven WB loop on-ramp				x
	42	Haven WB off-ramp			x	
Milliken	43	Milliken EB off-ramp	x			
	44	Milliken EB loop on-ramp			x	
	45	Milliken WB on-ramp			x	
	46	Milliken WB loop off-ramp		x		
I-15	47	E10-N15 Connector			x	
	48	E10-S15 Connector			x	
	49	N15-E10 Connector			x	
	50	S15-E10 Connector			x	

Table 2-6 Alternative 3 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 3			
			None	Gore	Partial	Full
	51	N15-W10 Connector			x	
	52	S15-W10 Connector			x	
	53	W10-N/S15 Connector			x	
	54	W10-N15 Connector			x	
	55	W10-S15 Connector			x	
Etiwanda	56	Etiwanda EB C-D off-ramp			x	
	57	Etiwanda EB off-ramp			x	
	58	Etiwanda EB loop on-ramp	x			
	59	Etiwanda EB on-ramp	x			
	60	Valley EB off-ramp			x	
	61	Etiwanda EB C-D on-ramp			x	
	62	Etiwanda WB on-ramp		x		
	63	Etiwanda WB loop on-ramp	x			
	64	Valley WB on-ramp	x			
	65	Etiwanda WB off-ramp	x			
Cherry	66	Cherry EB off-ramp			x	
	67	Cherry EB on-ramp			x	
	68	Cherry WB on-ramp		x		
	69	Cherry WB loop on-ramp			x	
	70	Cherry WB off-ramp		x		
Citrus	71	Citrus EB off-ramp			x	
	72	Citrus EB on-ramp			x	
	73	Citrus WB on-ramp			x	
	74	Citrus WB loop on-ramp			x	
	75	Citrus WB off-ramp			x	
Sierra	76	Sierra EB off-ramp				x
	77	Sierra EB on-ramp				x
	78	Sierra WB on-ramp				x
	79	Sierra WB off-ramp				x

Table 2-6 Alternative 3 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 3			
			None	Gore	Partial	Full
Cedar	80	Cedar EB off-ramp			x	
	81	Cedar EB on-ramp			x	
	82	Cedar WB on-ramp				x
	83	Cedar WB off-ramp			x	
Riverside	84	Riverside EB off-ramp			x	
	85	Riverside EB on-ramp			x	
	86	Riverside WB on-ramp			x	
	87	Riverside WB off-ramp			x	
Pepper	88	Pepper EB off-ramp			x	
	89	Pepper EB on-ramp				x
	90	Pepper WB on-ramp				x
	91	Pepper WB off-ramp				x
Rancho	92	Rancho EB off-ramp				x
	93	Rancho EB on-ramp				x
	94	Rancho WB on-ramp				x
	95	Rancho WB off-ramp				x
La Cadena/9th	96	9th EB off-ramp				x
	97	9th EB on-ramp				x
	98	La Cadena WB on-ramp			x	
	99	9th WB off-ramp		x		
Mt. Vernon	100	Mt. Vernon EB off-ramp			x	
	101	Mt. Vernon EB on-ramp			x	
	102	Mt. Vernon WB on-ramp				x
	103	Sperry WB off-ramp				x
I-215	104	E10-N/S215 Connector		x		
	105	E10-N215 Connector	x			
	106	E10-S215 Connector	x			
	107	N215-E10 Connector			x	
	108	S215-E10 Connector			x	

Table 2-6 Alternative 3 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 3			
			None	Gore	Partial	Full
	109	S215-W10 Connector			x	
	110	N215-W10 Connector			x	
	111	W10-N/W215 Connector		x		
	112	W10-N215 Connector	x			
	113	W10-S215 Connector	x			
	114	Sunwest WB on-ramp				x
Waterman	115	Redlands EB off-ramp	x			
	116	Waterman EB C-D off-ramp			x	
	117	Waterman EB loop on-ramp	x			
	118	Waterman EB loop off-ramp	x			
	119	Waterman EB on-ramp			x	
	120	Waterman EB C-D on-ramp			x	
	121	Waterman WB on-ramp to 215			x	
	122	Carnegie WB hook on-ramp				x
	123	Carnegie WB hook off-ramp			x	
Tippecanoe	124	Tippecanoe EB off-ramp			x	
	125	Tippecanoe EB on-ramp			x	
	126	Tippecanoe WB on-ramp			x	
	127	Tippecanoe WB loop on-ramp			x	
	128	Tippecanoe WB off-ramp			x	
Mountain View	129	Mountain View EB off-ramp				x
	130	Mountain View EB on-ramp				x
	131	Mountain View WB on-ramp				x
	132	Mountain View WB off-ramp				x
California	133	California EB off-ramp				x
	134	California EB on-ramp				x
	135	California WB on-ramp				x
	136	California WB off-ramp				x

Table 2-6 Alternative 3 Connector and Interchange Ramp Improvements

Interchange	No.	Ramps	Alternative 3			
			None	Gore	Partial	Full
Alabama	137	Alabama EB off-ramp			x	
	138	Alabama WB on-ramp			x	
	139	Alabama WB off-ramp			x	
SR-210	140	E10-W210 Connector			x	
	141	E210-W10 Connector		x		
	142	E210-W10 Connector			x	
Tennessee	143	Tennessee EB off-ramp				x
	144	Tennessee EB on-ramp				x
	145	Tennessee WB off-ramp			x	
Eureka/Orange/6th	146	Eureka EB off-ramp	x			
	147	6th EB on-ramp	x			
	148	Orange WB on-ramp	x			
	149	Orange WB loop on-ramp	x			
	150	6th WB off-ramp	x			
University/Cypress	151	University EB off-ramp	x			
	152	Cypress EB on-ramp	x			
	153	University WB on-ramp	x			
	154	Cypress WB off-ramp	x			
Ford	155	Ford EB off-ramp				x
	156	Ford EB on-ramp				x
	157	Ford WB on-ramp				x
	158	Ford WB off-ramp	x			

Alternative 3 Local Street Improvements

Nine arterial streets crossing under or over I-10 would be reconstructed by widening and lengthening to accommodate the I-10 improvements, as listed below. Eight of these are overcrossing structures, which would need to be replaced with a longer-span structure to accommodate the widened freeway. The Monte Vista Avenue

undercrossing would also need to be replaced to accommodate the proposed widening of the local street.

1. Monte Vista Avenue
2. San Antonio Avenue
3. Euclid Avenue
4. Sultana Avenue
5. Campus Avenue
6. 6th Street
7. Vineyard Avenue
8. Richardson Street
9. Tennessee Street

Two arterials that parallel I-10 would be modified as part of the proposed project improvements:

1. Palo Verde Street between Mills Avenue and Monte Vista Avenue (will reduce landscaped parkway along north side)
2. J Street between 3rd Street and Pennsylvania Avenue (will widen pavement on north side, reduce pavement width on south side)

Alternative 3 Railroad Involvement

Five railroad crossings over or under I-10 would be impacted and require bridgework, as shown in Table 2-7.

Table 2-7 Alternative 3 Railroad Crossing Improvements

Railroad and Crossing Location	Proposed Work
UPRR Kaiser Spur OH	Widen
UPRR Slover Mountain UP	Replace
BNSF Colton Crossing OH	Widen
UPRR Pavillion Spur OH	Widen or Abandon
BNSF West Redlands OH	Widen

Alternative 3 Structure Improvements

Alternative 3 would necessitate construction replacement of 12 structures, and modification of 59 structures. Table 2-8 summarizes the proposed structure improvements under Alternative 3.

Table 2-8 Alternative 3 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
1	47.74	Indian Hill Blvd UC (LA County)	53-0860	Maintain
2	48.00	College Ave Box Culvert (LA County)	53-1019	Maintain
3	0.01	Mills Ave UC	54-0453	Widen
4	0.32	San Antonio Wash Bridge	54-0451	Widen
5	0.68	Monte Vista Ave UC	54-0450*	Replace
6	1.23	Central Ave UC	54-1186	Widen
7	1.75	Benson Ave UC	54-0448	Widen
8	2.37	Mountain Ave UC	54-1187	Widen
9	2.92	San Antonio Ave OC	54-0446*	Replace
10	3.47	Euclid Ave OC (Route 83/10 Sep)	54-0445*	Replace
11	3.75	Sultana Ave OC	54-0444*	Replace
12	4.02	Campus Ave OC	54-0443*	Replace
13	4.33	6th St OC	54-0442*	Replace
14	4.70	West Cucamonga Channel Box Culvert	54-1117	Modify
15	4.88	Grove Ave UC	54-0441	Widen
16	5.24	4th St UC	54-0440	Widen
17	6.10	Vineyard Ave OC	54-0439*	Replace
18	6.70	Cucamonga Wash Bridge (Lt)	54-0438L	Widen
19	6.70	Cucamonga Wash Bridge (Rt)	54-0438R	Widen
20	6.80	Holt Blvd Off-Ramp UC (Lt)	54-0437L	Widen
21	6.80	Holt Blvd Off-Ramp UC (Rt)	54-0437R	Widen
22	6.90	Archibald Ave EB Off-Ramp/Holt Blvd UC	54-1107	Maintain
23	7.16	Archibald Ave OC	54-1166	Maintain
24	8.16	Haven Ave OC (Lt)	54-1201L	Tie-back wall
25	8.16	Haven Ave OC (Rt)	54-0560R	Tie-back wall
26	9.17	Milliken Ave OC	54-0539	Tie-back wall
27	9.87	E10-N15 Connector OC	54-0913G	Maintain
28	9.91	N15-W10 Connector OC	54-0908G	Maintain
29	9.92	W10-S15 Connector OC over Railroad	54-1065F	Maintain

Table 2-8 Alternative 3 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
30	9.93	Route 15/10 Sep (Lt)	54-0909L	Maintain
31	9.94	Route 15/10 Sep (Rt)	54-0909R	Maintain
32	9.96	S15-E10 Connector OC	54-0910F	Maintain
33	9.98	W10-S15 Connector OC	54-0914F	Maintain
34	10.12	Day Canyon Channel Bridge	54-0351	Widen
35	10.12	W10-S15 Bridge over Day Canyon	54-0351F	Maintain
36	10.13	W10-N15 Bridge over Day Canyon	54-0927F	Maintain
37	10.99	Etiwanda Wash Bridge (Lt)	54-0378L	Widen
38	10.99	Etiwanda Wash Bridge (Rt)	54-0378R	Widen
39	10.99	Etiwanda Wash Bridge (EB Off-Ramp)	54-0378S	Widen
40	11.13	Etiwanda Ave OC	54-0463	Maintain
41	11.35	Valley Blvd WB On-Ramp Separation	54-1214K	Maintain
42	11.50	Valley Blvd EB Off-Ramp UC (Lt)	54-0030L	Widen
43	11.50	Valley Blvd EB Off-Ramp UC (Rt)	54-0030R	Widen
44	11.64	Etiwanda-San Sevaine Channel (Lt)	54-0454L	Widen
45	11.64	Etiwanda-San Sevaine Channel (Rt)	54-0454R	Widen
46	11.64	Etiwanda-San Sevaine Channel (EB On-Ramp)	54-0454S*	Replace
47	11.74	Kaiser Spur OH	54-0416	Widen
48	11.82	San Sevaine Creek Channel	54-0434	Abandon
49	12.14	Mulberry Creek Channel	54-0425M	Abandon
50	13.17	Cherry Ave OC	54-1292	Maintain
51	15.18	Citrus Ave OC	54-1293	Maintain
52	15.73	Cypress Ave OC	54-1280	Maintain
53	16.22	Sierra Ave OC	54-1169	Maintain
54	R18.49	Cedar Ave OC	54-0035	Tie-back wall
55	R19.90	Rialto Channel RCB Bridge	54-1116	Maintain
56	R19.97	Riverside Ave OC	54-1267	Maintain
57	R20.97	Pepper Ave OC	54-1324	Maintain
58	R21.46	Slover Mountain UP	54-0835*	Replace

Table 2-8 Alternative 3 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
59	R21.96	Rancho Ave OC	54-0817	Tie-back wall
60	R22.36	Colton OH (Rt)	54-0464R	Widen
61	R22.38	Colton OH (Lt)	54-0464L	Widen
62	R22.62	La Cadena Dr UC	54-0462	Widen
63	R22.62	La Cadena Dr UC (EB Off-Ramp)	54-0462S*	Replace
64	R22.71	9th St UC	54-0461	Widen
65	R22.82	Pavillion OH (9th St WB Off-Ramp)	54-0861K	Maintain
66	R22.86	Pavillion Spur OH	54-0460	Widen or Abandon**
67	R23.25	Mt. Vernon Ave OC	54-0459	Tie-back wall
68	R23.60	Warm Creek Bridge (Lt)	54-0830L	Widen
69	R23.60	Warm Creek Bridge (Rt)	54-0830R	Widen
70	R23.80	Santa Ana River Bridge (E10-N/S215)	54-0292G	Maintain
71	R23.82	Santa Ana River Bridge (Rt)	54-0292R	Widen
72	R23.83	Santa Ana River Bridge (Lt)	54-0292L	Widen
73	R24.19	E10-N215 Connector OC	54-0823G	Maintain
74	R24.23	S215-E10 Connector OC	54-0824F	Maintain
75	R24.23	Route 215/10 Sep (Lt)	54-0479L	Maintain
76	R24.25	Route 215/10 Sep (Rt)	54-0479R	Maintain
77	R24.27	W10-N215 Connector OC	54-1064F	Maintain
78	R24.30	W10-S215 Connector OC	54-0822F	Maintain
79	R24.57	E St/Sunwest Ln WB On-Ramp UC	54-0821F	Maintain
80	R24.76	Hunts Ln UC	54-0601	Widen
81	R25.26	Waterman Ave UC	54-0600	Widen
82	R25.46	San Timoteo Creek (Carnegie Dr WB On-Ramp)	54-1105K	Widen
83	R25.54	San Timoteo Creek	54-0599	Widen
84	R26.27	Tippecanoe Ave UC	54-0598	Widen
85	R26.81	Richardson St OC	54-0597*	Replace
86	R27.30	Mountain View Ave UC	54-0596	Widen
87	R27.64	West Redlands OH/Mission Channel	54-0570	Widen

Table 2-8 Alternative 3 Structures Improvements

No.	Post Mile	Structure Name	Bridge No.	Proposed Work
88	R28.30	California St UC	54-0595	Widen
89	R28.80	Nevada St UC	54-0594	Widen
90	R29.31	Alabama St OC	54-0593	Maintain
91	R29.58	E210-W10/Alabama St WB Off-Ramp UC	54-0937G	Maintain
92	R29.70	E10-W210 Connector OC	54-0938G	Maintain
93	R29.76	E210-E10 Connector OC	54-0929G	Maintain
94	R29.82	Tennessee St OC	54-0592*	Replace
95	R29.83	W10-W210/Tennessee St UC	54-0930F	Maintain
96	R30.10	New York St/Colton Ave UC	54-0591	Maintain
97	R30.38	Texas St UC	54-0583	Widen
98	R30.66	Eureka St UC	54-0580	Modify to add soundwall
99	R30.88	Orange St UC (Route 10/38 Sep)	54-0581	Maintain
100	R31.01	6th St UC	54-0579	Reconstruct median
101	R31.41	Church St UC	54-0578	Modify median
102	R31.52	Mill Creek Zanja Channel/Redlands OH	54-0472	Modify median
103	R31.87	University St UC	54-0582	Modify median
104	R31.99	Citrus Ave UC	54-0584	Reconstruct median
105	R32.11	Cypress Ave UC	54-0585	Reconstruct median
106	R32.36	Palm Ave UC	54-0586	Modify median
107	R32.61	Highland Ave UC	54-0587	Reconstruct median
108	R33.13	Ford St UC	54-0588	Widen
109	R33.29	Redlands Blvd WB Off-Ramp UC	54-0589	Widen

*Structure to be replaced will be assigned a new bridge number.

**Railroad facility is no longer in service; structure could be widened or abandoned in place by filling with earth material.

Alternative 3 Drainage Improvements

Several major drainage structures that either cross or run parallel to the project corridor would be modified as part of the proposed project, as shown in Table 2-9.

Table 2-9 Alternative 3 Drainage Structures

No.	Channel Facility	Approximate Location	Proposed Work
Crossing System			
1	College Ave RCB	Near LA/SBd County Line	None
2	San Antonio Wash	East of Mills Ave	Widen I-10 bridge
3	Palmetto Ave SD & Vault	East of Mountain Ave	Extend RCB
4	West Cucamonga Channel	East of 6th St	Widen I-10 bridge
5	Cucamonga Wash	East of Vineyard Ave	Widen I-10 bridges
6	Haven Ave RCB	West of Haven Ave parallel Turner Ave	Extend RCB
7	California Commerce SD	East of I-15	Extend RCB
8	Day Creek Channel	East of I-15	Widen I-10 bridges
9	Etiwanda Creek	East of I-15	Widen I-10 bridges
10	Etiwanda-San Sevaine Wash	East of Etiwanda Ave	Widen I-10 bridges
11	San Sevaine Creek RCB	East of Etiwanda Ave	Abandon culvert
12	Mulberry Creek RCB	East of Etiwanda Ave	Abandon culvert
13	Rialto Channel RCB	West of Riverside Ave	None
14	Colton SW & NW SD	East of BNSF/Colton Crossing	Lengthen culvert
15	11th Street SD	East of 9th St	Lengthen culvert
16	Warm (Lytle) Creek	East of Mt. Vernon Ave	Widen I-10 bridge
17	Santa Ana River	East of Mt. Vernon Ave	Widen I-10 bridges
18	San Timoteo Creek	East of Waterman Ave	Widen I-10 bridges
19	Mission Channel	West of California St	Widen I-10 bridge
20	Mill Creek Zanja Channel	West of University Ave	None
Parallel System			
1	Montclair Storm Drain	North side of I-10 from west of Monte Vista Ave to Central Ave (outside State ROW)	Reconstruct
2	I-10 Channel	Etiwanda Ave to Riverside Ave (inside State ROW)	Reconstruct portions

Alternative 3 Pedestrian and Bicycle Facilities

Existing sidewalks within the project limits would be maintained. Under Alternative 3, sidewalks would be provided on both sides of proposed arterial improvement locations, including Monte Vista Avenue, San Antonio Avenue, Euclid Avenue, Sultana Avenue, Campus Avenue, and 6th Street. Reconstruction of Vineyard Avenue, Richardson Street, and Tennessee Street in Alternative 3 would provide one continuous sidewalk on these streets, similar to the current condition. Pedestrian facilities on arterials being improved would meet current ADA standards. In addition, there is a project currently in planning to retrofit existing curb ramps on various cross streets along the I-10 corridor (EA 1C490).

Existing bike lanes and trails within the project limits would be maintained. Under Alternative 3, new bike lanes (Class II or III) would be incorporated in the design of the proposed arterial improvements at Monte Vista Avenue, Euclid Avenue, Vineyard Avenue, and Tennessee Street. These streets have been identified in their respective local circulation plans as having a bicycle facility.

Transit Operator Planning

As described in Section 2.2.1.1, under both build alternatives, Omnitrans express routes would be able to use the HOV or Express Lanes on I-10. Alternative 3 proposes to add bus stops at the on-ramps of the Mountain Avenue interchange and the Sierra Avenue interchange, and it would also incorporate associated intersection, pedestrian access, and traffic signal improvements to accommodate the Omnitrans express bus services.

California Highway Patrol Enforcement

CHP enforcement areas would be provided on I-10 at selected locations, including on-ramps and medians. Median lighting is proposed at CHP enforcement/observation areas and is anticipated to be on 35-foot-tall poles, as previously noted.

Nine CHP observation/enforcement areas are proposed in the WB direction and eight in the EB direction to provide enforcement for the Express Lanes, as listed below.

<u>Westbound</u>

1. WB between Central Avenue and Mountain Avenue
2. WB between Mountain Avenue and Euclid Avenue
3. WB between Vineyard Avenue and Archibald Avenue
4. WB between Cherry Avenue and Citrus Avenue

5. WB between Sierra Avenue and Cedar Avenue
6. WB between Riverside Avenue and Pepper Avenue
7. WB between La Cadena Drive and Mt. Vernon Avenue
8. WB near Mountain View Avenue interchange
9. WB between California Street and Alabama Street

Eastbound

1. EB between Mountain Avenue and Euclid Avenue
2. EB between Vineyard Avenue and Archibald Avenue
3. EB between Cherry and Citrus Avenue
4. EB between Sierra Avenue and Cedar Avenue
5. EB between Cedar Avenue and Riverside Avenue
6. EB between 9th Street and Mt. Vernon Avenue
7. EB between Mountain View Avenue and California Street
8. EB between California Street and Alabama Street

Toll Infrastructure

The tolling and signage infrastructure needed to operate the Express Lanes are features unique to Alternative 3. This infrastructure would include:

- Toll gantries (toll reader) with transponder readers and high-speed digital cameras located at the I-10 I/E access points in each direction of I-10
- Nine CHP enforcement areas proposed in the WB direction
- Eight CHP enforcement areas proposed in the EB direction
- Signage approaching Express Lane entry and exit points, including variable message signs before entry points indicating the toll amount
- Complete CCTV coverage of the entire Express Facility to provide security for tolling equipment and to enable quick response to breakdowns and other incidents in the Express Lanes
- Fiber optics linking the electronic infrastructure to a centralized toll operations office

The policies governing operation of the Express Lanes in Alternative 3 are additional features unique to this alternative.

Preliminary Express Lane Operation Policies

The policies under which the Express Lanes in Alternative 3 would be operated have not been finalized, but the preliminary policies are presented here to provide the

current plans anticipated to operate the Express Lanes. Final decisions on operating policies would be made during PS&E and prior to opening of the project if Alternative 3 is identified as the alternative to be constructed. Operating policies would be needed for:

- Type of tolling (i.e., static, variable, or dynamic);
- Toll discounts for HOVs and others;
- Maximum target volume in the Express Lanes to maintain speed and minimize congestion;
- Method of determining toll amounts;
- Methods of toll collection, including requirements for use of transponders;
- Methods of toll enforcement; and
- Provision of an Express Lane service patrol.

The current plan for each of these topics is addressed below. As stated, if Alternative 3 is identified as the preferred alternative, final decisions on operating policies would be made during PS&E and prior to opening of the project; therefore, plans for each of the following topics are subject to change as the project further develops.

Type of Tolling. The type of tolling to be used in the Express Lanes is anticipated to be dynamic. Dynamic tolling varies toll amounts minute to minute in response to the real-time volume of traffic in the Express Lanes.

According to the FHWA Freeway Management and Operations Handbook, implementation of variable or congestion pricing utilizes lane capacity more efficiently[1]. Toll amounts are adjusted to manage the volume of traffic in the Express Lanes and avoid congestion. As a result of limited congestion, there would be more throughput per Express Lane than per GP lane during periods of congestion in the GP lanes. With the additional throughput in the Express Lanes, there is a related reduction in GP lane traffic, thereby reducing congestion in the GP lanes. Under either variable or dynamic tolling, both the Express Lanes and GP lanes would benefit. Dynamic pricing would increase or lower the toll amount based on demand, while variable tolling would increase or reduce the toll price based on time of day or week. These tolling strategies encourage drivers to use the lanes when the GP lanes are congested or to utilize the GP lanes when the tolling lanes are congested. Static, or fixed, tolling would not be used because it does not vary by hour of the day or day

[1] "Managed Lanes." *Freeway Management and Operations Handbook*. FHWA. 2006.

of the week. Consequently, static tolling does not provide the flexibility in toll amounts needed to manage congestion in the corridor.

Toll Discounts. The current toll policy is to allow HOV with three or more occupants to use the Express Lanes for free or a discounted toll. The Express Lanes would be free to buses, vanpools, motorcycles, transit vehicles, CHP vehicles, California Department of Transportation (Caltrans) vehicles, and emergency vehicles (i.e., police, fire, ambulance). While vehicles that meet specified emission standards of the California Air Resources Board (ARB) and identified through decals issued by the Department of Motor Vehicles (DMV) are currently allowed to use the HOV lanes in California, this legislation will expire before the opening of the Express Lanes. With the implementation of Express Lanes, the San Bernardino Associated Governments (SANBAG) will work with local agencies, Caltrans, and the State legislature to determine whether these vehicles would be considered toll-paying traffic.

Maximum Target Volume in the Express Lanes. During peak periods of traffic congestion, the volume of traffic using the Express Lanes would be managed to maintain optimal speeds and minimize congestion in the Express Lanes. This would be accomplished by managing the volume of traffic in the Express Lanes. Toll amounts would be increased when a certain vehicle threshold is met to manage the demand and to keep traffic moving; toll amounts would be adjusted down when volumes fall below the threshold to attract more traffic into the Express Lanes.

Toll Amounts. Toll amounts would be set at the time the Express Lanes are open to traffic. It is anticipated that toll rates to use the entire 33 miles of the proposed I-10 Express Lanes from the LA/SB county line to Ford Street in Redlands would range from $2.00 to $7.15 (approximately $0.06 to $0.22 per mile). For comparison purposes, the current tolls on Orange County Transportation Authority's (OCTA) 10-mile SR-91 Express Lanes range from $1.45 to $9.85 (approximately $0.15 to $0.98 per mile), depending on the hour of the day and day of the week. Toll amounts would be displayed on variable message signs just before each Express Lane ingress point. Such signs would be similar to the sign shown in Figure 2-3. Variable message signs are necessary because the toll amount will change due to dynamic tolling.

Figure 2-3 Example of Sign at Express Lane Ingress Points Showing Tolls for Use of Express Lanes

Methods of Toll Collection. The tolling operation is proposed to be fully electronic, with no tollbooths to make cash payments or for controlling access for a trip. Based on current technology, vehicles would be identified through either an electronic transponder or through video-imaging/license plate recognition. To qualify for free or discounted travel, such as an HOV 3+, a vehicle must use a transponder. A FasTrak™ transponder uses radio frequency to transmit user information to an overhead reader. Each transponder transmits a unique signal that identifies the transponder unit/user. There would be no traditional toll booths where motorists stop and pay cash. Drivers with a registered transponder would be charged to their account immediately following their use of the Express Lanes. Rental cars would likely be given a stated grace period to pay their one-time toll either online or over the phone. Transponders may be equipped with a switch that motorists would utilize to declare their vehicle occupancy. A transponder with such a switch is shown in Figure 2-4. The position of the switch would be used to assess the correct toll amount based on HOV/occupancy status.

Figure 2-4 Transponder with Occupancy Switch

Transponders would be read and tolls charged at toll gantries. A toll gantry is the overhead structure on which transponder readers would be mounted. The 33-mile-long I-10 Express Lanes corridor is divided into four segments: County Line to I-15, I-15 to I-215, I-215 to SR-210, and SR-210 to Ford Street. To discourage short trips in the Express Lanes, which cause additional weaving and congestion, a toll would be collected for use of each toll segment of the Express Lanes, regardless of the distance traveled within that segment. A toll gantry would be located along each separately tolled segment of the Express Lanes where transponders would be read to charge the toll. All toll equipment would be able to operate and share information to State and federal requirements and standards.

Methods of Toll Enforcement. Ensuring that each motorist pays the correct toll and minimizing toll evasion enforcement would be an essential component of the operation of the Express Lanes. Examples of toll violations that may be monitored and how surveillance may be conducted are as follows. Using a transponder set to an occupancy that results in a discounted toll charge to which the motorist is not entitled would be a toll violation. These violations would be enforced by CHP officers in the field. Enforcement of the HOV occupancy requirement would be accomplished in a manner similar to that used to enforce the HOV occupancy requirement; officers would use visual checks to determine if occupancy requirements are met. Each enforcement area would be equipped with a toll gantry and a transponder reader. Enforcement areas would be lighted to assist officers in the area with visual inspection of the number of occupants in a vehicle. Enforcement areas would also be equipped with a set of lighted indicators that would be illuminated to show an enforcement officer stationed at the enforcement area whether the vehicle has a transponder and what vehicle occupancy the transponder declares. The lighted indicators would be positioned to allow an officer to view both the lighted indicators and traffic at the same time.

Other electronic methods of enforcement would also be used, including digital imagery of vehicles passing a toll gantry without a transponder. The digital images would be used to determine the license plate number of the vehicle without a transponder, and toll violation notices would be mailed to vehicle owners to collect both the unpaid toll and a toll violation penalty.

Express Lane Service Patrol. A service patrol similar to the existing Freeway Service Patrol would be provided during the heavy traffic periods, comparable to the current service patrol provided on the SR-91 Express Lanes. The service patrol would be

available to assist motorists with a disabled vehicle, move disabled vehicles out of Express Lanes onto the shoulder, and assist CHP in removing vehicles from the Express Lanes following a collision.

Toll Operations Office. A Toll Operations Office would be needed to administer the tolling operation. No building would be built; it is assumed office space would be leased for administrative tasks near the corridor. The office location has not yet been identified. The Toll Operations Office would determine the range of toll amounts, given time of day or week and demand, and display them on variable message signs near the ingress points to the Express Lanes. Among the Toll Operations Office principal duties would be distribution of transponders to motorists, establishing and maintaining toll accounts for Express Lane users receiving transponders, charging toll accounts based on transponder readings along the Express Lanes, and providing periodic account statements to account holders.

2.2.1.3 Transportation System Management and Transportation Demand Management Alternatives

A TSM/TDM Alternative was analyzed for the I-10 corridor. This alternative did not meet the project purpose as a stand-alone alternative and is further described in Section 2.2.5, Alternatives Considered but Eliminated from Further Discussion. 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. Although this alternative would provide minimal enhancement of operations, it would not maximize throughput or provide trip reliability for the corridor.

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.

Although TSM and TDM measures alone do not satisfy the purpose and need of the project, every effort will be made to incorporate the TSM/TDM components described in Section 2.2.1.1, Common Design Features of the Build Alternatives, into the proposed build alternatives.

2.2.2 No Build Alternative

The No Build Alternative would not provide any improvements to the I-10 corridor within the project limits. No additional lanes or interchange improvements would be provided, except by projects identified in the growth/cumulative impacts section of this environmental document. The No Build Alternative configuration is not expected to accommodate future traffic demand, and existing nonstandard geometric features would not be corrected. Congestion along the corridor would continue and is expected to worsen by 2045.

Direct effects of the No Build Alternative would include continued deterioration of LOS and local interchange operations, in addition to exacerbating the existing "degraded" freeway congestion conditions (California HOV Degradation Determination Report, Caltrans, 2013). Indirect and cumulative effects of the No Build Alternative are projected to increase effects on the communities related to increased commute times and traffic diversion through adjacent neighborhoods. Additionally, the No Build Alternative could increase the amount of time the corridor cities and users/travelers have to endure construction-related effects associated with addressing the corridor needs through many smaller projects completed over an extended period of time. Figure 2-5 displays the current I-10 lane configurations associated with the No Build Alternative.

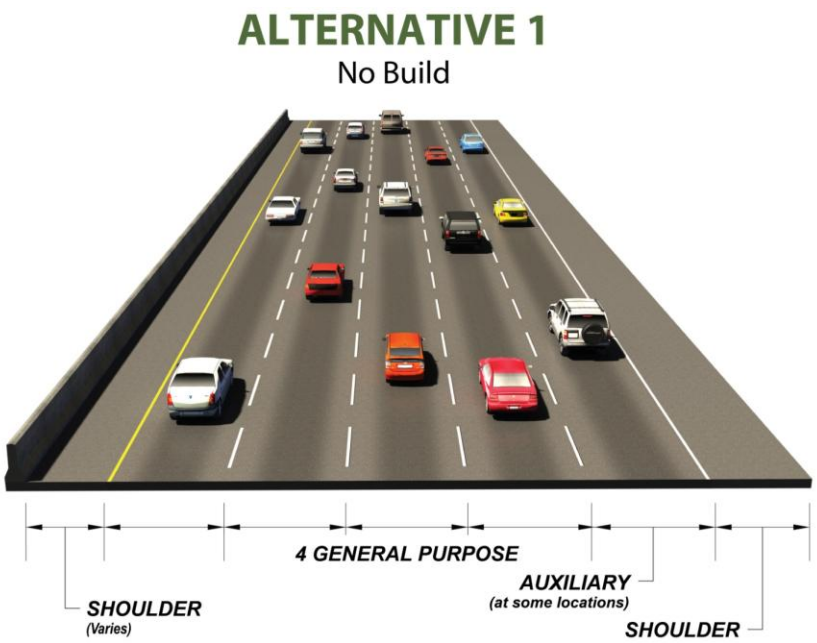

Figure 2-5 Alternative 1 – No Build Alternative

The No Build Alternative is not considered a viable project alternative because it would not achieve the project's purpose. The No Build Alternative would not meet the following aspects of the project's purpose:

- Reduce congestion;
- Increase throughput;
- Enhance trip reliability; and
- Accommodate long-term congestion management of the corridor for the planning design year of 2045.

2.2.3 Construction

Construction of the proposed project is planned to commence in 2019 and is anticipated to be open for use by 2024. For Alternative 2, the project is anticipated to be implemented using the design-bid-build delivery process and constructed over a period of 42 months (3.5 years) under one construction contract.

Due to the scale of Alternative 3 and the need to minimize impacts and maintain traffic during construction, the proposed improvements are envisioned to be constructed in two construction stages from west to east with some overlap, as shown in Table 2-10. Although there is overlap in the construction of two contracts, the overall construction period within this overlap area will be less than 12 months. Alternative 3 is anticipated to utilize a design-build delivery process. Alternative 3 is

anticipated to be constructed in two project contracts over a period of 60 months (5 years) with Contract 1 covering the proposed improvements from the LA/SB county line to I-15 and Contract 2 covering the improvements from I-15 to Ford Street. Construction would intermittently move along the length of the alignment, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 *Code of Federal Regulations* [CFR] 93.123(c)(5)).

Table 2-10 Alternative 3 Construction Contract Breakdown

Contract	Post Miles and Limits	Length	Start Construction	End Construction/ Begin Revenue Service
Contract 1	07-LA-10 PM 44.9/48.3 08-SBd-10-PM 0.0/13.0 0.4 mile west of White Avenue overcrossing to 0.2 mile west of Cherry Avenue overcrossing	16.4 miles	2019	2022
Contract 2	08-SBd-10 PM 8.0/R37.0 0.2 mile west of Haven Avenue overcrossing to Live Oak Canyon Road overcrossing	29 miles	2021	2024

Construction of interchange improvements, consisting of freeway ramp reconstruction, local arterial improvements, and overcrossing structure replacement, is envisioned to be staggered throughout the corridor to minimize impacting two consecutive interchanges or closing two consecutive on- or off-ramps at the same time. If feasible, arterials and overcrossing improvements that add capacity over the existing condition would be constructed from west to east for both project contracts in efforts to ease traffic congestion.

Closures of the I-10 mainline, branch connectors, interchange ramps, and local arterials 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.

Existing pedestrian and bicycle facilities within the project limits are anticipated to be maintained during construction, except where the arterial roadways are closed to traffic during construction. A Transportation Management Plan (TMP) will be prepared prior to construction to identify methods to minimize impacts to pedestrian and bicycle traffic. In either of the build alternatives, the project may require periodic or temporary closure of the Santa Ana River Trail and the Class I bicycle facility along the river during widening of the Santa Ana River bridges. During construction, the trail on at least one riverbank would remain open at all times.

Borrow/Fill Sites

Borrow/fill is required to construct the proposed project; however, no material borrow sites have been identified for this project. For Alternative 2, approximately 993,000 cubic yards of excavation is anticipated, 290,000 cubic yards of which would be reused on site as fill material. For Alternative 3, approximately 2.2 million cubic yards of excavation is anticipated, 842,000 cubic yard of which would be reused on site as embankment fill. Based on the above quantities, it is most likely that the project would export soil from the project area. If borrow site(s) is required to construct the project, borrow sites would be identified after the PS&E phase of the project, and the contractor will be required to comply with environmental requirements for import of borrow material and/or export of fill material.

Borrow/fill sites are typically identified when a construction contractor has been retained during the construction phase of the project. The contractor will determine borrow/fill sites for the proposed project and 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 Specifications 19-7, which requires the construction contractor to submit permit, license, agreements for each imported borrow site and that the borrow material “free of unsuitable material, including organic matter.”

Construction Staging Areas

Construction staging area (CSA) locations will be finalized during PS&E. Areas within State ROW may be used as CSA locations. In addition, several private parcels along the project corridor have been identified for potential use as construction staging areas. These parcels are vacant at the time of this report preparation, and covered by the project environmental studies. Environmental studies did not reveal any adverse issues with these properties. However, future investigations will take place as needed during the PS&E phase to develop the final determination of

construction staging areas, and every effort will be made to locate these away from homes/sensitive receptors. If new sites are proposed that have not been studied as part of the project footprint, then environmental evaluations will be conducted for any impacts to these areas.

Construction Access

The construction contractor's access to the construction site would be within existing local roadways, interchange ramps, and the freeway mainline, generally within the project study area limits.

2.2.4 Comparison of Alternatives

Each of the build alternatives requires a commitment of resources and would result in environmental impacts. This commitment is balanced with the ability to meet the project purpose and need and the effects of not implementing the project (the No Build Alternative). Table 2-11 provides a comparison between the build alternatives and the No Build Alternative.

After the public circulation period, all comments will be considered, and the PDT will identify a Preferred Alternative and make the final determination of the project's effect on the environment. Caltrans will certify that the project complies with the California Environmental Quality Act (CEQA), prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations (SOC) for impacts that will not be mitigated below a level of significance, if necessary, and certify that the findings and SOC have been considered prior to project approval. Caltrans will then file a Notice of Determination (NOD) with the State Clearinghouse that will identify whether the project will have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that an SOC was adopted. With respect to the National Environmental Policy Act (NEPA), Caltrans, as assigned by the Federal Highway Administration (FHWA), will document and explain its decision regarding the identified alternative, project impacts, and mitigation measures in a Record of Decision (ROD) published in the *Federal Register*.

Table 2-11 Comparison of Alternatives

Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)
Project Cost		
None	Preliminary Cost: $567 million (approximately $659 million in future dollars) Construction: $446 million ROW and Utility Relocation: $14 million Support Costs: $100 million	Preliminary Cost: $1.491 billion (approximately $1.729 billion in future dollars) Construction: $1.175 billion ROW and Utility Relocation: $88 million Support Costs: $220 million
Construction Duration		
None	42 Months	60 Months
Ramp Closures		
None	The following ramps were identified to potentially result in closures and detours for a period up to 30 days: • La Cadena Drive EB off-ramp • E Street/Sunwest Lane WB on-ramp • Waterman Avenue EB on-ramp • Tennessee Street EB off-ramp	The following ramps were identified to potentially result in closures and detours for a period up to 30 days: • Monte Vista Avenue WB off-ramp • Monte Vista Avenue WB on-ramp • Monte Vista Avenue EB off-ramp • Monte Vista Avenue EB on-ramp • Central Avenue EB on-ramp • Central Avenue WB off-ramp • 4th Street EB off-ramp • Etiwanda Avenue EB loop on-ramp • Etiwanda Avenue EB on-ramp • 9th Street EB off-ramp • E Street/Sunwest Lane WB on-ramp • Waterman Avenue EB on-ramp • Alabama Street EB off-ramp • Tennessee Street EB off-ramp
Pedestrian and Bicycle Facilities		
None	Existing sidewalks within the project limits would be maintained. The project would replace the existing sidewalks on Richardson Street and Tennessee Street in-kind. Pedestrian facilities on arterials being improved would meet current ADA standards. Existing bike lanes and trails within the project limits will be maintained. New bike lanes (Class II or III) would be incorporated in the design of the proposed arterial improvements at Tennessee Street in Alternative 2.	Existing sidewalks within the project limits would be maintained. Sidewalks would be provided on both sides of Monte Vista Avenue, San Antonio Avenue, Euclid Avenue, Sultana Avenue, Campus Avenue, and 6th Street. Reconstruction of Vineyard Avenue, Richardson Street, and Tennessee Street in Alternative 3 would provide one continuous sidewalk on these streets, similar to the existing condition. Pedestrian facilities on arterials being improved would meet current ADA standards. Existing bike lanes and trails within the project limits would be maintained. New bike lanes (Class II or III) would be incorporated in the design of the proposed arterial improvements at Monte Vista Avenue, Euclid Avenue, Vineyard Avenue, and Tennessee Street.
Parking Effects		
None	A total of 22 parking spaces would be permanently removed after implementation of Alternative 2. The parking loss would result entirely in Fontana, at commercial locations, for public parking and employee parking.	A total of 210 parking spaces would be permanently removed after implementation of Alternative 3. Most of the parking losses would occur in Fontana and Montclair. In Fontana, commercial, light industrial, and parking at one multi-family residential property would be affected by Alternative 3. After replacement parking is implemented, mall parking at the Baralat Property would experience the greatest impact. Montclair would lose an estimated 17 street parking spaces, as well as church parking and mall parking. In Colton, 30 street parking spaces would be removed as a result of Alternative 3.

Table 2-11 Comparison of Alternatives

Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)
Drainage		
None	Drainage structures along the project corridor that would be improved under Alternative 2 include the following: • California Commerce SD • Day Creek Channel • Etiwanda Creek • Etiwanda-San Sevaine Wash • San Sevaine Wash • Mulberry Creek RCB • Colton SW & NW SD • 11th Street Storm Drain • Warm (Lytle) Creek • Santa Ana River • San Timoteo Creek • Mission Channel • I-10 Channel	Drainage structures along the project corridor that would be improved under Alternative 3 include the following: • San Antonio Wash • Palmetto Ave SD & Vault • West Cucamonga Channel • Cucamonga Wash • Haven Avenue RCB • California Commerce SD • Day Creek Channel • Etiwanda Creek • Etiwanda-San Sevaine Wash • San Sevaine Creek RCB • Mulberry Creek RCB • Colton SW & NW SD • 11th Street Storm Drain • Warm (Lytle) Creek • Santa Ana River • San Timoteo Creek • Mission Channel • Montclair SD • I-10 Channel
Mainline Improvements		
None	• Add one HOV lane in each direction from Haven Avenue to Ford Street • Re-establish existing auxiliary lanes along the corridor • Construct new WB auxiliary lane between Rancho Avenue and La Cadena Drive	• Add one Express Lane in each direction from the LA/SB county line to Haven Avenue to operate jointly with existing HOV lanes as two Express Lanes in each direction • Add two Express Lanes in each direction from Haven Avenue to California Street • Add one Express Lane in each direction from California Street to Ford Street • Provide 10 at-grade access points, 9 with an additional weave lane and 1 as a weave zone • Provide CHP enforcement/observation areas in the median at selected locations along the corridor • Re-establish existing auxiliary lanes along the corridor • Construct new EB auxiliary lane between Mountain Avenue and Euclid Avenue • Modify existing WB auxiliary lane at Haven Avenue WB on-ramp to begin at Haven Avenue WB loop on-ramp • Modify existing EB auxiliary lane at Haven Avenue EB on-ramp to begin at Haven Avenue EB loop on-ramp • Extend WB auxiliary lane preceding the Riverside Avenue off-ramp to Pepper Avenue • Construct new WB auxiliary lane between Rancho Avenue and La Cadena Drive Proposed entry into and exits from the toll lanes will be provided by 10 at-grade I/E access points in each direction along the project corridor, including 9 additional weave lanes: • Mountain Avenue, Upland • 6th Street, Ontario • Haven Avenue, Ontario • Etiwanda Avenue, Fontana • Citrus Avenue, Fontana • Cedar Avenue, Bloomington • Pepper Avenue, Colton

Table 2-11 Comparison of Alternatives

Alternative 1 (No Build)	Alternative 2 (One HOV Lane in Each Direction)	Alternative 3 (Two Express Lanes in Each Direction)
		• Tippecanoe Avenue, San Bernardino • California Street (transition from 2 to 1 Express Lane) • Orange Street
Connector Ramp and Interchange Ramp Improvements		
None	• Alternative 2 would require reconstruction of 15 connector ramps. • Alternative 2 would require reconstruction of 70 interchange ramps.	• Alternative 3 would require reconstruction of 19 connector ramps. • Alternative 3 would require reconstruction of 113 interchange ramps.
Local Street Improvements		
None	Richardson Street, as a local street, and Tennessee Street, as a collector road, are two arterials crossing over I-10 that would need to be replaced with a longer-span structure to accommodate the widened freeway under Alternative 2.	Nine arterial streets crossing over I-10 would be reconstructed by widening and lengthening to accommodate the I-10 improvements, as listed below: • Monte Vista Avenue • San Antonio Avenue • Euclid Avenue • Sultana Avenue • Campus Avenue • 6th Street • Vineyard Avenue • Richardson Street • Tennessee Street Two arterials that parallel to I-10 would be modified as part of the proposed project improvements: • Palo Verde Street between Mills Avenue and Monte Vista Avenue • J Street between 3rd Street and Pennsylvania Avenue (near Rancho and Colton OH)
Structural Improvements		
None	Alternative 2 would necessitate replacement of 3 structures and modification of 43 structures along the corridor.	Alternative 3 would necessitate construction of 1 new structure, replacement of 12 structures, and modification of 58 structures.
Railroad Crossing Facilities		
None	The following railroad crossing facilities would be improved in order to construct Alternative 2: • Union Pacific Railroad (UPRR) and Kaiser Spur Overhead (OH) (widen) • UPRR Colton Crossing OH (widen) • Pavillion Spur OH (widen or abandon) • Burlington Northern Santa Fe (BNSF) West Redlands OH (widen)	The following railroad crossing facilities would be improved in order to construct Alternative 3: • UPRR and Kaiser Spur OH (widen) • UPRR Slover Mountain UP (replace) • UPRR Colton Crossing OH (widen) • UPRR Pavillion Spur OH (widen or abandon) • BNSF West Redlands OH (widen)

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2.2.4.1 Identification of the Locally Preferred Alternative

After comparing and weighing the benefits and impacts of all feasible alternatives, SANBAG determined that Alternative 3 was the Locally Preferred Alternative (LPA) on July 2, 2014. This decision was reached after it was determined that traditional methods of improving freeways would not accommodate the projected population growth of this region and associated increase in traffic. SANBAG determined that Alternative 3 is both engineering and financially viable, and it provides a transportation improvement that is sustainable over time. The final Preferred Alternative has not yet been identified and will occur after the public review and comment period.

By designating Alternative 3 as the LPA prior to circulation of the Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for public review, SANBAG provided disclosure of its preference among the alternatives to the public, as well as to other agencies that may have an interest in the project. SANBAG's basis for identifying Alternative 3 as the LPA can be summarized as follows:

- Traffic Management: Through dynamic pricing, which adjusts toll rates up or down in response to traffic demand, the Express Lanes are able to maintain optimal traffic flow even during peak-hour traffic periods. A free-flowing freeway lane can carry upwards of 1,800 to 2,000 vehicles per hour per lane (vphpl), whereas a congested lane typically carries 1,000 to 1,200 vehicles or less. That is, two Express Lanes can carry as many vehicles as four congested GP lanes during periods of peak congestion.
- Benefit to GP Lanes: By providing a significant increase in corridor capacity and then managing the additional capacity to its fullest potential, Express Lanes will also provide a significant benefit to motorists who remain in the GP lanes. The combination of additional lane miles and traffic management greatly increases the overall corridor capacity, which is expected to reduce the GP lane travel time upwards of 50 percent during peak hours compared to a No Build Alternative. All corridor users will benefit from Express Lanes, whether they choose to use the Express Lanes or not.
- Funding: The toll revenue generated by the I-10 Express Lanes supplements traditional funding, enabling SANBAG to construct the needed freeway improvements to accommodate the projected increase in population.
- Choice: Express Lanes provide a new travel choice for residents of San Bernardino County. They also provide an incentive for HOV as HOV 3+ will use

the Express Lanes facility for free or at a discounted rate. Other corridor travelers will have the choice to pay a toll in exchange for the reliable trip time provided by the Express Lanes. The ability to travel in a predictable amount of time is a significant quality of life improvement compared to traveling a congested corridor.

- Equity: An Equity Study Report developed for the I-10 and I-15 corridors found that Express Lanes are a more equitable method of funding major freeway projects, because only the users choosing to use the Express Lanes facility pay a fee, as opposed to a broader local, State, or federal tax where both users and nonusers pay. The study also found that low-income users would also benefit significantly from the project in terms of faster travel times in the GP lanes and by providing a new travel option available to all income levels.
- Consistency: The Express Lanes meet the Regional Transportation Plan (RTP) to develop an Express Lane network on freeways throughout the Los Angeles metropolitan area.
- HOV Federal Operating Standards: The change in management of the HOV lane west of Haven Avenue to the Los Angeles county line to a tolled Express Lane and the addition of a second tolled Express Lane in each direction would provide a reduced toll to HOVs meeting the minimum occupancy requirement. The Express Lanes would address the current degraded condition of the HOV lanes (congested and not meeting the federal operating standard for HOV lanes) in this area.
- Comprehensive HOV System: The Express Lanes, which would charge a reduced toll to HOVs meeting the occupancy requirement, would meet the objective of providing a comprehensive HOV lane system.

2.2.5 Alternatives Considered but Eliminated from Further Discussion

Below is a brief description of alternatives that were considered during the project development process but were eliminated from consideration because they do not meet the project purpose. These alternatives are not viable and therefore are not fully analyzed in this Draft EIR/EIS. Also included below is the rationale for removing each alternative from further consideration.

Value Analysis

In December 2009, a Value Analysis (VA) was performed for Alternative 2 to evaluate the performance of the proposed project design and develop alternate methods to improve value of the proposed improvements. Two design variations of Alternative 2 were reviewed at that time. Through a 6-day study, the VA team

developed five ideas to help improve the proposed design features and reduce the environmental impacts associated with the proposed improvements. Of the proposed VA alternatives, one was accepted by the PDT and has been incorporated into the current project design for both build alternatives.

- Relocate the utility towers in the freeway median outside of Caltrans ROW and construct I-10 widening to the inside to eliminate replacement of the Etiwanda Avenue Overcrossing (OC).

In March 2013, a second VA was conducted for Alternative 3. Through a 6-day study, the VA team developed eight ideas that aim to improve the proposed design and implementation, and reduce the environmental impacts. Of the proposed VA alternatives, five have been accepted by the PDT for incorporation (where practical and verified viable), including:

- Utilize Superior Performing Asphalt Pavement technology (Superpave) in lieu of hot-mix asphalt (HMA).
- Modify ramps at Haven Avenue interchange to avoid ROW acquisitions.
- Replace/rehabilitate two outside lanes with 40-year concrete pavement when performing widening in both directions.
- Use precast/prestressed concrete girders for bridge replacements, where feasible, to reduce traffic impacts and closures.
- Initially construct two Express Lanes in each direction in Segment 1 through the I-15/I-10 system interchange to Cherry Avenue and then one Express Lane in each direction in Segments 2 through 4.

Detailed documentation of the VA alternatives is provided in a report titled *Value Analysis Study Report,* dated July 2013, prepared by Value Management Strategies, Inc. (VMS).

Alternative 4

Alternative 4 would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands (as in Alternative 2) and add a GP lane in each direction from the LA/SB county line to SR-210. Figure 2-6 displays the I-10 lane configurations associated with Alternative 4.

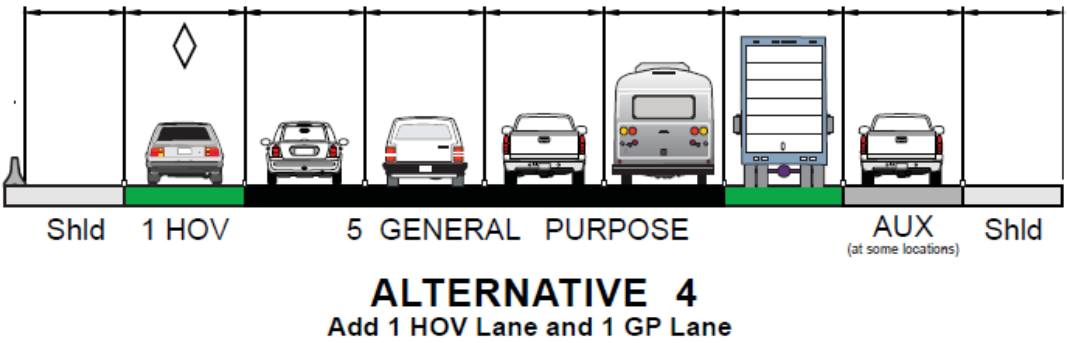

Figure 2-6 Alternative 4 – One HOV Lane and One GP Lane in Each Direction

The benefits of this alternative are:

- The existing HOV lane west of Haven Avenue would be extended east to Ford Street. This would provide a continuous HOV facility along a more extensive portion of the I-10 corridor in the urbanized area.
- The easterly extension of the HOV lane would meet the objective of providing a comprehensive HOV lane system.
- An additional GP lane would provide more capacity for all corridor motorists.

The HOV lane west of Haven Avenue is currently degraded (i.e., congested and not meeting the federal operating standard for HOV lanes), and it will further deteriorate for the planning years of 2025/2045.

The congestion, existing and anticipated, in the single HOV lane would limit the ability to improve HOV trip reliability without conversion to HOV3+. Addressing the degraded HOV condition would require consideration of increasing the occupancy requirement to 3 persons per vehicle, which would result in unused capacity in the HOV lane and therefore more congestion in the GP lanes.

Portions of the new HOV lane east of Haven Avenue to Ford Street will be over capacity when it is planned to be opened to traffic in 2025, as shown in Figure 2-7. By 2045, the single HOV lane will be over capacity for most of the corridor, as shown in Figure 2-8. Figures 2-7 and 2-8 show the forecast HOV lane demand in the most heavily trafficked portion of each of the four segments of I-10 within the project limits. The volume shown for each segment is the highest volume in that segment forecast for either the AM or PM peak hour. The figures also show with a solid red line the capacity of a single HOV lane, which is 1,600 vehicles per hour and which is

limited to that value by the inability to pass without merging into the GP lanes. For those segments where HOV demand is forecast to exceed capacity, severe congestion is anticipated. Because severely congested lanes provide less traffic flow than free-flowing lanes, a throughput of 1,200 vphpl is used for severely congested conditions and is shown in Figures 2-7 and 2-8 with a dashed red line. For lanes where HOV demand is not forecast to exceed capacity, throughput is the same as demand.

Figures 2-9 and 2-10 show the forecast GP lane demand in the most heavily trafficked portion of each of the four segments of I-10 within the project limits. The figures also show with a solid red line the capacity of the GP lanes in each segment, which is 1,850 vehicles per lane per hour (or 9,250 vehicles per hour in the 5 GP lanes west of California Street and 7,400 vehicles per hour in the 4 GP lanes east of California Street). For those segments where demand is forecast to exceed capacity, severe congestion is anticipated. Because severely congested lanes provide less traffic flow than free-flowing lanes, a throughput of 1,200 vphpl is used for severely congested conditions and is shown in Figures 2-9 and 2-10 with a dashed red line.

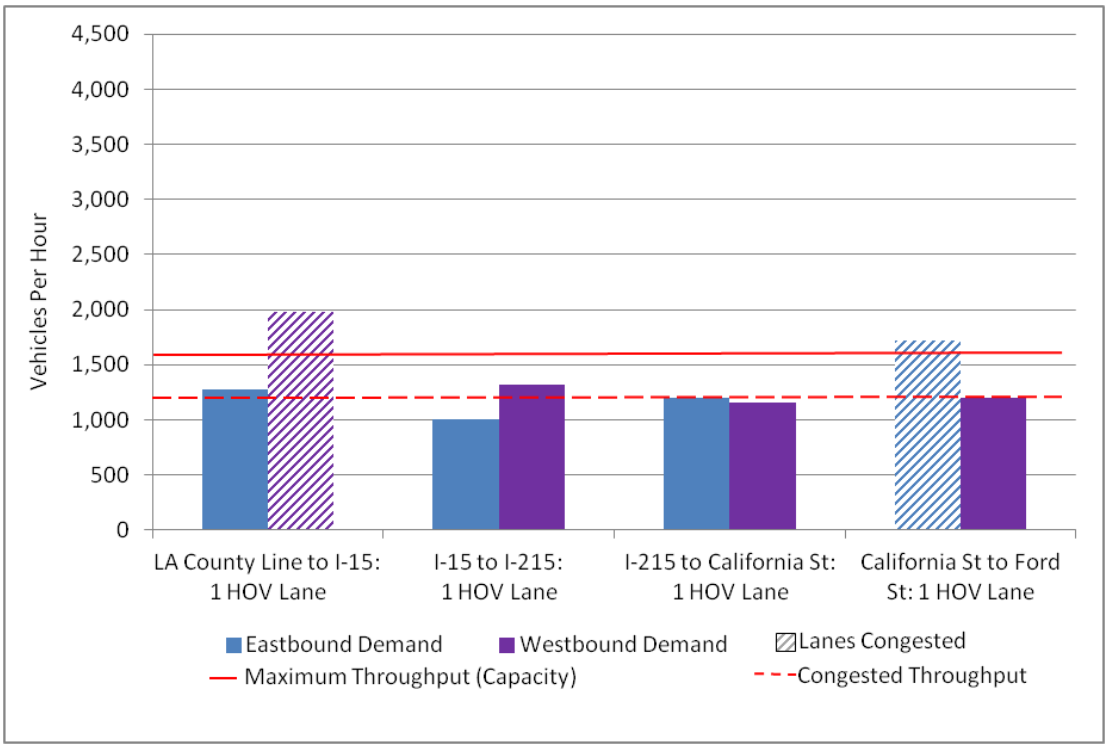

Figure 2-7 Maximum 2025 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 4: HOV Lanes

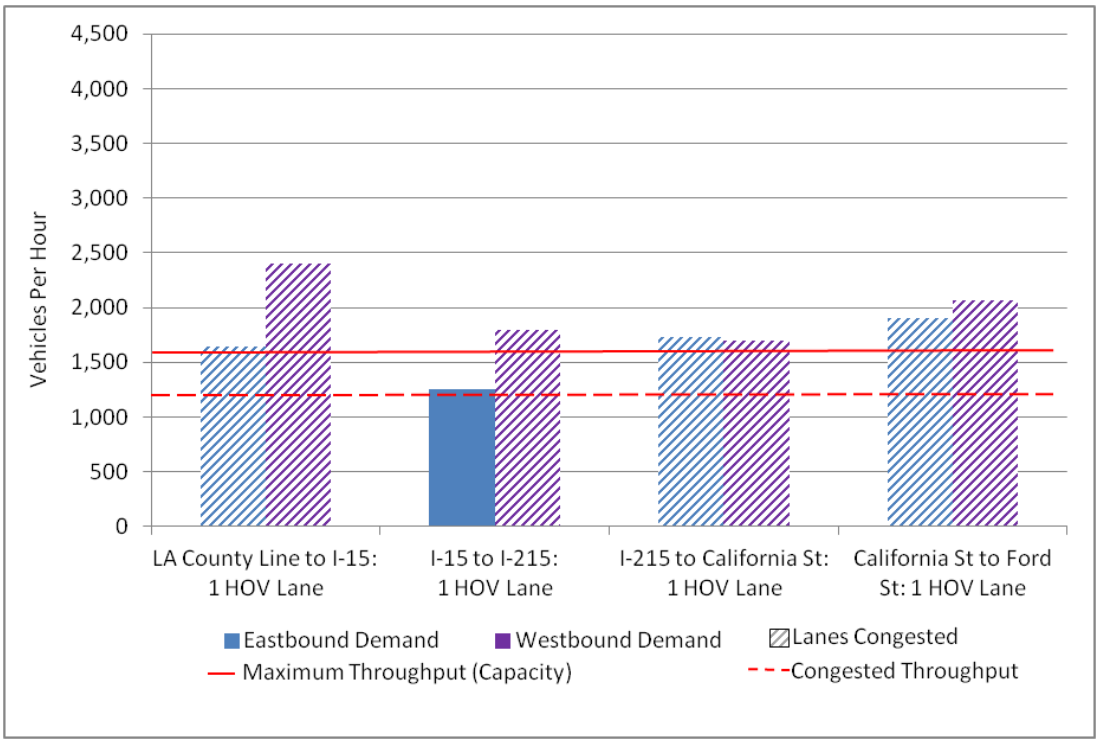

Figure 2-8 Maximum 2045 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 4: HOV Lanes

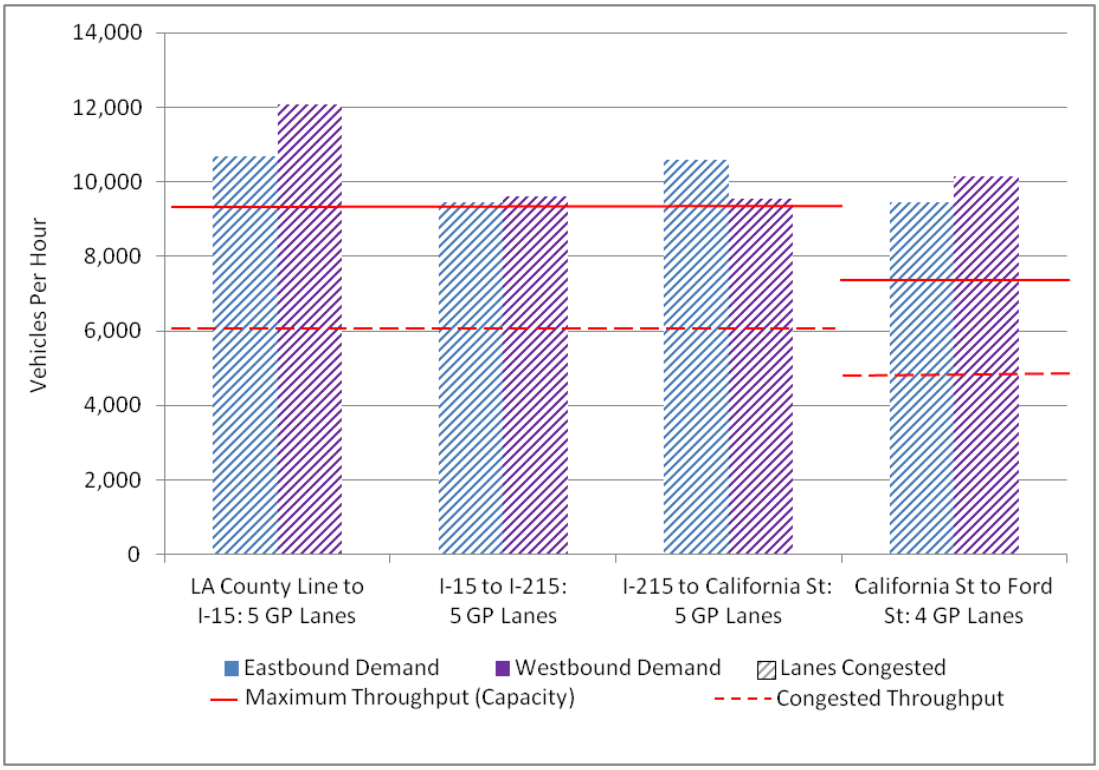

Figure 2-9 Maximum 2025 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 4: General Purpose Lanes

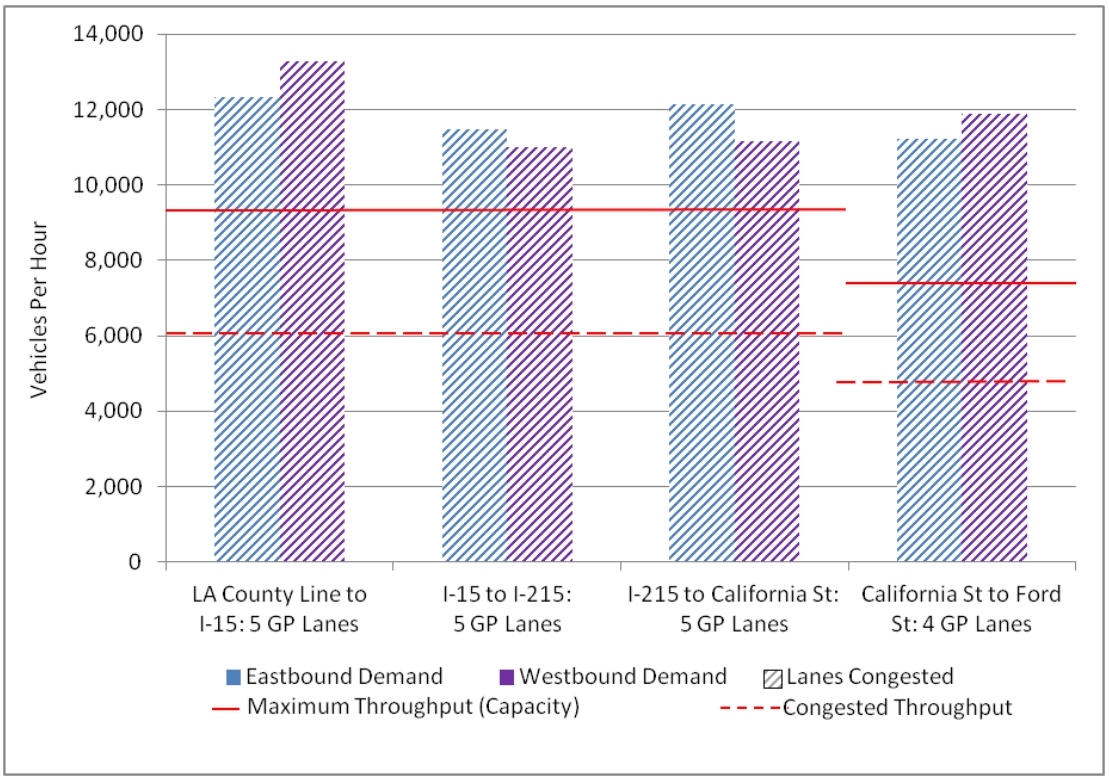

Figure 2-10 Maximum 2045 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 4: General Purpose Lanes

Single managed lanes do not provide the ability to pass. Even assuming continuous access to the HOV lane, congestion in the GP lanes during congested periods would make passing a slow HOV lane motorist by using the #1 GP lane problematic.

Because MAP-21 (Moving Ahead for Progress in the 21st Century) prohibits the conversion of a free GP lane to a tolled Express Lane (see Background Information section above), construction of Alternative 4 would preclude future management of more than the single HOV lane and implementation of the Express Lanes Network identified in the Southern California Association of Governments (SCAG) RTP. Management of the single HOV lane could be changed to a single Express Lane, but a single Express Lane has severely restricted benefits because of the inability to pass in the lane.

As such, Alternative 4 is not considered a prudent alternative for the following reasons:

- Provides limited congestion reduction;
- Precludes future management of the proposed GP lane because MAP-21 prohibits the conversion of free GP lanes to a tolled Express Lane, which would be in conflict with the purpose and need of accommodating long-term congestion management of the corridor;
- Provides problematic passing in the HOV lane, which cannot be done without merging into the GP lane, limiting throughput and reliability;
- Provides minimal enhancement of operations and improvement in trip reliability as measured by changes in corridor travel time; and
- Does not maximize an increase in throughput.

Based on the preliminary cost estimate for this alternative, less than 50 percent of the cost could be funded with available funding sources identified within the SANBAG 10-Year Delivery Plan and the SANBAG Measure I Strategic Plan; therefore, the high unfunded cost of Alternative 4 also contributes to the determination that the alternative is not a cost-effective option.

Alternative 5

Alternative 5 would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands (as in Alternative 2) and add a second HOV lane from the LA/SB county line to SR-210. Figure 2-11 displays the I-10 lane configurations associated with Alternative 5.

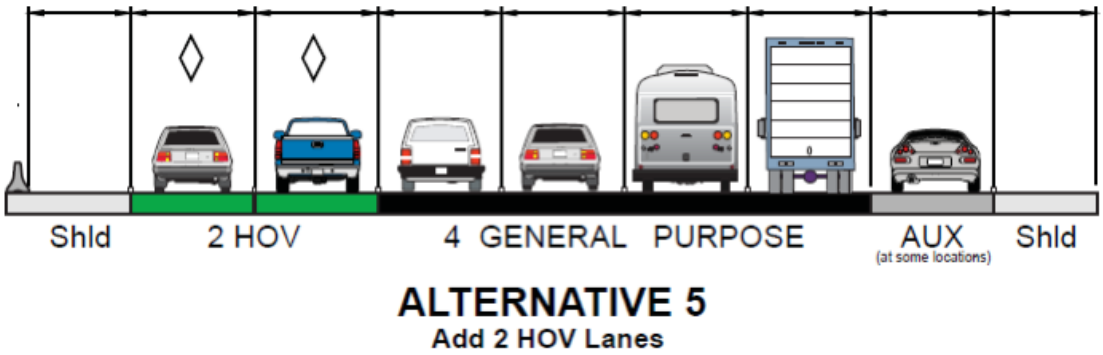

Figure 2-11 Alternative 5 – Two HOV Lanes in Each Direction

The benefits of this alternative are:

- Dual HOV lanes would more fully meet the demand for HOV capacity than a single HOV lane. The forecast demand for HOVs, as shown by Figure 2-12, will exceed the capacity of a single HOV lane (capacity of 1,600 vehicles per lane per hour) west of SR-210 in 2025 and on all segments in 2045 as shown in Figure 2-13.
- Provision of additional HOV capacity encourages carpooling.
- The easterly extension of the HOV lanes would meet the objective of providing a comprehensive HOV lane system.
- HOV trip reliability would be enhanced only in the segments where forecast HOV lane demand is not anticipated to exceed HOV lane capacity. Trip times would not be reliable WB from I-15 to the Los Angeles county line and in both directions between California Street and Ford Street, as shown by Figures 2-12 and 2-13.
- Flexibility would be provided to convert the dual HOV lanes to Express Lanes in the future.

Management flexibility is unavailable to improve lane utilization where substantial HOV capacity is unused or where HOV demand exceeds capacity.

Dual HOV lanes provide excess HOV capacity through 2045 in some locations, as shown in Figure 2-13.

In the area west of I-15, dual WB HOV lanes are anticipated to be degraded (based on demand exceeding capacity) upon opening in 2025. A degraded condition is also anticipated WB from Ford Street to California Street. Figure 2-12 shows that WB HOV demand in these segments exceeds capacity, which will result in congestion, low operating speeds, and the reduced throughput shown in Figure 2-12 with the dashed red line. Addressing degradation would require consideration of increasing the occupancy requirement to 3 persons per vehicle, which would result in substantial unused capacity in the HOV lane.

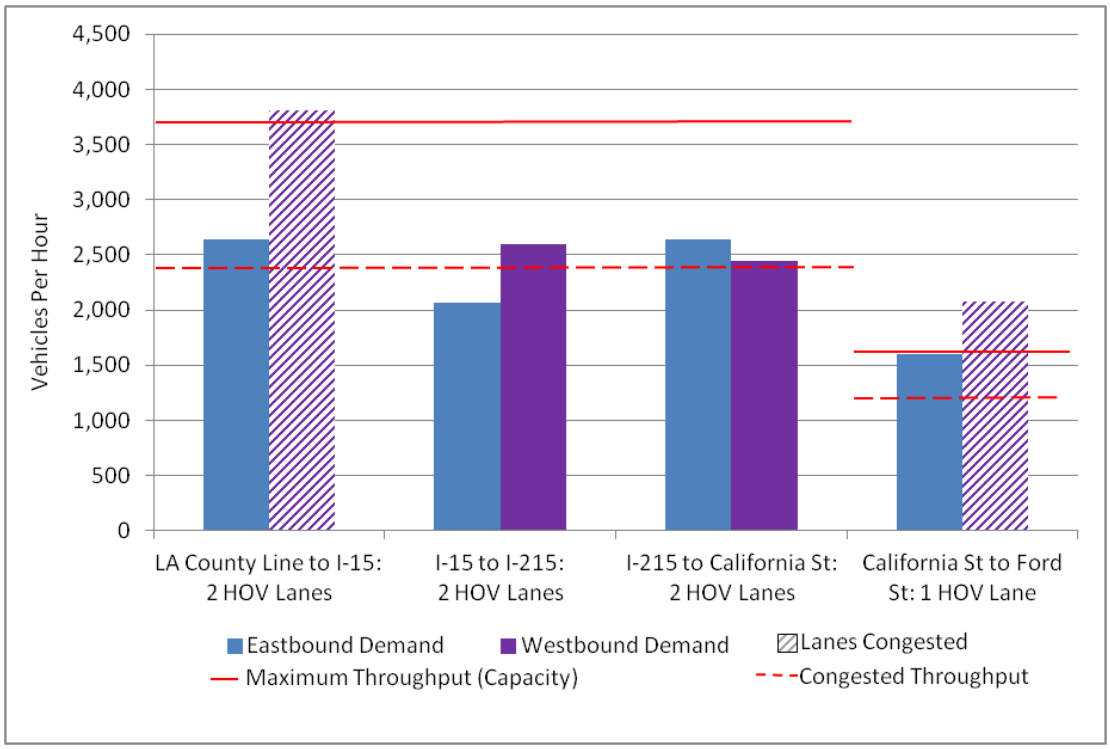

Figure 2-12 Maximum 2025 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 5: HOV Lanes

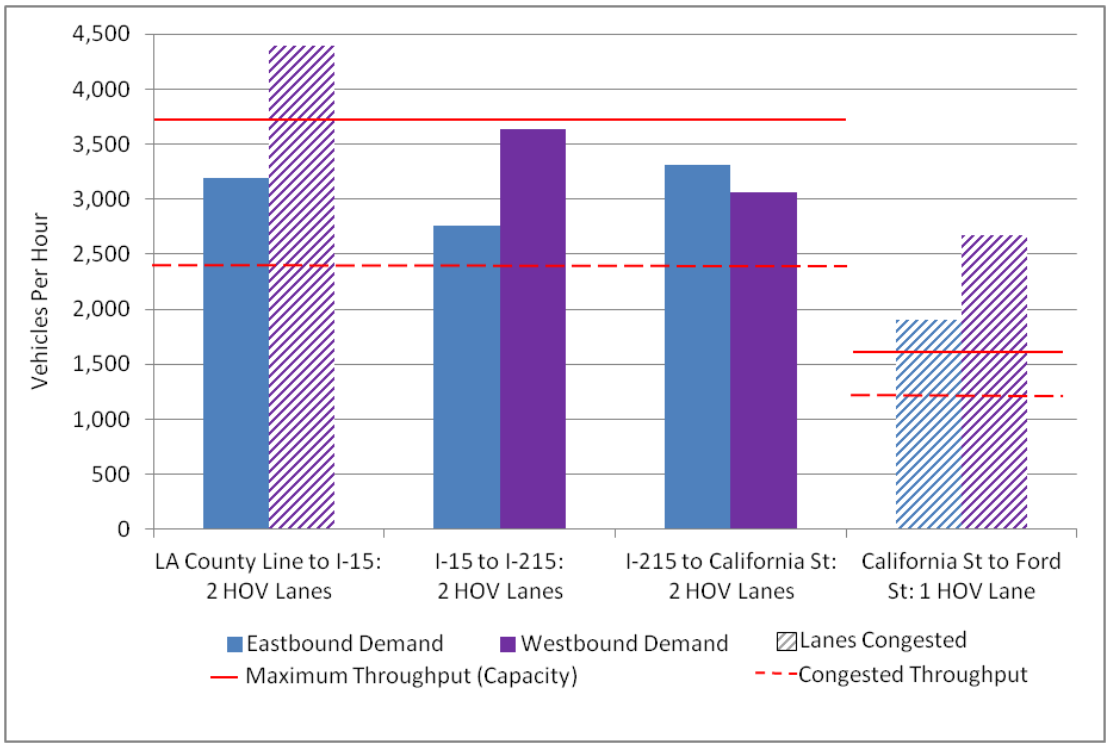

Figure 2-13 Maximum 2045 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 5: HOV Lanes

Figures 2-14 and 2-15 show the forecast GP lane demand in the most heavily trafficked portion of each of the four segments of I-10 within the project limits. The volume shown for each segment is the highest volume in that segment forecast for either the AM or PM peak hour. The figures also show with a solid red line the capacity of the GP lanes in each segment, which is 1,850 vehicles per lane per hour or 7,400 vehicles per hour in the 4 GP lanes. When demand is forecast to exceed capacity, severe congestion is anticipated. Because severely congested lanes provide less traffic flow than free-flowing lanes, a throughput of 1,200 vphpl is used for severely congested conditions and is shown in Figures 2-14 and 2-15 with a dashed red line.

Alternative 5 is not considered an effective option in fulfilling the project purpose for the following reasons:

- Provides limited congestion reduction;
- Does not maximize an increase in throughput; and
- Provides minimal or no enhancement of operations and improvement in trip reliability as measured by the ability to traverse the corridor without encountering areas of substantial congestion.

In addition, based on the preliminary cost estimate for this alternative, less than 50 percent of the cost could be funded with available funding sources identified within the SANBAG 10-Year Delivery Plan and the SANBAG Measure I Strategic Plan; therefore, the high unfunded cost of Alternative 5 also contributes to the determination that the alternative is not a cost-effective option.

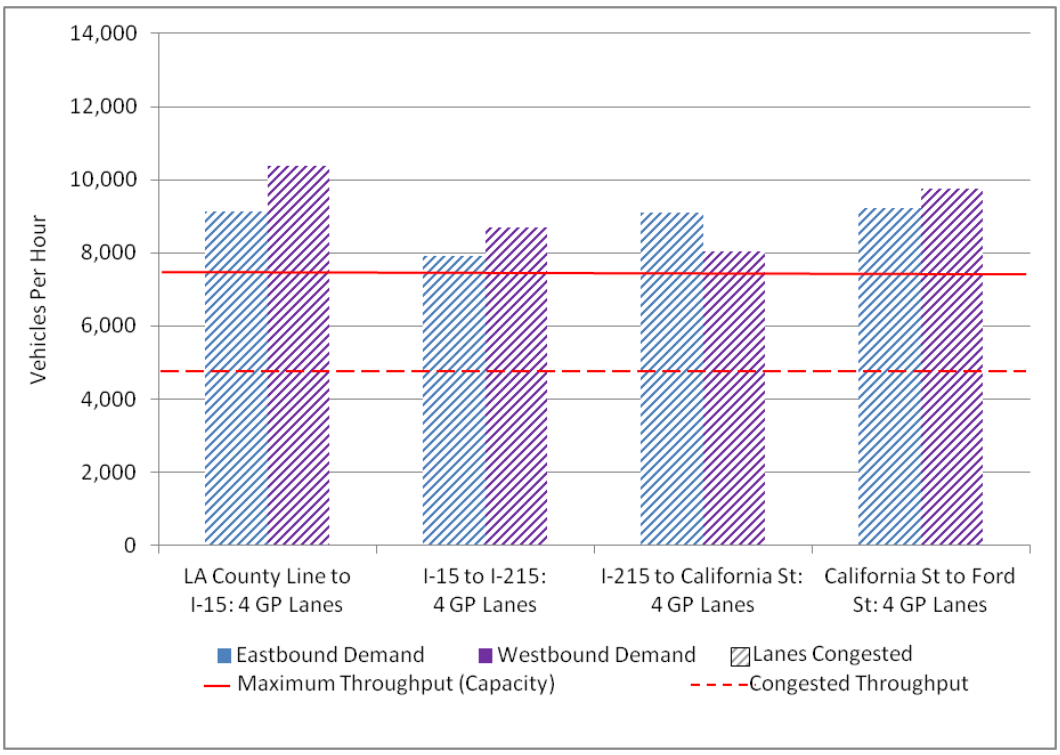

Figure 2-14 Maximum 2025 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 5: General Purpose Lanes

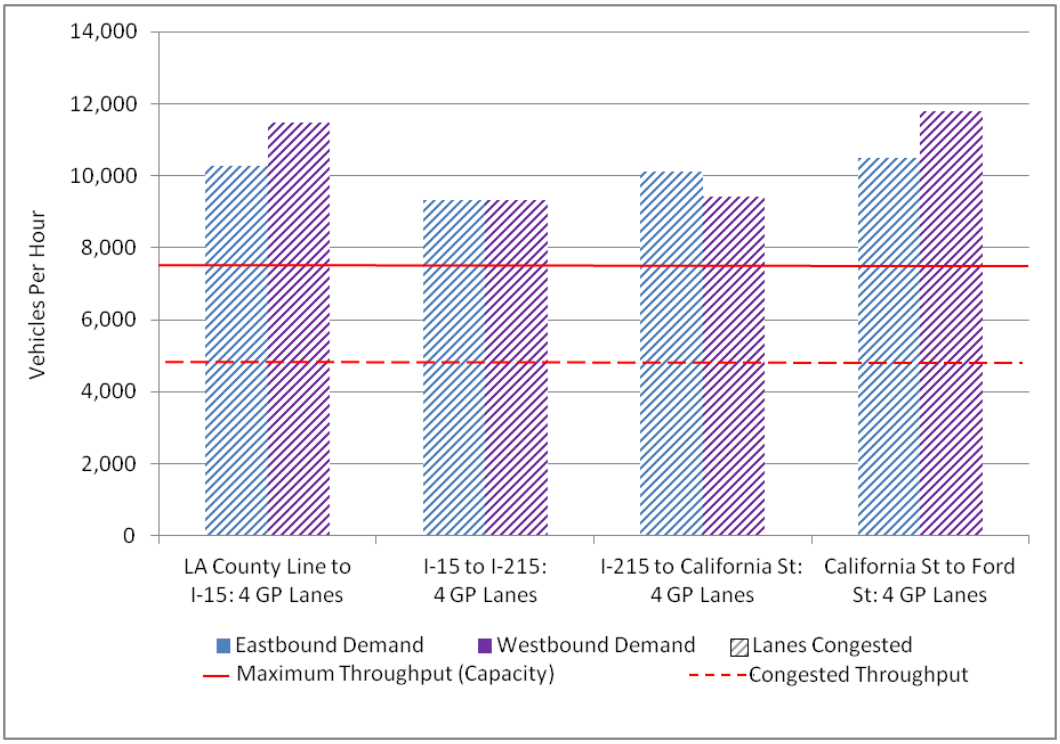

Figure 2-15 Maximum 2045 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 5: General Purpose Lanes

Alternative 6

Alternative 6 proposed the construction of two additional GP lanes in each direction of the I-10 corridor from the LA/SB county line to Ford Street in Redlands. Figure 2-14 displays the I-10 lane configurations associated with Alternative 6.

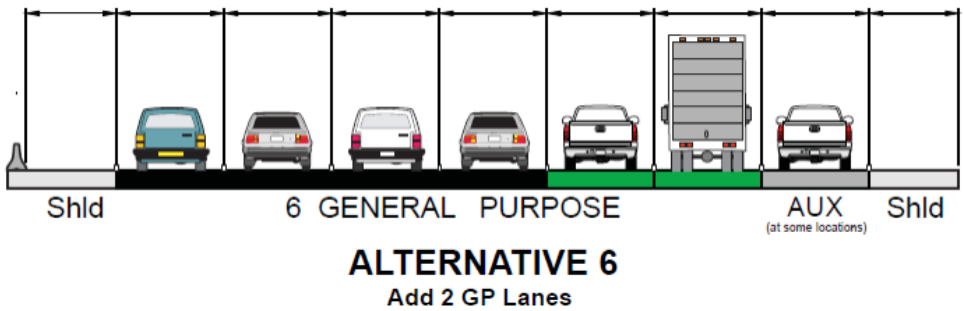

Figure 2-16 Alternative 6 – Two GP Lanes in Each Direction

The benefit of this alternative is:

- Construction of the two lanes would increase the capacity of I-10 within the project limits. Increased capacity would allow more traffic to use I-10. At opening year of this project alternative, congestion and traffic delay would be reduced along I-10.

Although this alternative would reduce traffic delay and congestion at opening year, Figure 2-17 shows that traffic demand during the peak hour is anticipated to exceed GP lane capacity in portions of three segments when opened in 2025. By 2045, all segments would have portions over capacity. Figures 2-17 and 2-18 show the forecast GP lane demand in the most heavily trafficked portion of each of the four segments of I-10 within the project limits. The forecast shown for each segment is the highest volume in that segment forecast for either the AM or PM peak hour. The figures also show with a solid red line the capacity of the GP lanes in each segment, which is 1,850 vehicles per lane per hour (or 9,250 vehicles per hour in the 5 GP lanes west of I-15 and east of California Street and 11,100 vehicles per hour in the 6 GP lanes between I-15 and California Street). For those segments where demand is forecast to exceed capacity, severe congestion is anticipated. Because severely congested lanes provide less traffic flow than free-flowing lanes, a throughput of 1,200 vphpl is used for severely congested conditions and is shown in Figures 2-17 and 2-18 with a dashed red line.

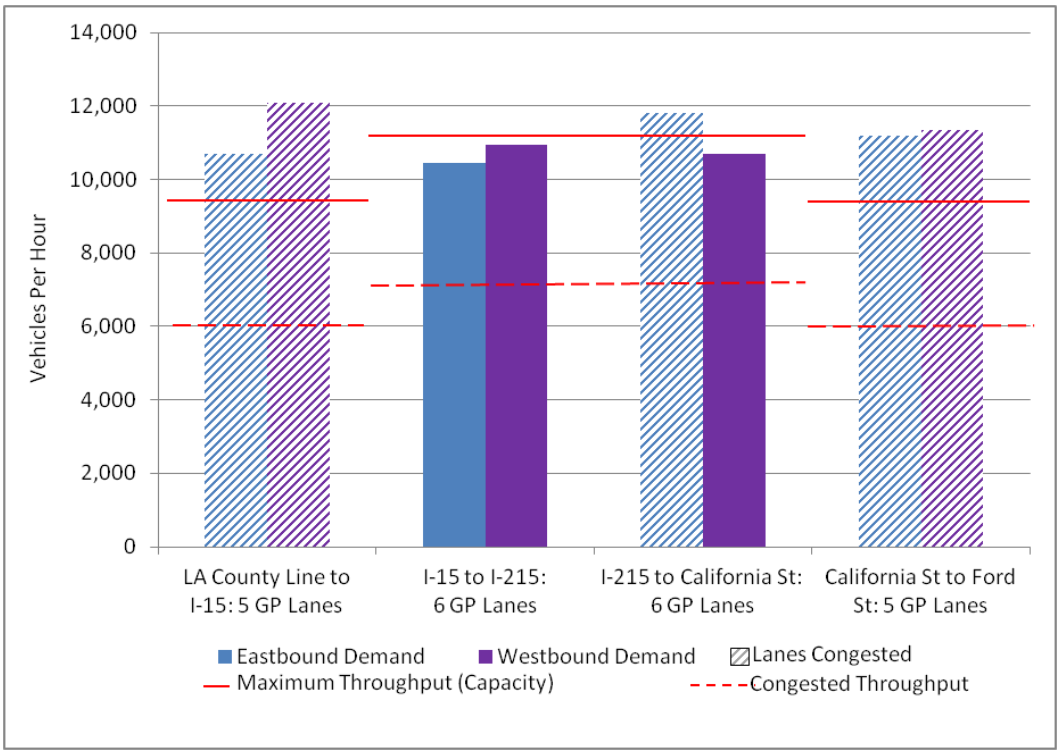

Figure 2-17 Maximum 2025 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 6: General Purpose Lanes

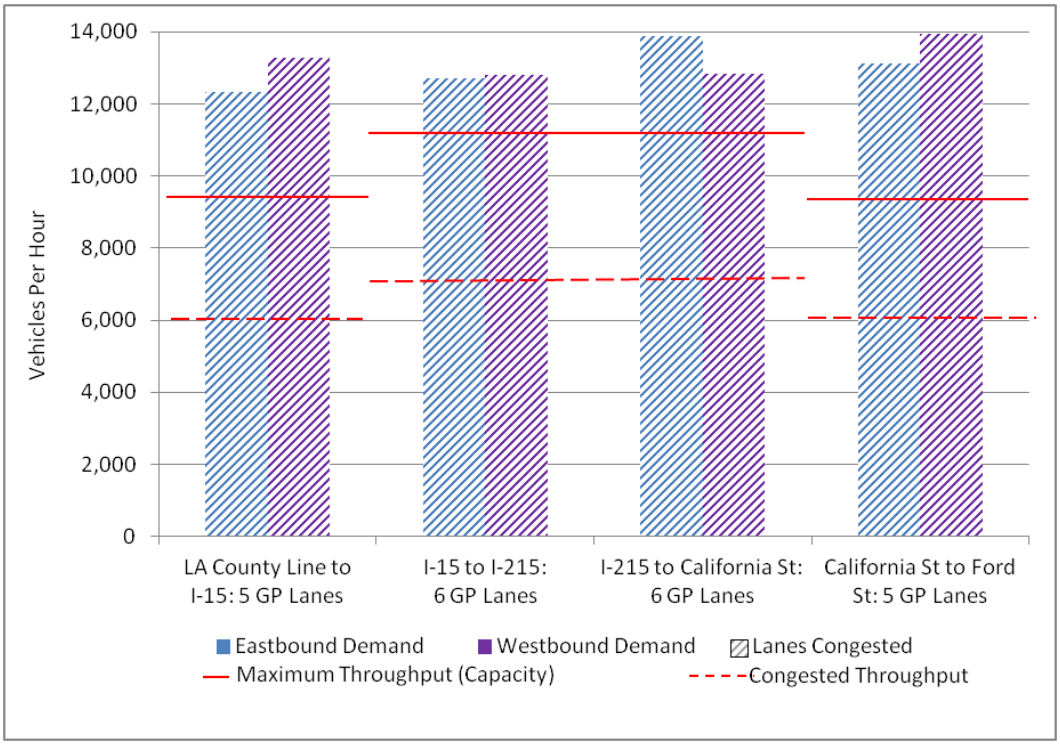

Figure 2-18 Maximum 2045 Forecast Segment Traffic Demand and Estimated Throughput, Alternative 6: General Purpose Lanes

Alternative 6 does not address the degradation in the existing HOV lane west of Haven Avenue. The degradation will deteriorate further over time as HOV traffic increases. The HOV lane is anticipated to exceed capacity in 2045 and be severely congested, with throughput of approximately 1,200 vehicles per hour, as shown in Figure 2-18 with a dashed red line.

The RTP project identified for the corridor is an HOV lane. Alternative 6 is inconsistent with that project definition.

Because MAP-21 prohibits the conversion of a free GP lane to a tolled Express Lane, construction of Alternative 6 would preclude future managed lanes. Implementation of the Express Lanes Network identified in the SCAG RTP would be effectively precluded because of the cost of acquiring the necessary additional ROW for two future additional lanes.

Alternative 6 is not considered an effective option in fulfilling the project purpose for the following reasons:

- Does not reduce congestion because it is forecast to have demand in excess of capacity and therefore be congested in three of the four segments between the Los Angeles county line and Ford Street on opening day and in all segments by 2045;
- Does not maximize an increase in throughput;
- Provides minimal enhancement of operations and improvement in trip reliability due to the extent of the corridor in which traffic demand exceeds capacity as noted in the previous bullet; and
- Because MAP-21 prohibits the conversion of free GP lanes to a tolled Express Lane, this alternative provides no additional managed lanes in the corridor and no potential to introduce additional managed lanes in the future. This precludes the ability to accommodate long-term congestion management of the corridor, which is inconsistent with the SCAG RTP Express Lane Network plans.

In addition, based on the preliminary cost estimate for this alternative, less than 50 percent of the cost could be funded with available funding sources identified within the SANBAG 10-Year Delivery Plan and the SANBAG Measure I Strategic Plan; therefore, the high unfunded cost of Alternative 6 also contributes to the determination that the alternative is not a cost-effective option.

TSM/TDM Alternative

A TSM/TDM Alternative was evaluated. Although TSM and TDM measures alone do not satisfy the purpose and need of the project and are therefore not a viable option, some of the TSM and TDM measures may be incorporated into each of the build alternatives for the proposed project and are included in Section 2.2.1.1, Common Design Features of the Build Alternatives.

The TSM/TDM Alternative is not considered a viable option because it does not fulfill the project purpose stated in Chapter 1 for the following reasons:

- TSM consists of strategies to maximize efficiency of the existing facility by providing options such as ridesharing, parking, and traffic-signal optimization. Because these options to improve traffic flow typically increase the number of vehicle trips a facility can carry without increasing the number of through lanes, this alternative would provide only minimal congestion reduction.
- The TSM/TDM Alternative does not maximize throughput because no additional through lanes are provided.
- Minimal enhancement in trip reliability would be provided.
- Long-term congestion management of the corridor would not be accommodated because existing capacity does not meet the projected demand.

2.3 Permits and Approvals Needed

Table 2-12 shows the permits, reviews, and approvals would be required for project construction common to both build alternatives:

Table 2-12 Required Permits and Approvals

Agency	Permits/Approval	Status
Federal Agency Permits/Approvals		
United States Army Corps of Engineers (USACE)	Section 404 Permit for filling or dredging waters of the U.S.	Application for Section 404 Permit anticipated after Final EIR/EIS distribution.
FHWA	Project-Level Air Quality Conformity Finding	FHWA concurrence prior to approval of Final EIR/EIS and ROD.
	Draft Project Management Plan, Draft Initial Financial Plan, and first Cost Estimate Review	Will be submitted to FHWA prior to approval of the Final EIR/EIS to meet FHWA Major Project requirements.
United State Fish and Wildlife Service (USFWS)	Section 7 Consultation and Biological Opinion	Section 7 consultation will be completed before the FED is approved.

Table 2-12 Required Permits and Approvals

Agency	Permits/Approval	Status
State Agency Permits/Approvals		
California Department of Fish and Wildlife (CDFW)	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.
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 kilovolts (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.
UPRR and BNSF	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		
San Bernardino County Flood Control District (SBCFCD)	Encroachment Permit	Letter or permit will be obtained during PS&E or construction within SBCFCD property.
Utility Company/County and Municipal Service Provider Permits/Approvals		
Atchison, Topeka and Santa Fe Railway, City of Colton, Southern California Edison, American Cablevision, AT&T, Comcast, Level 3 Communications, Sprint, SUNESYS, Time Warner Cable, Verizon, Western Union Telegraph, Chino Basin Municipal Water District, City of Chino Hills, City of Montclair, City of Ontario, City of Riverside, City of San Bernardino, City of Upland, Cucamonga Valley Water District, Fontana Public Works, Fontana Water Company, Marygold Mutual Water Company, Metropolitan Water District, Monte Vista Water District, Riverside	Approval to relocate, protect in place, or remove utility facilities	Prior to any construction within utility conflict areas.

Table 2-12 Required Permits and Approvals

Agency	Permits/Approval	Status
Highland Water Company, San Antonio Water Company, San Gabriel Valley Water Company, Santa Ana Watershed Project Authority, Southern California Water, Southern Pacific Transportation Company/UPRR, Water Facilities Authority, West San Bernardino Water District, West Valley Water District, City of Fontana, City of Loma Linda, City of Rialto Sewer, Western Pacific Sanitation Company, California-Nevada Pipeline, Kinder Morgan, Southern California Gas, Union Carbide Company		
Local Jurisdiction Permits/Approvals		
Cities of Pomona, Montclair, Upland, Claremont, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, and Redlands	Freeway Agreements	Agreements will be concluded with each of the cities in which project construction will take place.
Cities of Montclair and Redlands, County of San Bernardino, and Ontario-Montclair School District	Section 4(f) Technical Study finding	Concurrence with finding of impacts to Section 4(f) resources (parks) prior to Preferred Alternative being identified.

Table 2-13 shows the permits, reviews, and approvals that would be required for project construction of Alternative 3 only:

Table 2-13 Additional Required Permits and Approvals for Alternative 3

Agency	Permits/Approval	Status
Federal Agency Permits/Approvals		
FHWA	Tolling Authority (Alternative 3 Express Lanes)	If Alternative 3 is identified as the Preferred Alternative, FHWA approval is required to operate a toll facility on the Interstate Highway System.
State Agency Permits/Approvals		
California State Legislature	Authority to Operate Toll Facility (Alternative 3 Only)	SANBAG is currently seeking legislative authority for San Bernardino County with Assembly Bill 914. The bill, if passed, would grant SANBAG the authority to toll on the I-10 and I-15 corridors if Alternative 3 is identified as the Preferred Alternative.
SANBAG	Maintenance, Operations, and Law Enforcement Agreements (Alternative 3 only)	Maintenance, toll operations, and law enforcement agreements between SANBAG, the toll operator, CHP, and Caltrans will be required if Alternative 3 is identified as the Preferred Alternative. These will be obtained prior to beginning operations.

Chapter 3 Affected Environment, Environmental Consequences, and Avoidance, Minimization and/or Mitigation Measures

3.0 Introduction

The following technical reports were prepared in support of this Environmental Document and are incorporated by reference:

- *Air Quality Technical Study* (Terry A. Hayes Associates, Inc., March 2016)
- *Archaeological Survey Report* (Applied Earthworks, Inc., April 2015)
- *Community Impact Assessment* (Parsons, October 2015)
- *District Preliminary Geotechnical Report* (Earth Mechanics, Inc., April 2015)
- *Finding of No Adverse Effect with Non-Standard Conditions* (Applied EarthWorks, Inc., May 2015)
- *Floodplain Evaluation Report* (Parsons, December 2014)
- *Historical Resources Evaluation Report* (Applied EarthWorks, Inc., April 2015)
- *Historic Property Survey Report* (Applied Earthworks, Inc., April 2015)
- *Initial Site Assessment* (Parsons, September 2014)
- *Jurisdictional Delineation Report* (Ecorp, Inc., October 2015)
- *Natural Environment Study* (Parsons, December 2015)
- *Noise Abatement Decision Report* (Parsons, July 2015)
- *Noise Abatement Decision Report Addendum* (Parsons, August 2015)
- *Noise Study Report* (Parsons, July 2015)
- *Noise Study Report Addendum* (Parsons, August 2015)
- *Paleontological Identification and Paleontological Evaluation Report* (Cogstone, December 2014)
- *Relocation Impact Statement* (Parsons, September 2015)
- *Traffic Study* (Parsons, August 2014)
- *Visual Impact Assessment* (Parsons, March 2015)
- *Water Quality Assessment Report* (Parsons, May 2015)

Analysis of each environmental factor in this Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) includes discussion of the affected environment; environmental consequences, including construction impacts, permanent impacts, cumulative impacts, and, in some cases, indirect impacts; and avoidance, minimization, and/or mitigation measures for each project alternative, including the No Build Alternative and two build alternatives. The environmental conditions existing in 2012, when the Notice of Preparation (NOP) was issued and when the traffic counts were conducted, serve as the basis for impact analysis for each alternative evaluated in this Draft EIR/EIS.

Per National Environmental Policy Act (NEPA) regulations (40 *Code of Federal Regulations* [CFR] 1508.27), significance is based on context and intensity. The magnitude of the impact is evaluated, and no judgment of its significance is made in the document. Usage of the term "significance" in this document is made pursuant to the California Environmental Quality Act (CEQA) only, and the evaluation of environmental factors pursuant to CEQA significance thresholds is confined to Chapter 4, CEQA Evaluation, and Appendix A, CEQA Checklist. Each section in Chapter 3 discusses the context and intensity of environmental impacts and mitigation measures, as required by NEPA.

Analysis for cumulative and indirect effects of the proposed project was completed consistent with the adopted California Department of Transportation (Caltrans) guidance for Preparers of Cumulative Impact Analysis (http://www.dot.ca.gov/ser/cumulative_guidance/purpose.htm), Caltrans-adopted guidance for Preparers of Growth-Related, Indirect Impact Analyses (http://www.dot.ca.gov/ser/Growth-related_IndirectImpactAnalysis/gri_guidance.htm), the Council on Environmental Quality (CEQ) handbook entitled *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ, 1997), and the Federal Highway Administration (FHWA) position paper entitled *Secondary and Cumulative Impact Assessment in the Highway Project Development Process* (FHWA, 1992). Three major steps, which are parallel with the environmental impact assessment process, were used in analyzing cumulative effects. These consist of (1) scoping, (2) defining the affected environment, and (3) determining the environmental consequences.

Resources Considered but Determined to not be Relevant

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered, but no adverse impacts were

identified. As a result, there is no further discussion about these issues in this document.

- ***Coastal Zone.*** The project site is not located within the designated coastal zone area.
- ***Wild and Scenic Rivers.*** There are no State or federally designated or candidate rivers within the project area (National and Wild Scenic Rivers, 2010).

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3.1 Human Environment

3.1.1 Land Use

This section discusses impacts to land use as a result of implementation of the proposed project. The analysis is based on the results of the Community Impact Assessment (October 2015) prepared for this project. The discussions in this section related to land use are provided in the following three subsections:

- Existing and Future Land Use
- Consistency with State, Regional, and Local Plans and Programs
- Parks and Recreational Facilities

3.1.1.1 Existing and Future Land Use

This section addresses potential impacts to existing and planned land uses in the project area that could result from implementation of the project alternatives.

Affected Environment

The Interstate 10 (I-10) corridor study area consists of a mixture of urbanized mixed-use, residential, agricultural, industrial, commercial, and open space land uses. The City and County General Plans were reviewed to understand the development trends, land use related goals, and specific policies that could affect or be affected by the proposed improvements to the I-10 corridor. General Plans from the 12 cities of Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, Redlands, and Yucaipa; the community of Bloomington; and the counties of Los Angeles and San Bernardino were reviewed for this analysis**.** Although no construction would physically occur within Los Angeles County, the Los Angeles County General Plan was reviewed for relevant goals and policies to evaluate consistency within the transition area, which may include construction staging or roadway striping in Los Angeles County. Regional plans affecting the project area were also reviewed. The General Plan land uses are shown in the figures in Appendix H, Land Use Maps.

Existing land uses located immediately adjacent to the proposed project area were identified from west to east based on Google Earth, windshield surveys conducted in 2014, and regional and local plans in the affected project area.

Pomona. Medical facilities dominate the west end of Pomona immediately adjacent to I-10. These medical facilities include Pomona Valley Medical Center and other

doctors' offices. These facilities are also mixed with residential and typical highway commercial uses. Schools, churches, and parks are also located within this area. Single-family residential uses dominate the east end of Pomona.

Claremont. Commercial uses, including hotels, are clustered around Indian Hill Boulevard at the west end of Claremont adjacent to I-10. There is also the Claremont Center shopping center to the south of I-10 and multi-family residential uses. The east end of Claremont immediately adjacent to I-10 consists of single-family residential uses mixed with retail uses.

Montclair. From Mills Avenue to Monte Vista Avenue, there are mostly residential and open space uses. There are three parks located immediately to the south of I-10 within Montclair. From Monte Vista Avenue to Central Avenue is the Montclair Plaza, a large mall to the north of I-10, and auto sales properties to the south. The north side of I-10 continues with commercial uses at the east end of Montclair, while the south side is mostly residential.

Upland. Upland is located north of I-10, and the western portion of this part of the city consists of larger commercial properties, including an entertainment park, retail, and a motel. Continuing east from here, there are some light industrial uses, and State Route (SR) 83/Euclid Avenue runs north-south through the city. The eastern end of Upland within the study area consists primarily of multi-family and single-family residential properties.

Ontario. Residential neighborhoods dominate the land uses to the south of I-10, with commercial uses clustered at major intersections. There are also open space uses immediately adjacent to the southern side of I-10. The northern side is also dominated by residential uses until Vineyard Avenue. At this point, Cucamonga-Guasti Regional Park occupies the area immediately adjacent to I-10 to the north and the LA/Ontario International Airport is located to the south of I-10. Several business parks are located around the same area north of I-10. There are several hotel properties and commercial/retail uses surrounding the Haven Avenue intersection, which are likely to accommodate the Citizens Business Bank Arena, an event center, located north of this area. The Ontario Mills Mall and other commercial uses dominate the area northwest of the Interstate 15 (I-15) interchange. Business parks and light industrial uses encompass the eastern end of Ontario.

Fontana. The west end of Fontana is comprised primarily of industrial uses. The city is known for its economic reliance on distribution centers, which contributes to the

heavy truck usage in this area. There is a small patch of unincorporated San Bernardino County that also consists primarily of industrial uses. Industrial uses continue to dominate this part of Fontana, with some residential interspersed. At the east end of Fontana, there are three large commercial centers: Inland Empire Center, Palm Court at Empire Center, and Vineyard Valley Shopping Center. These commercial uses include retail spaces, a gym, and a restaurant.

Bloomington. To the north of I-10, most of the land uses are industrial, with one patch of open space. Near the east end, there are mobile homes, single-family residential uses, and some commercial uses. Light industrial uses and the Union Pacific Colton Railyard border the southern side of I-10 in the community of Bloomington.

Rialto. Light industrial uses, including used car dealerships and vacant lots, line the portion of Rialto immediately north of I-10. Near the eastern end of the city limits, there is a concrete channel. The Union Pacific Colton Railyard is located south of I-10.

Colton. At the western limit of Colton, land uses consist primarily of industrial, with the Union Pacific Colton Railyard to the south of I-10. The Sam Snead Golf Course is located to the north of I-10 near Pepper Avenue. The Arrowhead Regional Medical Center is also located to the north of I-10, just east of Pepper Avenue. There is a portion of unincorporated San Bernardino County south of I-10 from approximately Pepper Avenue to Rancho Avenue where the recently closed Colton Cement Plant (or Mt. Slover) is located. Mt. Slover originally served as a marble quarry. North of I-10 and Mt. Slover is the recently completed rail grade-separation project, Colton Crossing, and to the east of that is an unincorporated residential neighborhood. At this point in incorporated Colton, there are mainly residential uses south of I-10 and residential, commercial, and light industrial uses north of I-10. Near the Interstate 215 (I-215) interchange is the Santa Ana River and trail, which is under the jurisdiction of unincorporated San Bernardino County.

San Bernardino. North of I-10, there are many restaurants on Hospitality Lane, which runs parallel to I-10. Immediately adjacent to I-10 within San Bernardino, there are some hotel uses north of I-10, as well as retail uses. The east end of San Bernardino consists primarily of single-family residential uses, including a planned development residential property. South of I-10, there are large retail/commercial uses, as well as fast-food businesses.

Loma Linda. Strip malls, office uses, and light industrial uses exist along Redlands Boulevard at the west end of Loma Linda. Near Anderson Street, there are more commercial uses, including fast-food chains. At this point, automobile sales uses begin to occupy Redlands Boulevard. Following the automobile uses, there are open space uses. Before Mountain View Avenue, there is a mobile home park. Office uses occupy most of the eastern end of Loma Linda within close proximity to I-10.

Redlands. There are agricultural uses mixed with light industrial uses and office buildings north of I-10, at the west end of Redlands. A water park is also located north of I-10 to the west of California Street, and the San Bernardino County Museum is located to the east of California Street. There is a City-owned citrus grove immediately south of I-10 at California Street and the Pavillion at Redlands Shopping Center. More light industrial uses flank I-10, with some hotels near Alabama Street. Similar uses continue up until the SR-210 interchange. After the interchange, the uses change to primarily residential, with several freeway-adjacent open space uses, Redlands High School, and some commercial uses. Undeveloped hillside dominates the study area to the east end of the city limits.

Yucaipa. Low-density retail/commercial businesses and undeveloped land dominate the land uses within the project study area in Yucaipa. There are also small, single-family residential neighborhoods within close proximity of the proposed project alignment.

Development Trends

Recent development trends in the I-10 corridor study area have been primarily focused on transportation projects. Table 3.1.1-1 identifies transportation and residential projects located within 5 miles of the proposed alignment and all other land development project types (e.g., commercial development) located within 2 miles of the proposed project alignment. The project timeframe includes any projects that may occur within 3 years of the proposed project implementation. The projects listed were used to analyze cumulative impacts of the proposed project.

Table 3.1.1-1 Related Projects

Project Name, Type, Status	Project Description
I-10 Projects • Transportation projects • Located at various locations along the I-10 corridor • California Department of Transportation (Caltrans) projects • In various phases of planning or development through the year 2045	Caltrans has 38 projects proposed for I-10, ranging from minor maintenance to interchange projects. Of the 38 projects along I-10, only 5 interchange projects require measures to address impacts.
I-15 Corridor Improvement Project • Transportation project • Located in the cities of Jurupa Valley, Eastvale, Norco, Corona, and Riverside • Riverside County Transportation Commission (RCTC) and Caltrans project • Currently in the environmental phase, which is expected to be completed in fall 2015.	RCTC, in partnership with Caltrans District 8, are exploring improvements on a 14.6-mile segment of the I-15 corridor. The proposed project would include the addition of one to two Tolled Express Lanes in each direction from Cajalco Road where it crosses I-15 in Corona to just south of the I-15 and SR-60 interchange at Riverside Drive. This project has an estimated construction cost of $415 million.
San Bernardino County Flood Control District's Master Stormwater System Maintenance Program (MSWSMP) • Located within the San Bernardino County Flood Control District jurisdiction • San Bernardino County Flood Control District project • A Notice of Preparation of a Draft Environmental Impact Report (EIR) was circulated on June 30, 2014.	The San Bernardino County Flood Control District is proposing to implement a comprehensive program to prepare and implement a Maintenance Plan for maintenance of flood facilities throughout San Bernardino County. Types of routine operations and maintenance activities include, but are not limited to, the removal of excess sediment, debris, and vegetation; stockpiling excess material and debris following removal; maintaining sufficient flowpaths; grooming/repairing earthen and improved channel slopes and bottoms; and maintaining culverts and bridges to ensure proper drainage and structural integrity.
State Route 210 Foothill Freeway Planned Construction Activity • Transportation project • Located in the cities of La Verne, Claremont, Upland, Rancho Cucamonga, Fontana, Rialto, and San Bernardino • San Bernardino Associated Governments (SANBAG) and Caltrans project • Future planned project; timeline is uncertain • Construction/approval dates range for the varying activities; see Project Description column	Future work on SR-210 would include: • Freeway landscaping is planned for the final 8 miles (Segment 11) of SR-210 ending at the I-10 interchange. Landscaping construction contract awarded to Kasa Construction in June 2013. • Seismic retrofit of the Union Pacific Railroad (UPRR) bridge in San Bernardino. • Construction of an interchange at Pepper Avenue in Rialto. SANBAG built a bridge at this location. Once the City of Rialto extends Pepper Avenue north to SR-210, SANBAG will build on-ramps and off-ramps at this location. Preliminary engineering and preparation of the environmental document are underway. Public hearing occurred on June 2, 2014. Project approval is anticipated for early 2015. • SR-210 to I-215 high-speed connectors.

Table 3.1.1-1 Related Projects

Project Name, Type, Status	Project Description
Redlands Passenger Rail Project • Transportation project • Located in the cities of San Bernardino, Loma Linda, Redlands, and unincorporated areas of San Bernardino County. • Federal Transit Administration (FTA), SANBAG, Omnitrans, Metrolink, and the City of San Bernardino project • Project construction is expected to begin in late 2015	The Redlands Passenger Rail Project is proposed to run along existing railroad right-of-way (ROW) from E Street just before Stoddard Avenue in San Bernardino to Rialto Avenue in Redlands, roughly a 9-mile extension of passenger rail service. The project is proposing to build five new stations. The project will incorporate track improvements, including redesign of the existing track alignment, track ballast, and subgrade foundation. Additional project components include the replacement or strengthening of five bridges; additional traffic and rail signals; utility replacement and relocation; and culvert replacements, extensions, and relocations.
Metro Gold Line Foothill Extension Construction Activity: Azusa to Montclair • Transportation project • Located in the cities of Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair • Metro project • Starting in early 2014, the project will begin advanced conceptual engineering	The Metro Gold Line light-rail transit (LRT) system extension is proceeding in two phases. Construction of the first phase from the Pasadena Sierra Madre Villa Madre Station, located at Raymond Avenue and Del Mar, to the Azusa-Citrus Station, located between Palm Drive and Citrus Avenue, began in late 2011, and construction is anticipated to be completed in late 2015. The Foothill extension from Vermont Avenue in Azusa to just east of Monte Vista Avenue and north of Arrow Highway in Montclair will extend the Metro Gold Line 12.3 miles and add six stations in the cities of Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair.
Metro Gold Line Foothill Extension Construction Activity: Ontario Airport Extension • Transportation project • Located in the cities of Montclair, Upland, and Ontario • Metro project • Funding for the Ontario Airport Extension has not been identified; project timeline is uncertain • The Alternatives Analysis process will begin in 2014	The Ontario Airport Extension will extend the Gold Line approximately 8 miles – from the TransCenter in Montclair, located just east of Monte Vista Avenue and north of Arrow Highway, to Ontario – and terminate the line at the LA/Ontario International Airport. Although not formally part of the Foothill Extension Project, the Construction Authority completed a study to understand the feasibility of extending the line from Montclair to the airport in 2008. The initial study concluded that extending the line was feasible and provided many potential route options.
The Paseos • Land development project • Located in the city of Montclair • GLJ Partners and Alliance project • Specific Plan approved in 2010	The proposed project would construct a 385-unit multi-family residential development at the northeast corner of Monte Vista Avenue and Moreno Street.
Arrow Station • Land development project • Located in the city of Montclair • Hutton Companies project • The project is expected to commence construction in late 2014	The Specific Plan proposes a 129-unit residential development consisting of 99 urban-style multi-family units and 30 single-family detached homes, which was approved by the City Council in December 2010. Arrow Station is to be located on the north side of Arrow Highway just east of Monte Vista Avenue.

Table 3.1.1-1 Related Projects

Project Name, Type, Status	Project Description
Park View Specific Plan • Land development project • Located in the city of Upland • City of Upland Housing Element – Specific Plan • To be implemented between 2013 and 2021	The Park View Specific Plan is envisioned as a mixed-use village that will be located in between east Baseline Road, SR-210, and Cajon Road. The plan calls for the development of up to 100,000 square feet of commercial/ retail space, 32 acres of residential land, and 57 acres of open space for a city park, flood control facilities, and spreading grounds. When built to capacity, the Specific Plan will add 400 housing units to Upland, most of which will be single-family housing.
Upland Crossing Specific Plan • Land development project • Located in the city of Upland • City of Upland Housing Element – Specific Plan • To be implemented between 2013 and 2021	This Specific Plan area is composed of a residential development with a small commercial-retail component. The Specific Plan proposes 355 multi-family attached and 14 detached residential units. The area is bounded by Foothill Boulevard, Monte Vista Avenue, and west Arrow Route, just below Central Avenue.
College Park Specific Plan • Land development project • Located in the city of Upland • City of Upland Housing Element – Specific Plan • To be implemented between 2013 and 2021	In 2004, the City adopted the College Park Specific Plan to encourage mixed-use development in southwest Upland and provide housing opportunities for the Claremont Colleges. The planning area includes 25 acres of residential land that can accommodate approximately 500 housing units. A total of 450 apartment units have been built. An additional 92 small-lot, detached single-family units are planned at a density of 10 units per acre.
Meredith International Centre Specific Plan • Land development project • Located in the city of Ontario • City of Ontario Specific Plan • An Initial Study was prepared for the project in 2014	The Meredith International Centre Specific Plan Amendment Project proposes a mix of industrial, commercial, and residential land uses on approximately 257 acres located in the southeast portion of Ontario within San Bernardino County. The site is generally located north of I-10, south of 4th Street, between Vineyard Avenue, and Archibald Avenue. The project area is located in between the Southern Pacific Trail and west Arrow Route.
Ontario Center Specific Plan • Land development project • Located in the city of Ontario • City of Ontario Specific Plan • An amendment to the Ontario Specific Plan was approved in 2006	The Ontario Center site consists of approximately 88 acres of vacant land located at the northerly boundary of the eastern portion of Ontario, south of 4th Street, between Haven Avenue and Milliken Avenue, and less than 0.25 mile north of I-10. The Ontario Center will include urban commercial, urban residential, garden commercial, and open space elements.
Ontario Festival Specific Plan • Land development project • Located in the city of Ontario • City of Ontario Specific Plan • Approved in 2012	The Ontario Festival Specific Plan is a comprehensive plan for the development of a planned residential site that could accommodate up to 472 dwelling units on approximately 37.6 acres. This project will be located along Inland Empire Boulevard between Archibald Avenue and Turner Avenue, just below Guasti Regional Park.

Table 3.1.1-1 Related Projects

Project Name, Type, Status	Project Description
Wagner Properties Specific Plan • Land development project • Located in the city of Ontario • City of Ontario Specific Plan • Approved in 2010	The Specific Plan addresses the development of 11 parcels, totaling 54.57 acres located in eastern Ontario.
Southwest Industrial Park • Land development project • Located in the city of Fontana • City of Fontana Specific Plan • Latest Specific Plan amendment approved in 2009	The Southwest Industrial Park (SWIP) Specific Plan is expected to promote economic development and provide opportunities for existing property owners and new businesses. A total of 1,101 acres have been included in the plan since its adoption in 1977. The project area spans both sides of I-10 and is roughly between Etiwanda Avenue and Citrus Avenue.
Alliance California Gateway South Building 3 • Land development project • Located in the city of San Bernardino • City of San Bernardino project • Approved September 2013	The proposed project involves construction and operation of an industrial warehouse building consisting of 1,199,360 square feet of interior floor space and 215 loading bays on a 49.65-acre portion of a 62.65-acre property located south of and adjacent to East Orange Show Road and approximately 450 feet east of South Waterman Avenue in the south-central portion of San Bernardino.
Downtown Redlands Specific Plan (Amendment No. 15) • Land development project • Located in the city of Redlands • City of Redlands Project • Plan approved in 2011	The Specific Plan area extends from Texas Street in the west to North Church Street in the east, and from the south side of I-10 in the north to San Gorgonio Drive, Brookside Avenue, West Vine Street, South 6th Street, East Olive Avenue, and East Citrus Avenue in the south. Rail tracks cut through the site, just south of Stuart Avenue.
West of Devers Project • Public infrastructure project • Located within incorporated and unincorporated areas of Riverside and San Bernardino counties, cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, and Redlands • Southern California Edison (SCE) Project • Project construction scheduled to begin in 2016	This project will consist of removing and replacing approximately 48 miles of existing 220-kilovolt (kV) transmission lines with new double-circuit 220-kV transmission lines, between the existing Devers Substation (near Palm Springs), Vista Substation (in Grand Terrace), and San Bernardino Substation. This project will consist of removing and replacing approximately 48 miles of existing 220-kV transmission lines with new double-circuit 220-kV transmission lines, between the existing Devers Substation (located on 10th Avenue and Diablo Road, near Palm Springs), Vista Substation (in Grand Terrace), and San Bernardino Substation (located on San Bernardino Avenue in between Mountain View Avenue and California Street).
Freeway Corridor Specific Plan • Land development project • Located in the city of Yucaipa • City of Yucaipa project • Plan approved in 2007	The Specific Plan site encompasses 1,234.3 acres and is located in the southwestern corner of Yucaipa within San Bernardino County. The Specific Plan site is bisected by I-10 and abuts the Riverside county line to the south. The proposed Specific Plan is composed of three distinct neighborhoods. Each neighborhood includes residential, commercial, business park, public facilities, and open space land uses. Local access to the location is provided by Live Oak Canyon Road, County Line Road, Oak Glen Road, Wildwood Canyon Road, and Calimesa Boulevard.

Table 3.1.1-1 Related Projects

Project Name, Type, Status	Project Description
Oak Hills Marketplace Specific Plan • Land development project • Located in the city of Yucaipa • City of Yucaipa project • Plan approved in 2007	The Oak Hills Marketplace (OHM) property occupies approximately 63.66 acres located in southern Yucaipa. The site is located adjacent to eastbound I-10, immediately east of Live Oak Canyon Road. Wildwood Creek traverses the project site, and several unnamed hills are located along the southern border of the property. The proposed project aims to provide a regional shopping destination, including dining and shopping opportunities, and approximately 1,000 new jobs to area residents.
Robinson Ranch Planned Development • Land development project • Located in the city of Yucaipa • City of Yucaipa project • Plan approved in 2011	The Planned Development area covers 522 acres in the southwest portion of Yucaipa. The planned development area is divided into the following three primary planning areas: Robinson Ranch North, West Oak Center, and Wildwood Ranch. In total, the planned development envisions 4,159 multi- and single-family attached and detached dwelling units distributed throughout 305 acres, 109 acres of general commercial uses, and 28 acres of business park uses. Approximately 119 acres of improved open space and 49 acres of natural open space areas would be included within these land uses. I-10 separates the Robinson Ranch North Planning Area on the north side of I-10 and the Wildwood Ranch and Wildwood Center planning areas to the south of I-10.

Note: Information was collected from each project's website in 2014.

Environmental Consequences

Alternative 1: No Build Alternative

The No Build Alternative would maintain the current configuration of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and no impacts to land use would occur.

Common to Both Build Alternatives

The build alternatives run through incorporated cities and unincorporated communities. This analysis evaluates existing land uses that would be converted to transportation uses for the I-10 Corridor Project (I-10 CP). The analysis is based on the most current General Plan Land Use maps available from each jurisdiction.

Table 3.1.1-2 shows the number of affected acres for the proposed project. Both of the I-10 CP build alternatives would affect existing residential, commercial, industrial, agricultural, open space, and public facilities. General Plan land use impacts were calculated based on a per-alternative basis against General Plan land use information.

Table 3.1.1-2 Land Use Impacts by Build Alternative

Land Use	Alternative 2 (Permanent Impacts by Acres)	Alternative 3 (Permanent Impacts by Acres)	Alternative 2 (Number of TCEs)	Alternative 3 (Number of TCEs)
Residential	0	6.06	46	188
Commercial/Office	0.0 (9 sq. ft)	5.23	22	91
Industrial	0	2.40	1	10
Agricultural	0	0.00 (41 sq. ft)	0	1
Open Space	0.15	0.11	2	5
Public Facilities/Utilities	0.03	0.08	3	16
Transportation/ROW	0.15	2.07	30	64
Vacant	0	1.99	19	53
Unknown	0	0	0	5
Total	**0.33**	**21.03**	**122**	**433**

Source: I-10 Corridor ROW data, 2015.

Indirect impacts (e.g., changes in regional development and growth-related changes) to land use patterns are not anticipated with implementation of the build alternatives. The area subject to right-of-way (ROW) acquisition is urbanized, containing few vacant parcels. It is possible that the presence of a new major transportation corridor could result in localized changes in adjacent land parcels; however, the ROW acquisition process would take into account this potential, and the post-project land use pattern is expected to foster continuing stability to those land uses through such methods as avoiding unusable small remnant parcels and providing adequate buffer space for sensitive land uses. Based on Caltrans guidance[1], indirect impacts to land use typically occur outside of the project study area and can last longer than direct impacts. Because the project's impacts will be contained within the area of potential effects (APE), implementation of either build alternative would not result in indirect impacts on land use. The proposed project improvements would result in a more efficient transportation system, which would be locally and regionally beneficial through design year 2045.

[1] Caltrans. *Community Impact Assessment*. Standard Environmental Reference Environmental Handbook, Volume 4. October 2011.

Alternative 2

Implementation of Alternative 2 would not result in full acquisition of any properties; however, it would result in partial acquisition of approximately 6 properties (approximately 0.33 acre), including commercial/office, open space, public facilities/ utilities, and transportation/ROW land uses. Acquisitions of properties for Alternative 2 are considered direct impacts to land use because they would require physical changes in the community.

Alternative 3

Alternative 3 would affect 42 residential units for full acquisitions (approximately 4.50 acres) from 12 single-family residential parcels and 4 multi-family residential parcels, 12 full nonresidential acquisitions (approximately 5.51 acres), and 150 properties (approximately 9.82 acres) for partial acquisitions. Most of the impacts would occur on residential and commercial/office use properties. Industrial, agricultural, open space, public facilities/utilities, transportation/ROW, and vacant land uses would also be affected. The partial and full acquisitions of properties required to construct Alternative 3 are considered direct impacts to land use because they would require physical changes in the community. In addition, the acquired properties would be used for project ROW and converted to transportation uses, which is considered a direct impact to land use.

Temporary/Construction Impacts

Alternative 2

Temporary construction easements (TCEs) would be required to construct the proposed project. Alternative 2 would require 122 TCEs. Most of the TCEs for Alternative 2 would occur on parcels containing residential, commercial/office, and transportation/ROW land uses.

Alternative 3

Alternative 3 would require 433 TCEs. Most of the TCEs for Alternative 3 would occur on parcels containing residential and commercial/office land uses.

Avoidance, Minimization, and/or Mitigation Measures

The project design of the I-10 corridor will be carried out to minimize ROW impacts. The project is consistent with current and future planned local land uses discussed in Section 3.1.1.1, with the exception of acquisitions required for the build alternatives. Both build alternatives have been designed to avoid impacts to existing built land uses to the extent practicable while adhering to design and operational criteria to

maintain a safe roadway. During the plans, specifications, and estimate (PS&E) phase, efforts will be undertaken to further minimize construction and operation impacts to existing and planned land uses.

3.1.1.2 Consistency with State, Regional, and Local Plans and Programs

The following discussion describes the adopted plans within the project study area and goals, policies, or objectives that are applicable to this project.

Affected Environment

This section provides an analysis of the consistency of the build alternatives with transportation and land use plans and policies included in the general and specific plans for the various jurisdictions within the project limits. Specific goals and policies are identified in Table 3.1.1-3.

Regional Plans

SCAG 2008 Regional Comprehensive Plan

The Southern California Association of Governments (SCAG) Regional Comprehensive Plan (RCP), adopted in 2008, provides a vision for the southern California region that addresses future needs while recognizing the interrelationship between economic prosperity, natural resource sustainability, and quality of life. Through measured performance, the RCP serves as a voluntary action plan with short-term guidance and strategic, long-term initiatives. The RCP complements SCAG's Compass Blueprint and the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which is discussed in detail in this document.

SCAG Regional Transportation Plan/Sustainable Communities Strategy

The 2012 RTP contains goals and policies that are pertinent to the proposed project, and the SCS is incorporated into the RTP, per Senate Bill (SB) 375. The SCS will demonstrate how the region will meet its greenhouse gas (GHG) reduction targets. The RTP/SCS's vision encompasses three principles that motivate southern California planning: mobility, economy, and sustainability.

SCAG Compass Blueprint

The fundamental goal of the Compass Blueprint effort is to help the SCAG region build long-lasting partnerships and foster innovative transportation and land use planning. The Compass Blueprint informs the development of the RTP/SCS, assists local government planning efforts, and is driven by four key principles: mobility, livability, prosperity, and sustainability.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
SCAG 2008 Regional Comprehensive Plan				
Land Use and Housing Chapter: Focusing growth in existing and emerging centers and along major transportation corridors.	Consistent	Consistent	Consistent	The build alternatives would not induce growth because the proposed project would be built along an existing corridor and is consistent with existing and future plans. The No Build Alternative would not induce growth because there would be no construction.
Land Use and Housing Chapter: Protecting important open space, environmentally sensitive areas (ESAs), and agricultural lands from development.	Consistent	Consistent	Inconsistent	Alternative 2 would avoid any permanent impacts to open space, ESAs, and agricultural lands. Alternative 3 open space impacts would be avoided when possible and mitigation measures would minimize any unavoidable temporary or permanent impacts to important open space. No open space, ESAs, or agricultural lands would be affected as a result of the No Build Alternative.
Open Space and Habitat Chapter: Conserving natural lands that are necessary to preserve the ecological function and value of the region's ecosystems.	Consistent	Consistent	Inconsistent	See response immediately above.
Open Space and Habitat Chapter: Conserving wildlife linkages as critical components of the region's open space infrastructure.	Consistent	Consistent	Consistent	No wildlife linkages would be affected by any of the alternatives.
Open Space and Habitat Chapter: Coordinating transportation and open space to reduce transportation impacts to natural lands.	Consistent	Consistent	Consistent	Alternative 2 would avoid any permanent impacts to open space. Coordination is ongoing to minimize impacts from Alternative 3. No open space would be affected as a result of Alternative 1.
Transportation Chapter: A more efficient transportation system that reduces and better manages vehicle activity.	Inconsistent	Consistent	Consistent	Proposed project improvements would result in a more efficient transportation system. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Transportation Chapter: A cleaner transportation system that minimizes air quality impacts and is energy efficient.	Inconsistent	Consistent	Consistent	Alternative 2 would encourage fewer vehicles on I-10 by using the high-occupancy vehicle (HOV) lane, thereby minimizing air quality impacts and increasing energy efficiency. Alternative 3 would encourage fewer vehicles on I-10 by using the HOV lane and Express Lanes, thereby minimizing air quality impacts and increasing energy efficiency. I-10 traffic conditions would continue to worsen without implementation of the proposed project, thereby increasing air quality impacts and decreasing energy efficiency.
SCAG Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS)				
Goal: Maximize mobility and accessibility for all people and goods in the region.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10, thereby improving mobility and enhancing goods movement capabilities. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Goal: Ensure travel safety and reliability for all people and goods in the region.	Inconsistent	Consistent	Consistent	The proposed build alternatives would increase freeway capacity and freeway speeds. It is anticipated to reduce rear-end and sideswipe accidents due to stop-and-go traffic and weaving, respectively. I-10 traffic conditions would continue to worsen without implementation of the proposed project, thereby worsening safety and trip reliability.
Goal: Preserve and ensure a sustainable regional transportation system.	Inconsistent	Consistent	Consistent	The proposed build alternatives would increase freeway capacity and freeway speeds. It is anticipated to improve the regional transportation system. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Goal: Maximize the productivity of our transportation system.	Inconsistent	Consistent	Consistent	Alternative 2 would increase freeway capacity and freeway speeds with the addition of an HOV lane. Alternative 3 would further maximize the productivity of the regional transportation system, as the proposed project includes additional capacity in the form of two Express Lanes in each direction. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Goal: Protect the environment and health of our residents by improving air quality and encouraging active transportation (nonmotorized transportation, such as bicycling and walking)	Inconsistent	Consistent	Consistent	The proposed build alternatives would increase freeway speeds and encourage transit use and carpooling. Reductions in vehicle miles traveled (VMT), air quality impacts, and energy usage would occur because vehicle idling time would be reduced. I-10 traffic conditions would continue to worsen without implementation of the proposed project, thereby increasing air quality impacts and decreasing energy efficiency.
Goal: Actively encourage and create incentives for energy efficiency, where possible.	Inconsistent	Consistent	Consistent	See response immediately above.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Goal: Encourage land use and growth patterns that facilitate transit and nonmotorized transportation.	Consistent	Consistent	Consistent	Nonmotorized transportation options would be preserved or enhanced as a result of the proposed project. No changes to transit or nonmotorized transportation would result from Alternative 1.
Policy 2: Ensuring safety, adequate maintenance, and efficiency of operations on the existing multimodal transportation system should be the highest RTP/SCS priorities for any incremental funding in the region.	Inconsistent	Consistent	Consistent	The existing multimodal transportation system would continue to degrade without proposed project improvements, thereby diminishing safety, adequate maintenance, and efficiency.
Policy 5: HOV gap closures that significantly increase transit and rideshare usage will be supported and encouraged, subject to Policy 1.	Inconsistent	Consistent	Consistent	The proposed project would result in an HOV gap closure that would increase transit and rideshare usage. The No Build Alternative would not fill in an HOV gap closure.
SCAG Compass Blueprint				
Increase the region's mobility: Encourage transportation investments and land use decisions that are mutually supportive.	Consistent	Consistent	Consistent	Any land use changes resulting from the build alternatives would result in improvements to the region's transportation system. No changes to the transportation or land use would result from the No Build Alternative.
Increase the region's mobility: Promote a variety of travel choices.	Inconsistent	Consistent	Consistent	The proposed project would increase travel options along I-10. Alternative 2 would provide an HOV alternative, and Alternative 3 would provide an HOV and Express Lanes alternative. The No Build Alternative would not provide additional travel options.
Enable prosperity: Ensure environmental justice regardless of race, ethnicity, or income class.	Consistent	Consistent	Consistent	Neither the build alternatives nor the No Build Alternative would result in an impact to any environmental justice population.
Promote sustainability for future generations: Develop strategies to accommodate growth that use resources efficiently, and minimize pollution and greenhouse gas (GHG) emissions.	Inconsistent	Consistent	Consistent	The proposed project would aim to minimize GHG emissions by removing cars from I-10. The proposed project would not result in induced growth in the project area. The No Build Alternative would not develop additional methods for accommodating growth or minimizing pollution or GHG emissions.
Promote sustainability for future generations: Preserve rural, agricultural, recreational, and environmentally sensitive areas.	Consistent	Consistent	Consistent	Alternative 2 would avoid any permanent impacts to rural, agricultural, recreational, or ESAs. Alternative 3 open space impacts would be avoided when possible and mitigation measures would minimize any unavoidable temporary or permanent impacts to important open space. No rural, agricultural, recreational, or ESAs would be affected as a result of the No Build Alternative.
San Bernardino County General Plan				
Goal CI 1. The County will provide a transportation system, including public transit, which is safe, functional, and convenient; meets the public's needs; and enhances the lifestyles of county residents.	Consistent	Consistent	Consistent	The proposed project would not result in any permanent impacts to the County's public transportation system, but it would result in improved I-10 conditions within the project area. The No Build Alternative would not result in changes to the County's transportation system.
Goal CI 2. The County's comprehensive transportation system will operate at regional, countywide, community, and neighborhood scales to provide connectors between communities and mobility between jobs, residences, and recreational opportunities.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy CI 2.1. Work with adjacent jurisdictions to minimize inconsistencies in existing and ultimate ROW and roadway capacity across jurisdictional boundaries.	Inconsistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Policy CI 2.2. Coordinate financial plans for transportation system improvements with other agencies and jurisdictions in the county.	Inconsistent	Consistent	Consistent	See response immediately above.
Policy CI 2.3. Where appropriate, jointly fund studies and improvements to the transportation system, with cities and other public agencies and developers.	Inconsistent	Consistent	Consistent	The proposed build alternatives would result in jointly funded improvements to I-10. The No Build Alternative would not result in any transportation studies.
Policy CI 2.4. Work with Caltrans and SANBAG on appropriate fair-share mitigation for impacts of development on State highways.	Inconsistent	Consistent	Consistent	The proposed build alternatives would share mitigation requirements with Caltrans and SANBAG. The No Build Alternative would not require mitigation because no construction would occur.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy CI 2.5. Work with Caltrans on mitigating the impacts of State highway projects on local communities.	Inconsistent	Consistent	Consistent	The proposed build alternatives would mitigate impacts to local communities, as much as possible. The No Build Alternative would not require mitigation because no construction would occur.
Policy CI 2.7. Coordinate with Caltrans, SANBAG, the Southern California Association of Governments (SCAG), and other agencies regarding transportation system improvements in the County's Measure I and other adopted Capital Improvement Programs.	Consistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Policy CI 2.8. Continue to participate in SANBAG, which is the County's Transportation Commission and transportation planning coordinator for all local agencies in the County, and regularly attend meetings of SANBAG Plans and Programs Committee and Comprehensive Transportation Plan Technical Advisory Committee meetings to discuss planning items of mutual concern.	Consistent	Consistent	Consistent	See response immediately above.
Policy CI 2.10. Identify important long-range transportation corridors, in conjunction with plans of regional transportation agencies (e.g., SCAG and SANBAG) to protect sufficient ROW for the development of long-range corridors.	Consistent	Consistent	Consistent	The intent of this policy is to provide ROW for, and minimize ROW impacts of, transportation corridor projects planned by agencies such as SCAG and SANBAG. The proposed project is shown on plans on both of those agencies, so the proposed project is clearly consistent with this policy. The No Build Alternative is not inconsistent with this policy because it does not reduce the available ROW for a different future project should none of the build alternatives proposed here be selected as the Preferred Alternative.
Goal CI 3. The County will have a balance between different types of transportation modes, reducing dependency on the automobile and promoting public transit and alternate modes of transportation, in order to minimize the adverse impacts of automobile use on the environment.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy CI 3.1. Encourage the reduction of automobile usage through various incentive programs.	Inconsistent	Consistent	Consistent	Alternative 2 would offer HOV lane travel options that would encourage people to combine automobile trips, which would reduce overall automobile usage. Alternative 3 would offer HOV and Express Lane travel options that would encourage people to combine automobile trips, which would reduce overall automobile usage. The No Build Alternative would not result in changes to automobile usage.
Policy CI 4.5. Coordinate with local and regional transportation agencies and cities to plan and construct new multi-modal transportation facilities on the basis of this General Plan that are consistent throughout the neighboring jurisdictions.	Inconsistent	Consistent	Consistent	The proposed project would result in the construction of new bike lanes and Americans with Disabilities (ADA)-compliant sidewalks, as well as improvements to I-10 capacity within the proposed project area. The No Build Alternative would not result in any transportation improvements.
Goal CI 5: The County's road standards for major thoroughfares will complement the surrounding environment appropriate to each geographic region.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy CI 5.2: Protect and increase the designed roadway capacity of all vehicular thoroughfares and highways.	Inconsistent	Consistent	Consistent	Both build alternatives would result in increased roadway capacity, as well as offer alternative travel options. The No Build Alternative would not result in construction or increase roadway capacity.
Goal CI 6: The County will encourage and promote greater use of nonmotorized means of personal transportation. The County will maintain and expand a system of trails for bicycles, pedestrians, and equestrians that will preserve and enhance the quality of life for residents and visitors.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy CI 6.1: Require safe and efficient pedestrian and bicycle facilities in residential, commercial, industrial, and institutional developments to facilitate access to public and private facilities and to reduce vehicular trips. Install bicycle lanes and sidewalks on existing and future roadways, where appropriate and as funding is available.	Inconsistent	Consistent	Consistent	New ADA-compliant sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking. New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. The No Build Alternative would not construct new sidewalks.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Goal CI 13: The County will minimize impacts to stormwater quality in a manner that contributes to improvement of water quality and enhances environmental quality.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy CI 13.1: Utilize site-design, source-control, and treatment control best management practices (BMPs) on applicable projects, to achieve compliance with the County Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit.	Consistent	Consistent	Consistent	BMPs would be incorporated into the proposed project design to comply with the County Municipal Stormwater NPDES Permit. No changes to stormwater would result from the No Build Alternative.
Los Angeles County General Plan				
Goal M 1: Street designs that incorporate the needs of all users.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.
Policy M 1.1: Provide for the accommodation of all users, including pedestrians, motorists, bicyclists, equestrians, users of public transit, seniors, children, and persons with disabilities, when requiring or planning for new, or retrofitting existing, roads and streets.	Consistent	N/A	Consistent	Alternative 3 would not result in impacts to any areas outside of the I-10 transportation facility in Los Angeles County because this portion of the proposed project would be a transition area, resulting in minor changes to I-10, such as striping. The No Build Alternative would not result in changes to I-10 or other non-transportation modalities.
Policy M 1.2: Ensure that streets are safe for sensitive users, such as seniors and children.	Consistent	N/A	Consistent	See response immediately above.
Policy M 1.3: Utilize industry standard rating systems, such as the Institute for Sustainable Infrastructure (ISI) Rating System, to assess sustainability and effectiveness of street systems for all users.	Consistent	N/A	Consistent	See response immediately above.
Goal C/NR 1: Open space areas that meet the diverse needs of Los Angeles County.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy C/NR 1.2: Protect and conserve natural resources, natural areas, and open spaces on park properties.	Consistent	N/A	Consistent	No open space areas would be affected within Los Angeles County for the proposed project because improvements would only result in transition area improvements, such as roadway striping. The No Build Alternative would not result in any impacts to open space.
Goal P/R 3: Acquisition and development of additional parkland.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy P/R 3.8: Mitigate impacts from freeways to new parks to the extent feasible.	Consistent	N/A	Consistent	No new parks would be affected within Los Angeles County for the proposed project because improvements would only result in transition area improvements, such as roadway striping. The No Build Alternative would not result in any impacts to parks.
City of Pomona General Plan				
Policy 6D.P24: Facilitate and undertake improvements along Garey and Holt avenues (including the Holt Avenue underpass) between I-10, SR-71, and the Downtown/City Center area to create a front door to the city. Improvements should include landscaping, pedestrian amenities, lighting, signage, and public art.	Inconsistent	N/A	N/A	Alternative 3 would not result in impacts to any areas outside of the I-10 transportation facility in Pomona because this portion of the proposed project would be a transition area, resulting in minor changes to I-10, such as striping. Therefore, no improvements would result to arterial roadways. The No Build Alternative would not result in changes to I-10.
Goal 7C.G16: Minimize the physical impact of I-10 and its interchanges on the visual character and form of the city.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy 7C.P29: Work with Caltrans to improve landscaping along I-10, SR-57, SR-71, and SR-60. Encourage Caltrans to incorporate more landscaping and the planting of trees. Lessen the visual impact of existing soundwalls through the use of vegetation. Improve the visual character of freeway interchanges and overpasses through public art, landscaping, and improved lighting.	Inconsistent	N/A	N/A	Alternative 3 would not result in impacts to any areas outside of the I-10 transportation facility in Pomona because this portion of the proposed project would be a transition area, resulting in minor changes to I-10, such as striping. The No Build Alternative would not result in changes to I-10 or other non-transportation modalities.
Goal 7D.G2: Strengthen Pomona's position as an important regional center through quality transportation planning.	Inconsistent	N/A	Consistent	Alternative 3 would result in minor changes to I-10 in Pomona, such as striping, because this portion of the proposed project would be a transition area. The proposed project overall would contribute to the strengthening of Pomona's position as a regional center. The No Build Alternative would not result in changes to I-10.
Goal 7D.G3: Support regional efforts to the extent feasible, to reduce GHG emissions from cars and light trucks.	Inconsistent	N/A	Consistent	Alternative 3 would result in minor changes to I-10 in Pomona, such as striping, because this portion of the proposed project would be a transition area; however, the proposed project overall would contribute to the reduction of GHG emissions by providing HOV or Express Lane transportation options that are anticipated to reduce the number of cars from the road. The No Build Alternative would not result in changes to I-10.
Goal 7D.G4: Monitor congestion on the five freeways serving Pomona and control spillover traffic from freeways onto city streets.	Inconsistent	N/A	Consistent	Alternative 3 would result in minor changes to I-10 in Pomona, such as striping, because this portion of the proposed project would be a transition area; however, the proposed project overall would reduce congestion on adjacent freeways by improving traffic flow. The No Build Alternative would not result in changes to I-10.
Goal 7D.G5: Minimize the impacts of freeways on the quality of life of Pomona's residents.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.
Policy 7D.P2: Collaborate with regional transportation planning and transit agencies to plan for the efficient allocation of transportation resources.	Inconsistent	N/A	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Policy 7D.P3: Work with regional agencies to proactively plan future improvements and achieve timely implementation of programmed freeway and interchange improvements.	Inconsistent	N/A	Consistent	See response immediately above.
City of Claremont General Plan				
Goal 2-4. Protect, preserve, and manage the city's diverse and valuable open space, water, air, and habitat resources.	See related policy below	N/A	See related policy below	See related policy below for consistency analysis.
Policy 2.4-1. Encourage the preservation of different types of open spaces.	Consistent	N/A	Consistent	Neither Alternative 3 nor the No Build Alternative would result in any impacts to open space resources.
Goal 2-9. Make roads comfortable, safe, accessible, and attractive for use day and night.	See related policy below	N/A	See related policy below	See related policy below for consistency analysis.
Policy 2-9.1. Provide crosswalks and sidewalks along streets that are accessible for people with disabilities and people who are physically challenged.	Inconsistent	N/A	Consistent	Alternative 3 would not result in impacts to sidewalks in Claremont because the proposed project would be a transition area in this city. Pedestrian safety is a priority for the proposed project. New ADA-compliant sidewalks would be constructed in other cities along the corridor. The No Build Alternative would not construct new sidewalks.
Goal 2-10. Maintain and expand where possible the system of neighborhood connections that attach neighborhoods to larger roadways.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy 2-10.1. Provide sidewalks where they are missing and provide wide sidewalks where appropriate with buffers and shade so that people can walk comfortably.	Inconsistent	N/A	Consistent	Alternative 3 would not result in impacts to sidewalks in Claremont because the proposed project would be a transition area in this city. Pedestrian safety is a priority for the proposed project. New ADA-compliant sidewalks would be constructed in other cities along the corridor. The No Build Alternative would not construct new sidewalks.
Policy 2-10.2. Make walking comfortable at intersections through traffic-calming, landscaping, and designated crosswalks.	Consistent	N/A	Consistent	See response immediately above. Additional landscaping would also be incorporated into the design of both build alternatives. All crosswalks would be maintained.
Goal 4-1. Support efforts that will enhance the regional transportation network and benefit Claremont residents.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.
Policy 4-1.1. Participate in regional transportation planning, and encourage systems that meet regional goals while protecting Claremont from external impacts.	Inconsistent	N/A	Consistent	Alternative 3 would improve traffic flow and decrease congestion along I-10, thereby improving mobility and enhancing goods movement capabilities. I-10 traffic conditions and goods movement efforts would continue to worsen without implementation of the proposed project.
Policy 4-1.2. Work closely with Caltrans, the counties of Los Angeles and San Bernardino, and adjacent municipalities to minimize transportation problems, address cross-country transportation issues, and improve coordination of future improvements.	Inconsistent	N/A	Consistent	Alternative 3 proposes to minimize transportation problems, address cross-country transportation issues, and improve coordination of future improvements. The No Build Alternative would not result in any improvements.
Policy 4-1.5. Continue to work with Caltrans and other agencies to provide proper maintenance of Caltrans facilities, and to protect surrounding neighborhoods from noise and traffic impacts associated with Caltrans roads and freeways.	Inconsistent	N/A	Consistent	Alternative 3 would result in minor improvements along I-10 in Claremont, including roadway striping and construction staging areas (CSAs). The proposed project aims to improve traffic flow and decrease congestion along I-10, thereby improving mobility and enhancing goods movement capabilities. I-10 traffic conditions and goods movement efforts would continue to worsen without implementation of the proposed project.
Goal 4-2. Reduce traffic congestion while retaining the historic patterns and functions of city streets.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.
Policy 4-2.3. Limit width of all city streets to no more than four vehicle lanes, unless special circumstances demonstrate that additional lanes within limited stretches or at key intersections are needed for merging, congestion, or safety reasons.	Consistent	N/A	Consistent	Alternative 3 would not increase the number of vehicle lanes on city streets. The No Build Alternative would not increase the number of vehicle lanes on city streets.
Policy 4-2.5. Provide medians on all major and secondary streets with sufficient ROW, and use bulb-outs and pedestrian refuge medians where appropriate.	Consistent	N/A	Consistent	Alternative 3 would result in minor improvements along I-10 in Claremont, including roadway striping and CSAs. No city streets would be affected in Claremont. The No Build Alternative would not result in improvements.
Policy 4-2.10. Limit city streets to two travel lanes where traffic volumes warrant to increase pedestrian and vehicle safety.	Consistent	N/A	Consistent	Alternative 3 would not increase the number of vehicle lanes on city streets. The No Build Alternative would not increase the number of vehicle lanes on city streets.
Policy 4-2.11. Continue to implement the Congestion Management Plan of the Los Angeles County Metropolitan Transportation Authority and the City's TDM Ordinance.	Consistent	N/A	Consistent	All applicable design and traffic plans would be followed to the extent feasible for Alternative 3. No construction would result from the No Build Alternative, and the applicable design and traffic plans would continue to be followed.
Goal 4-3. Establish and maintain a comprehensive system of pedestrian ways and bicycle routes that provides viable options to travel by automobile.	See related policy below	N/A	See related policy below	See related policy below for consistency analysis.
Policy 4-3.5. Recognize and accommodate the pedestrian ADA access in Claremont's neighborhoods, and continue to make improvements to increase pedestrian safety.	Consistent	N/A	Consistent	Alternative 3 would not result in impacts to sidewalks in Claremont, and pedestrian safety is a priority for the proposed project. Other cities along the corridor would result in new sidewalks. The No Build Alternative would not result in changes to pedestrian safety.
Goal 4-8. Maintain truck routes that minimize adverse impacts on residential neighborhoods.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy 4-8.1. Maintain and enforce use of a preferred truck route network.	Consistent	N/A	Consistent	Alternative 3 would maintain the truck route along I-10, as the project proposes to improve goods movement in the region by improving traffic flow along I-10. The No Build Alternative would not result in changes to I-10, and truck routes would not be altered.
Policy 4-8.2. Improve signage on designated truck routes to reduce truck traffic on neighborhood streets.	Inconsistent	N/A	Consistent	Alternative 3 would maintain the truck route along I-10, as the project proposes to improve goods movement in the region by improving traffic flow along I-10. This area of the proposed project would also be a transition area, resulting in roadway striping and signage improvements. The No Build Alternative would not result in changes to I-10, and signage would not be altered.
City of Montclair General Plan				
Goal LU-1.1.4. Participate in and support regional activities of SCAG, SANBAG, City/County Planning Commissioners Conference, and other such agencies.	Inconsistent	N/A	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Goal CE-1.1.0. To promote a circulation and transportation system, including freeways, all classes of streets, accommodations for public mass transportation and pedestrian walkways, and bicycle routes that will serve traffic needs efficiently and safely, and be attractive in appearance.	Consistent	N/A	Consistent	Alternative 3 would provide transportation options that would reduce traffic congestion along I-10, including HOV and Express Lanes. Sidewalks and bicycle lanes would also be incorporated into the project to create a truly multimodal project that accommodates different transportation needs. The No Build Alternative would not result in any changes to the I-10 transportation system.
Goal CE-1.1.12. Establish and review priorities for grade separations at roadway and railroad crossings. Sources of funding should be explored for these improvements.	Consistent	N/A	Consistent	Neither Alternative 3 nor the No Build Alternative would result in grade separations.
City of Upland General Plan				
Goal 1. To develop transportation planning, services, and facilities that are coordinated with and support the Land Use Plan.	Consistent	N/A	Consistent	Alternative 3 would support the Land Use plan for Upland. If acquisitions are required, all efforts to minimize ROW impacts would be made. No changes to the Land Use plan would result from the No Build Alternative.
Goal 2. To minimize the impact of existing and future roadways on adjacent land uses, particularly residential, and ensure compatibility between land uses and roadway facilities to the greatest extent possible. Nonlocal through traffic shall be discouraged from traversing the city on collector and local streets. The major and secondary highway system is intended to accommodate nonlocal traffic. Where feasible, circulation improvements shall be implemented that minimize impacts on adjacent residential neighborhoods. Wherever possible, a buffer zone shall be required between residential land uses and arterial highway facilities. Buffer measures shall be required between any land use and the I-10 and SR-30 freeways. All roadways shall be encouraged to be designed in a manner that will enhance the interplay of vehicular and pedestrian safety.	Consistent	N/A	Consistent	Alternative 3 would encourage alternative transportation options, including carpooling and driving at nonpeak traffic periods, potentially discouraging travel through city streets. All efforts to minimize impacts to neighborhoods adjacent to I-10 would be incorporated into the project design for Alternative 3. Buffers, including landscaping, would be incorporated into the project design, to minimize impacts. ADA-compliant pedestrian and bikeway improvements would also be incorporated into the project design. No changes to adjacent neighborhoods would result from the No Build Alternative.
Goal 3. To accommodate alternative modes of transportation to the private automobile in the city, including nonmotorized transportation (i.e., bicycle and pedestrian), public transportation, and recreational trails. All new development shall be required to provide sidewalks, in accordance with the Master Plan of Streets and Highways. The special needs of the physically disadvantaged shall be recognized by ensuring that all sidewalks, streets and street crossings, public areas, and related facilities that are normally used by the general public will be accessible to the physically disabled.	Consistent	N/A	Consistent	See response immediately above.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Goal 5. To promote the aesthetic qualities of the street system. Wherever feasible, street construction and improvement projects shall be designed with a concern for street aesthetics, including street trees, landscaping, and paving materials. All new development shall be encouraged to provide landscaped parkways, appropriate pedestrian amenities, and other streetscape improvements that improve the aesthetics of the roadway to both vehicular and pedestrian traffic. Adequate street lighting that is energy efficient and appropriate to the area shall be encouraged.	Consistent	N/A	Consistent	Alternative 3 would include buffers, including landscaping, incorporated into the project design, to minimize impacts. Adequate street lighting would be maintained. Pedestrian and bikeway improvements would also be incorporated into the project design. No changes to the aesthetic quality of the city would result from the No Build Alternative.
Goal 6. To ensure that land use and transportation projects under the jurisdictions of private and other public agencies are compatible with the objectives of the City of Upland Circulation Element. Prior to development, all land use and transportation projects in the unincorporated portions of Upland's sphere-of-influence shall be reviewed and approved by the City Planning Commission for compliance with applicable City transportation policies. Every effort shall be made to coordinate with the State, regional, and local governments and agencies to ensure that any future improvements to the State Highway System are conducted to the City's best interest.	Consistent	N/A	Consistent	Alternative 3 would support Upland's General Plan, including the Circulation element. Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. No impacts to Upland's Circulation element would result from the No Build Alternative.
City of Ontario General Plan				
Goal LU 2-6. Infrastructure Compatibility. We require infrastructure to be aesthetically pleasing and in context with the community character.	Consistent	Consistent	Consistent	Buffers, including landscaping, would be incorporated into the project design for both build alternatives to minimize impacts and be aesthetically pleasing in conformance with the context and community character of Ontario. No changes to the aesthetic quality of the city would result from the No Build Alternative.
Goal M 2. A system of trails and corridors that facilitates and encourages bicycling and walking.	See related policies below	N/A	See related policies below	See related policies below for consistency analysis.
Policy M 2-1. Bikeway Plan. We maintain our Multipurpose Trails & Bikeway Corridor Plan to create a comprehensive system of on- and off-street bikeways that connects residential areas, businesses, schools, parks, and other key destination points.	Consistent	Consistent	Consistent	New bikeways are proposed for both build alternatives in Ontario, and existing bikeways would be maintained. The No Build Alternative would not result in new bikeways.
Policy M 2-2. Bicycle System. We provide off-street multipurpose trails and Class II bikeways as our primary paths of travel and use the Class III for connectivity in constrained circumstances.	Consistent	Consistent	Consistent	See response immediately above.
Policy M 2-3. Pedestrian Walkways. We require walkways that promote safe and convenient travel between residential areas, businesses, schools, parks, recreation areas, and other key destination points.	Consistent	Consistent	Consistent	New ADA-compliant sidewalks are proposed for both build alternatives in Ontario, and existing sidewalks would be maintained. The No Build Alternative would not result in new sidewalks.
Goal M 4-2. Regional Participation. We work with regional and subregional transportation agencies to plan and implement goods movement strategies, including those that improve mobility, deliver goods efficiently and minimize negative environmental impacts.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10, thereby improving mobility and enhancing goods movement capabilities. Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project. I-10 traffic conditions and goods movement efforts would continue to worsen without implementation of the proposed project.
Goal CD 1-4. Transportation Corridors. We will enhance our major transportation corridors within the city through landscape, hardscape, signage, and lighting.	Consistent	Consistent	Consistent	Both build alternatives would include buffers, including landscaping, in the project design to minimize impacts. Adequate street lighting and signage would be maintained or enhanced. No changes to the aesthetic quality of the city would result from the No Build Alternative.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
City of Fontana General Plan				
Goal 2 (Land Use). Quality of life in our community is supported by development that avoids negative impacts on residents and businesses and is compatible with, and enhances, our natural and built environment.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 1. New development with potentially adverse impacts on existing neighborhoods or residents such as noise, traffic, emissions and stormwater runoff, shall be located and designed so that quality of life and safety in existing neighborhoods are preserved.	Consistent	Consistent	Consistent	Both build alternatives would include buffers, including landscaping, in the project design to minimize impacts to neighborhoods. Adequate street lighting and signage would be maintained or enhanced. Minimization and mitigation measures and BMPs would be implemented for other project-related impacts. No changes to the aesthetic quality of the city would result from the No Build Alternative.
Policy 2. Regionally beneficial land uses such as transportation corridors, flood control systems, utility corridors, and recreational corridors shall be sensitively integrated into our community.	Consistent	Consistent	Consistent	Both build alternatives would minimize effects to surrounding areas by implementing minimization and mitigation measures, including landscaping buffers and context-sensitive design. The No Build Alternative would not result in impacts to the surrounding communities.
Goal 3 (Land Use). Our community is developing in a unified, orderly, logical, environmentally sound manner, which ensures that the City is unified and accessible to all residents, and results in economically sound commercial areas, vibrant neighborhoods, and jobs rich centers.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 1. Areas adjacent to freeway and major arterial corridors shall be given special land use and development standards guidance.	Consistent	Consistent	Consistent	Both build alternatives would minimize effects to surrounding areas by implementing minimization and mitigation measures, including landscaping buffers and context-sensitive design. The No Build Alternative would not result in impacts to the surrounding communities.
Policy 3. Circulation system improvements shall continue to be pursued that facilitate connectivity across freeway and rail corridors.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10, thereby improving circulation. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Policy 4. Improvements shall be made to transportation corridors that promote physical connectivity and reflect consistently high aesthetic values.	Inconsistent	Consistent	Consistent	See response immediately above. In addition, aesthetic treatments, including landscaping and hardscape buffers, would be implemented into project design.
Goal 1 (Transportation). A balanced transportation system for Fontana is provided that meets the mobility needs of current and future residents and ensures the safe and efficient movements of vehicles, people, and goods throughout the city.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 9. Coordinate arterial street design standards with neighboring jurisdictions within the City's sphere of influence to maintain and/or develop consistent street segments.	Consistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area, while maintaining design standards with neighboring jurisdictions. The No Build Alternative would not result in any traffic improvements to I-10.
Policy 12. All streets and intersections designed after the adoption of the General Plan will be planned to function at LOS C or better, wherever possible. Improvements to existing streets will be designed to LOS C standards whenever feasible.	Consistent	Consistent	Consistent	The only intersections within the City of Fontana included in the proposed project are the intersections associated with the I-10/Etiwanda interchange that are south of the I-10 freeway mainline. Those intersections are anticipated to operate at LOS C or better under all of the alternatives based on data in the Traffic Study.
Policy 14. Plan for the design and construction of new freeway interchange facilities on I-10 at Alder Avenue and Beech Avenue.	Consistent	Consistent	Consistent	Although the proposed project would not build new local interchange facilities at the identified streets, the proposed project would not preclude their implementation by others at a later date.
Policy 15. Plan for the design and construction of new arterial overcrossings on I-10 at Mulberry Avenue, Poplar Avenue, and Cypress Avenue to provide for mobility, community connectivity, and efficient access to safety vehicles.	Consistent	Consistent	Consistent	Although the proposed project would not build new arterial overcrossings at the identified streets, the proposed project would not preclude their implementation by others at a later date. The Cypress Avenue overcrossing has already been constructed by others.
Policy 18. Maintain and improve intersection capacity by implementing ultimate intersection geometries through the use of left-turn pockets and dedicated right-turn lanes wherever feasible.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10 within the project area and coordinated with adjacent jurisdictions. Numerous intersections would be improved in many ways, including the provision of dedicated left- and right-turn pockets.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Goal 3. The major arterial thoroughfares of the city contribute to the overall image and diverse character of the community.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 1. Major arterial highways shall be improved according to customized design guidance within and adjacent to public ROWs.	Consistent	Consistent	Consistent	Both build alternatives would follow Caltrans design guidelines. No changes to I-10 would result from the No Build Alternative.
Policy 3. Continue to pay special attention to designs that include screening, berms, fencing, and landscaping for industrial uses, especially regarding outside storage and handling areas.	Consistent	Consistent	Consistent	Both build alternatives would include buffers, including landscaping, in the project design to minimize impacts. No changes to the aesthetic quality of the city would result from the No Build Alternative.
Community of Bloomington Community Plan				
Goal BL/CI 1. Ensure a safe and effective transportation system that provides adequate traffic movement while preserving the rural character of the community.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy BL/CI 1.2. Ensure that transportation system improvements are made to Slover Avenue and Valley Boulevard where facilities are at or near capacity.	Consistent	Consistent	Consistent	The proposed project would improve I-10 and some local interchanges. The proposed project would generally draw traffic off of parallel facilities such as Slover Avenue and Valley Boulevard, thereby reducing the need for improvements to those facilities. No improvements are proposed as part of the build alternatives along either Slover Avenue or Valley Boulevard in the community of Bloomington. Neither the proposed build alternatives nor the No Build Alternative limits the ability of localities to make improvements to local streets.
Policy BL/CI 1.5. Work with adjacent cities and appropriate agencies to identify deficiencies and provide needed improvements at the intersections of Cedar Avenue, Alder Avenue, Cactus Avenue, and I-10. Researched deficiencies shall include an evaluation of both vehicular and pedestrian access, and circulation at these intersections.	Consistent	Consistent	Consistent	Although the proposed project would not build new local interchange facilities at the identified streets or improve the local streets near I-10, the proposed project would not preclude their improvement by others at a later date.
Policy BL/CI 1.6. Adopt and enforce a truck route plan for the Bloomington plan area that limits truck traffic to designated truck routes. Signs and improved enforcement shall direct nonlocal and through trucks to the designated truck routes. The truck route plan shall also identify opportunities for transportation services within the plan area to accommodate truck parking. Coordinate truck routing plans with the adjacent cities. Truck routes to include the following: **A.** Slover Avenue **B.** Cedar Avenue	Inconsistent	N/A	N/A	Neither the build alternatives nor the No Build Alternative would result in a truck route plan.
Goal BL/CI 2. Ensure safe and efficient nonmotorized traffic circulation within the community.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy BL/CI 2.3. Where feasible, separate pedestrian/bicycle/equestrian traffic from vehicular traffic on major roadways to protect the safety of trail users.	Consistent	Consistent	Consistent	Any existing pedestrian/bicycle/equestrian paths would be maintained as a result of the build alternatives. No impacts to pedestrian/bicycle/equestrian paths would result from the No Build Alternative.
Policy BL/CI 2.4. Ensure that crossings of the railroad and I-10 can safely accommodate pedestrian traffic.	Consistent	Consistent	Consistent	Both build alternatives would ensure safe crossings at I-10 or any railroads. The No Build Alternative would not affect any I-10 or railroad crossings.
Goal BL/OS 2. Establish a communitywide trail system.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy BL/OS 2.6. Investigate the possible joint use of a proposed flood control drainage easement by equestrians to provide a north/south crossing of I-10 and the railroad.	Inconsistent	Inconsistent	Inconsistent	Neither of the build alternatives nor the No Build Alternative would include a joint use flood control drainage easement for equestrian use.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
City of Rialto General Plan				
Goal 2-13. Achieve quality aesthetic design of all signage in the city of Rialto.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy 2-13.1. Prohibit the indiscriminate placement of highway directional signs, traffic signs, street identification signs, and other similar devices in any manner that creates visual blight or driver confusion.	Consistent	Consistent	Consistent	Both build alternatives would follow Caltrans design guidelines to avoid indiscriminate placement of signage. No additional signage would be added as a result of the No Build Alternative.
Goal 2-17. Provide high-quality and environmentally sustainable landscaping.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 2-17.1. Require the planting of street trees along public streets and inclusion of trees and landscaping for private developments to improve airshed, minimize urban heat island effect, and lessen impacts of high winds.	Consistent	Consistent	Consistent	Both build alternatives would include landscaping amenities as part of construction. Over time, the replacement plantings included in the project would grow and eventually provide a similar element provided by the existing vegetation. The No Build Alternative would not plant new trees.
Goal 4-1. Provide transportation improvements to reduce traffic congestion associated with regional and local trip increases.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10, thereby improving traffic circulation and improving goods movement capabilities. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Policy 4-1.5. Reduce delays to local traffic, facilitate emergency response, and enhance safety by pursuing railroad grade separations.	Inconsistent	Consistent	Consistent	See response immediately above. Emergency response vehicles would benefit from the improved traffic flow and enhanced travel options on I-10.
Policy 4-1.9. Work with Caltrans to improve coordination of traffic signals at freeway interchanges with those on city streets.	Consistent	Consistent	Consistent	Although the proposed project would not improve local freeway interchange facilities in the city of Rialto, the proposed project would not preclude traffic signal coordination with Caltrans under a different project.
Policy 4-1.12. Support the County's efforts to improve the I-10 freeway interchange at Cedar Avenue to relieve regional freeway congestion.	Consistent	Consistent	Consistent	The Cedar Avenue interchange was recently improved with a project implemented by others.
Policy 4-1.15. Support the construction of HOV lanes on I-10 between Ontario and Redlands.	Inconsistent	Consistent	Consistent	Both build alternatives would result in the construction of HOV or Express Lanes between Ontario and Redlands. The No Build Alternative would not result in the construction of HOV lanes between Ontario and Redlands.
Goal 4-5. Ensure the provision of adequate, convenient, and safe parking for all land uses.	See related policies below	See related policies below.	See related policies below	See related policies below for consistency analysis.
Policy 4-5.1. Support provision of park-and-ride facilities near the I-10 and SR 210 freeways to encourage carpooling, vanpooling, and other ride-sharing opportunities.	Consistent	Consistent	Consistent	Both build alternatives would preserve existing park-and-ride facilities near I-10. The No Build Alternative would not affect park-and-ride facilities.
Goal 4-8. Establish and maintain a comprehensive system of pedestrian trails and bicycle routes that provide viable connections throughout the city.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy 4-8.6. Coordinate recreational trail plans with neighboring cities and San Bernardino County to ensure linkage of local trails across jurisdictional boundaries and with regional trail systems.	Consistent	Consistent	Consistent	Coordination is ongoing between Caltrans, San Bernardino County, and City of Redlands for any affected trails. The No Build Alternative would not affect any trails.
Goal 4-9. Promote walking.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 4-9.1. Install sidewalks where they are missing and make improvements to existing sidewalks for accessibility purposes. Priority should be given to needed sidewalk improvement near schools and activity centers. Provide wider sidewalks in areas with higher pedestrian volumes.	Inconsistent	Consistent	Consistent	New ADA-compliant sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking. The No Build Alternative would not construct new sidewalks.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy 4-9.4. Accommodate pedestrians and bicyclists – in addition to automobiles – when considering new development projects.	Inconsistent	Consistent	Consistent	New ADA-compliant sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking. New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. The No Build Alternative would not construct new sidewalks or bikeways.
Policy 4-9.5. Seek to maintain pedestrian access in the event of any temporary or permanent street closures.	Consistent	Consistent	Consistent	Pedestrian access would be maintained, as feasible, during construction. In cases of full, temporary road closures, pedestrian access would likely not be possible. The No Build Alternative would not close any streets.
Policy 4-9.7. Require ADA compliance on all new or modified handicap ramps.	Consistent	Consistent	Consistent	Both build alternatives would ensure compliance with ADA when constructing or modifying handicap ramps. The No Build Alternative would not affect handicap ramps.
Goal 4-10. Provide a circulation system that supports Rialto's position as a logistics hub.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 4-10.1. Designate and enforce truck routes for use by commercial trucking as part of the project approval process.	Consistent	Consistent	Consistent	Both build alternatives would maintain I-10 as a major truck route. The No Build Alternative would not result in any physical changes to I-10.
Policy 4-10.3. Develop appropriate noise mitigation along truck routes to minimize noise impacts on nearby sensitive land uses.	Consistent	Consistent	Consistent	Both build alternatives would mitigate any noise impacts with the appropriate federally designated noise mitigation, including soundwalls. The No Build Alternative would not increase noise along I-10.
City of Colton General Plan				
Goal M-1. Provide an integrated and balanced multimodal transportation network of Complete Streets to meet the needs of all users and transportation modes.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy M-1.1. Provide for the needs of drivers, public transportation vehicles and patrons, bicyclists, and pedestrians of all ages and abilities in planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities of all streets.	Consistent	Consistent	Consistent	In addition to providing new transportation options along I-10, new sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking along adjacent streets or bridges. New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. No permanent impacts to public transportation would result from the proposed project. The No Build Alternative would not construct new sidewalks or bikeways.
Policy M-1.2. View all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in Colton. Recognize bicycle, pedestrian, and transit modes as integral elements of the transportation system.	Consistent	Consistent	Consistent	See response immediately above.
Goal M-3. Develop a safe, efficient, and attractive street system that provides capacity to meet existing and future demand.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy M-3.1. Apply General Plan roadway standards for roadways to the design and construction of future street improvements. Take into account not only automobiles, but also transit vehicles, bicycles, and pedestrians as identified by the Street Typology system.	Consistent	Consistent	Consistent	See response above.
Policy M-3.5. Maintain intersection traffic flows at LOS D during peak hours for all roadways in Colton, except at those locations identified in this Mobility Element where peak-hour LOS E is allowed.	Consistent	Consistent	Consistent	The only intersections within the city of Colton included in the proposed project are the intersections associated with the I-10/Pepper and I-10/Cadena/9th interchanges. Those intersections are anticipated to operate at LOS D or better under all of the alternatives based on data in the Traffic Study.
Policy M-3.11. Reconfigure the Mt. Vernon, Valley Boulevard, and I-10 freeway interchange to remove the five-legged intersection and improve the operations of this interchange.	Consistent	Consistent	Consistent	Although the proposed project would not make local street improvements at the identified interchange, the proposed project would not preclude their implementation by others at a later date.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Goal M-4. Provide appropriate access, logical configuration, and adequate capacity at freeway interchanges, street and rail intersections, and at bridges.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy M-4.6. Ensure that all interchange reconfiguration projects, grade separation improvements, and bridge widening projects be designed and implemented in a manner that provides positive benefit to the city of Colton.	Consistent	Consistent	Consistent	Both build alternatives would improve affected interchanges and ramps, as identified in the Traffic Study, to increase traffic flow and reduce congestion. The No Build Alternative would not result in any interchange improvements.
Goal M-5. Maintain an efficient network of goods and freight movement that supports the needs of Colton businesses while reducing truck and rail traffic impacts on residential neighborhoods.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy M-5.5. Vigorously enforce established truck routes to discourage truck shortcuts through residential neighborhoods.	Consistent	Consistent	Consistent	Both build alternatives would maintain the truck route along I-10, as the project proposes to improve goods movement in the region by improving traffic flow along I-10. The No Build Alternative would not result in changes to I-10, and truck routes would not be altered.
Policy M-5.6. Ensure that the designated truck routes conform to the following performance criteria: • Truck routes must avoid intrusions into residential neighborhoods to limit noise, vibration, and air quality impacts. • To the extent feasible, truck routes will not be provided on local streets and on streets with mostly residential frontage. • Truck routes must be located on roadways that provide direct and convenient access between Major Arterials and freeways (I-10 and I-215) and industrial and commercial businesses. • Truck routes must be located on roadways with the design and construction capacity to accommodate truck traffic.	Consistent	Consistent	Consistent	See response immediately above.
Goal M-7. Coordinate with other jurisdictions and agencies on regional transportation projects.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy M-7.1. Actively pursue federal, State, and regional funds for local and regional roadway improvements.	Inconsistent	Consistent	Consistent	Multiple funding sources, including Measure I, would be used to implement the proposed build alternatives. No funding would be required for the No Build Alternative.
Policy M-7.3. Consult with Caltrans, SCAG, the South Coast Air Quality Management District (SCAQMD), SANBAG, Omnitrans, San Bernardino County, Riverside County, and the cities of Rialto, San Bernardino, Loma Linda, Grand Terrace, and Riverside to coordinate regional transportation facilities, and to pursue federal, State, and regional funds for local and regional traffic improvements.	Consistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
City of San Bernardino General Plan				
Goal 2.2. Promote development that integrates with and minimizes impacts on surrounding land uses.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 2.2.2. Require new uses to provide mitigation or buffers between existing uses where potential adverse impacts could occur, including, as appropriate, decorative walls, landscape setbacks, restricted vehicular access, enclosure of parking structures to prevent sound transmission, and control of lighting and ambient illumination.	Consistent	Consistent	Consistent	Both build alternatives would incorporate buffers, including landscaping and soundwalls, into the proposed project design. The No Build Alternative would not result in changes to I-10.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy 2.2.5. Establish and maintain an ongoing liaison with Caltrans, the railroads, and other agencies to help minimize impacts and improve aesthetics of their facilities and operations; including possible noise walls, berms, limitation on hours and types of operations, landscaped setbacks, and decorative walls along its periphery.	Consistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions and aesthetics on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Goal 2.3. Create and enhance dynamic, recognizable places for San Bernardino's residents, employees, and visitors	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 2.3.6. Circulation system improvements shall continue to be pursued that facilitate connectivity across freeway and rail corridors.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10, while maintaining and improving the aesthetic quality along the corridor. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Policy 2.3.7. Improvements shall be made to transportation corridors that promote physical connectivity and reflect consistently high aesthetic values.	Inconsistent	Consistent	Consistent	See response immediately above.
Goal 6.1. Provide a well-maintained street system.	See related policies below	See related policies below	See related policies below	See related policies below for consistency analysis.
Policy 6.1.1. Maintain and rehabilitate all components of the circulation system, including roadways, sidewalks, bicycle facilities, and pedestrian facilities.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10. New sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking. New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. I-10 traffic conditions would continue to worsen without implementation of the proposed project, and the No Build Alternative would not construct new sidewalks or bikeways.
Policy 6.1.3. Coordinate maintenance or enhancement of transportation facilities with related infrastructure improvements.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10. Any affected flood control or utility services would be improved or maintained. I-10 traffic conditions, flood control, utility services, and aesthetic amenities would continue to worsen without implementation of the proposed project.
Goal 6.2. Maintain efficient traffic operations on city streets.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy 6.2.1. Maintain a peak-hour LOS D or better at street intersections.	Consistent	Consistent	Consistent	None of the proposed alternatives would make intersection improvements within the city of San Bernardino.
Goal 6.3. Provide a safe circulation system.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy 6.3.1. Promote the principle that streets have multiple uses and users, and protect the safety of all users.	Consistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10. New sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking. New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. I-10 traffic conditions would continue to worsen without implementation of the proposed project, and the No Build Alternative would not construct new sidewalks or bikeways.
Goal 6.4. Minimize the impact of roadways on adjacent land uses and ensure compatibility between land uses and highway facilities to the extent possible.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy 6.4.1. Work with Caltrans to ensure that construction of new facilities includes appropriate soundwalls or other mitigating noise barriers to reduce noise impacts on adjacent land uses.	Consistent	Consistent	Consistent	Both build alternatives would mitigate any noise impacts with the appropriate federally designated noise mitigation, including soundwalls. The No Build Alternative would not increase noise along I-10.
Policy 6.4.2. Require, wherever possible, a buffer zone between residential land uses and highway facilities.	Consistent	Consistent	Consistent	See response immediately above.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Policy 6.4.3. Continue to participate in forums involving the various governmental agencies, such as Caltrans, SANBAG, SCAG, and the County, that are intended to evaluate and propose solutions to regional transportation problems.	Consistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Policy 6.4.8. Develop appropriate protection measures along routes frequently used by trucks to minimize noise impacts to sensitive land uses including, but not limited to, residences, hospitals, schools, parks, daycare facilities, libraries, and similar uses.	Consistent	Consistent	Consistent	Both build alternatives would mitigate any noise impacts with the appropriate federally designated noise mitigation, including soundwalls. The No Build Alternative would not increase noise along I-10.
Goal 6.5. Develop a transportation system that reduces conflicts between commercial trucking, private/public transportation, and land uses.	See related policy below	See related policy below	See related policy below	See related policy below for consistency analysis.
Policy 6.5.1. Provide designated truck routes for use by commercial/industrial trucking that minimize impacts on local traffic and neighborhoods.	Consistent	Consistent	Consistent	Both build alternatives would maintain the truck route along I-10, as the project proposes to improve goods movement in the region by improving traffic flow along I-10. The No Build Alternative would not result in changes to I-10, and truck routes would not be altered.
City of Loma Linda General Plan				
Goal 6.10. Provide a balanced, convenient, energy-efficient, and safe transportation system that incorporates all feasible modes of transportation.	Consistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10. Any affected intersections would be improved. New sidewalks would be constructed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands as a result of the proposed project, thereby increasing opportunities for walking. New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. I-10 traffic conditions would continue to worsen without implementation of the proposed project, and the No Build Alternative would not construct new sidewalks.
Goal 6.10.1. Vehicular Circulation **a.** Maintain long-term traffic levels of service at LOS C. **e.** Facilitate roadway capacity by implementing the Loma Linda Circulation Plan. **j.** Encourage regional goods movement to remain on area freeways and other appropriate routes.	Inconsistent	Consistent	Consistent	None of the proposed alternatives would make improvements to local streets or substantially impact their LOS or capacity within the city of Loma Linda. The proposed project would improve I-10 and generally reduce diversion from I-10 due to congestion on the freeway.
Goal 6.10.2. Nonmotorized Transportation **b.** Provide lighting that is attractive, functional, and appropriate to the character and scale of the neighborhood or area, and which contributes to pedestrian and bicycle safety. **c.** Maintain roadway designs that maintain mobility and accessibility for bicyclists and pedestrians through incorporation of sidewalks and bicycle lanes, where appropriate.	Inconsistent	Consistent	Consistent	Both build alternatives would incorporate new sidewalks and bicycle lanes into the proposed project, as well as maintain existing ones, to create a truly multimodal project that accommodates different transportation needs. Lighting amenities would also be incorporated into the proposed project. The No Build Alternative would not result in any changes to the I-10 transportation system.
Goal 6.10.3. Transit b. Preserve options for future transit use when designing roadway and highway improvements.	Inconsistent	Consistent	Consistent	Both build alternatives would not result in any permanent impacts to public transit ROW. Beneficial impacts would result from the decreased traffic congestion. The No Build Alternative would not result in any changes to the I-10 public transportation system.
City of Redlands General Plan				
Guiding Policies: Residential Areas **Policy 4.40c.** Conserve existing citrus groves and encourage planting new ones along street frontages to be developed.	Consistent	Consistent	Consistent	Alternative 2 would not result in any permanent or temporary acquisitions to citrus groves. Alternative 3 would result in a partial acquisition to the I-10/California Grove parcel containing a City-operated citrus grove; however, no citrus trees would be affected as a result of this acquisition. A mitigation measure would be implemented to protect the citrus grove during construction. The No Build Alternative would not affect any citrus groves.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Guiding Policies: Downtown **Policy 4.61c.** Provide public improvements for traffic circulation, flood control, utility services, and aesthetic amenities that will attract new private investment and economic development.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10, thereby improving traffic circulation in Redlands. Any affected flood control or utility services would be improved or maintained. Aesthetic improvements include landscaping and consistency in design. I-10 traffic conditions, flood control, utility services, and aesthetic amenities would continue to worsen without implementation of the proposed project.
Guiding Policies: Standards for Traffic Service **Policy 5.20a.** Maintain LOS C or better as standard at all intersections presently at LOS C or better. **Policy 5.20b.** Within the area identified in GP Figure 5.3, including that unincorporated County area identified on GP Figure 5.3 as the donut hole, maintain LOS C or better; however, accept a reduced LOS on a case-by-case basis upon approval by a four-fifths (4/5ths) vote of the total authorized membership of the City Council. **Policy 5.20c.** Where the current LOS at a location within the city of Redlands is below the LOS C standard, no development project shall be approved that cannot be mitigated so that it does not reduce the existing LOS at that location except as provided in Section 5.20b.	Inconsistent	Consistent	Consistent	Both build alternatives would improve traffic flow and decrease congestion along I-10 within the project area and coordinated with adjacent jurisdictions. Any affected intersections would be improved. I-10 traffic conditions would continue to worsen without implementation of the proposed project.
Guiding Principles: Freeway Improvements **Policy 5.33a.** Work with Caltrans to achieve timely construction of freeway and interchange improvements.	Inconsistent	Consistent	Consistent	Coordination is ongoing between the multiple regional and local government agencies involved in the proposed project to improve traffic conditions on I-10 throughout the jurisdictions located in the project area. The No Build Alternative would not result in any traffic improvements to I-10.
Implementing Policies: Freeway Improvements **Policy 5.33b.** Develop improvement plans for the SR-30 interchange at San Bernardino Avenue and for the I-10 freeway interchanges at Alabama Street, California Street, and Mountain View Avenue to ensure adequate capacity to meet future needs associated with the *East Valley Corridor Specific Plan.* **Policy 5.33c.** Provide an SR-30 freeway crossing (no ramps) at Palmetto Avenue and widen I-10 crossings at Nevada Street to reduce overdependence on other freeway crossings such as San Bernardino Avenue, Alabama Street, and California Street. **Policy 5.33d.** Seek funding for interchange improvements as needed to accommodate traffic growth in the East Valley Corridor. **Policy 5.33e.** Seek funding for I-10/Wabash Avenue interchange improvements.	Inconsistent	Consistent	Consistent	Both build alternatives would improve affected interchanges and ramps, as identified in the Traffic Study and the Ramp Closure Study. The No Build Alternative would not result in any ramp or interchange improvements.
Guiding Policies: Bikeways **Policy 5.50o.** Plan and design bikeways with special consideration to the safety of bicyclists and pedestrians.	Inconsistent	Consistent	Consistent	New bikeways are proposed in Montclair, Upland, Ontario, and Redlands, thereby increasing opportunities for bicycle usage. The No Build Alternative would not construct new bikeways.
Guiding Policies: Pedestrianways **Policy 5.60a.** Treat pedestrians as if they are more important than cars.	Inconsistent	Consistent	Consistent	New sidewalks are proposed in Montclair, Upland, Ontario, San Bernardino, Loma Linda, and Redlands, thereby increasing opportunities for pedestrian walkways. The No Build Alternative would not construct new sidewalks.

Table 3.1.1-3 Consistency with Plans and Policies

Goal/Policy	Project Consistent with Plan, Goal, Objective, or Policy			Consistency Analysis
	Alternative 1 No Build	Alternative 2 HOV Lane	Alternative 3 Express Lanes	
Implementing Policies: City Design **Policy 3.10l.** Use Caltrans and local resources to implement the I-10 Corridor Landscape Master Plan. A future 10-lane freeway will overwhelm Redlands unless it is part of a major landscape element. **Policy 3.10n.** Avoid soundwalls as a standard on arterial streets in residential areas. Walled cities with deserted sidewalks and bleak streets have become the norm in many recently built cities. Redlands has avoided this blight by using side-on cul-de-sacs, but design to mitigate noise resulting from projected traffic increases will require other techniques. Preservation of citrus frontage, use of berms, and frontage roads are alternatives.	Inconsistent	Consistent	Consistent	Both build alternatives would incorporate landscaping in the proposed project along I-10. Sidewalks would only be constructed along I-10. The No Build Alternative would not result in increased landscaping.
City of Yucaipa General Plan				
Goal LU-9. Locate new development so that the economic strength derived from agricultural, mineral, and other natural resources is preserved. **A.** Prime agricultural lands must be protected from the adverse effects of urban encroachment, particularly increased erosion and sedimentation, trespass, and nonagricultural land development. **D.** Because agricultural uses are valuable, the City shall encourage the retention of productive, commercially viable agricultural land and discourage the premature or unnecessary conversion of agricultural land to nonagricultural uses through the implementation of the following actions.	Consistent	N/A	Consistent	Alternative 3 would not result in any impacts to agricultural land in Yucaipa. The No Build Alternative would not affect agricultural land.
Goal T-1. Develop a transportation system for current and future needs that moves people and goods safely and efficiently.	Inconsistent	N/A	Consistent	Alternative 3 would improve traffic flow and decrease congestion along I-10, thereby improving mobility and enhancing goods movement capabilities. I-10 traffic conditions and goods movement efforts would continue to worsen without implementation of the proposed project.
Goal T-5. Strive to achieve minimum LOS C on all highways and intersections.	Inconsistent	N/A	Consistent	See response immediately above.
Goal T-7. Encourage nonmotorized alternative transportation by creating bicycle lanes and pedestrian paths to commercial areas, parks, and schools.	Inconsistent	N/A	Consistent	Alternative 3 would encourage alternative nonmotorized transportation options by incorporating ADA-compliant pedestrian and bikeway improvements into the project design. Existing sidewalks and bikeways would be maintained. Alternative 3 would not result in impacts to sidewalks or bikeways in Yucaipa because the proposed project would be a transition area in this city. No changes to nonmotorized transportation options would result from the No Build Alternative.
Goal TP-1. Promote the development of safe and convenient bicycle and pedestrian corridors that provide alternative transportation routes to schools, parks, and employment and commercial areas.	Consistent	N/A	Consistent	See response immediately above.
Goal OS-8. Minimize conflicts between open space and surrounding land uses.	Consistent	N/A	Consistent	Alternative 3 is not anticipated to result in impacts to open space in Yucaipa. The No Build Alternative would not result in open space impacts.

Sources: Counties of Los Angeles and San Bernardino; Cities of Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Rialto, Bloomington, Colton, San Bernardino, Loma Linda, Redlands, and Yucaipa; and Parsons, 2015.

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County General Plans

San Bernardino County General Plan (Adopted 2007, Amended 2013)

San Bernardino County is bordered by Los Angeles County, Orange County, and Kern County on the west, the Colorado River and the states of Arizona and Nevada on the east, Riverside County on the south, and Inyo County and the southwest corner of Clark County, Nevada, on the north. The county of San Bernardino includes the following cities located within the proposed project area: Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, Redlands, and Yucaipa, and the community of Bloomington.

San Bernardino County, with a land area of 20,106 square miles, is the largest county in the continental United States. Although San Bernardino County is the largest county in the contiguous United States, the span of control of the Board of Supervisors over the entire county is limited. Federal and State agencies own and control most of the County lands, and only 15 percent of the total land area in San Bernardino County is regulated by the County Board of Supervisors.

The County identifies itself as a crossroads of global, multimodal transportation, and commerce, with an abundance of affordable land and a skilled workforce. It also recognizes its rural and urban amenities.

Los Angeles County General Plan (2014 Draft)

Los Angeles County is bordered to the east by Orange County and San Bernardino County, to the north by Kern County, and to the west by Ventura County. The county also includes two offshore islands: Santa Catalina Island and San Clemente Island. The unincorporated areas of the county account for approximately 65 percent of the total land area of the county (approximately 2,650 square miles), while the total land area is 4,083 square miles. It includes the following cities located within the proposed project area: Pomona and Claremont.

The major policies of the General Plan include expanding Transit-Oriented Districts (TODs), promoting mixed use, expanding Significant Ecological Areas (SEA), creating Employment Protection Districts (EPDs), and protecting Agricultural Resource Areas (ARAs).

Local General Plans

City of Pomona General Plan (2011 Draft)

Pomona is surrounded by the cities of Claremont, La Verne, San Dimas, Walnut, Diamond Bar, Chino, and Montclair. The area contained within the city of Pomona

boundaries comprises 22.84 square miles. Pomona has excellent access, positioned at the confluence of I-10, SR-57, SR-71 and SR-60, as well as two UPRR/Metrolink rail lines. The City of Pomona General Plan's guiding themes include maintaining its diverse land uses, embracing development changes, economic prosperity by way of varied development patterns, maintaining neighborhood character and cohesion, protecting cultural resources and open spaces, and public safety.

City of Claremont General Plan (adopted 2006, revised 2009)

Claremont shares its boundaries with the cities of Upland, Pomona, La Verne, and Montclair and the county of San Bernardino. Claremont occupies approximately 14.14 square miles in Los Angeles County. I-10, SR-66, and SR-210 traverse the city east to west, providing regional connections; Claremont is also regionally connected by Metrolink. The main goal of the City of Claremont's General Plan is sustainability by conserving its natural resources; protecting its culture and heritage; meeting the housing and community service needs of a diverse demographic; and preserving the quality of life that currently exists in the city.

City of Montclair General Plan (1999)

The western boundary of Montclair is contiguous with the Los Angeles county line, which also includes the cities of Pomona and Claremont. Upland borders Montclair on the north and east, Ontario on the east, and an unincorporated portion of San Bernardino County to the south. The Montclair planning area consists of approximately 6.48 square miles. The primary land use in Montclair is residential, with a smaller percentage of land uses dedicated to commercial uses near I-10 and vacant or agricultural land.

City of Upland General Plan (1996)

Upland is bordered by Montclair to the southwest and Ontario to the south and encompasses a land area of 15.3 square miles. I-10 runs along the southern edge of the city. SR-66 and SR-210 run east-west through the city, while SR-83 runs north-south. Upland serves as a gateway to the Los Angeles National Forest and the Mt. Baldy Recreation Areas. This General Plan aims to protect its neighborhoods, preserve cultural resources, encourage a mix of land uses, and develop a balanced, regional transportation system.

City of Ontario General Plan (2007)

Ontario is comprised of approximately 50 square miles. It is bordered by unincorporated San Bernardino County, Montclair, Upland, Rancho Cucamonga, and

Fontana to the north, and Chino and Riverside County to the south. I-10, I-15, and SR-60 run through the city limits. The vision of the Ontario General Plan, or the Ontario Policy Plan, includes goals and policies to create and maintain distinct neighborhoods and activity centers; encourage diverse residential uses; a mix of employment, retail, entertainment, community, and recreational services; and a world-class airport, which are connected through a unified mobility system.

City of Fontana General Plan (2003)

Fontana is positioned as a gateway into southern California's economy and the Inland Empire from I-15. I-10, SR-66, and SR-210 also run through the city. Fontana can play an important role in linking to the critical goods movement system known as Alameda Corridor East due to the city's level of rail service. With a large amount of undeveloped land in its incorporated boundaries and sphere of influence, Fontana has many opportunities for developing its economy.

Community of Bloomington Community Plan (2007)

Bloomington encompasses approximately 7 square miles of unincorporated land area. Fontana is adjacent to the west and north, and Rialto is located along the north and east boundaries. I-10 bisects Bloomington, and the community contains limited commercial uses and has larger residential lots and more agricultural uses than nearby urban areas. The Community of Bloomington Community Plan emphasizes its priority is to protect the rural character of the community.

City of Rialto General Plan (2010)

Rialto encompasses approximately 22 square miles of land area. It is bordered by unincorporated San Bernardino County to the north, Fontana and Bloomington to the west, San Bernardino and Colton to the east, and unincorporated San Bernardino County to the south. Rialto contains a varied mix of land uses; SR-210, SR-66, and I-10 run through the city, as does a UPRR line. The City of Rialto General Plan emphasizes its commitment to family neighborhoods, new development, encouraging a healthy and diverse economic environment, and its support for recreational facilities and transportation alternatives.

City of Colton General Plan (1987, Land Use and Mobility Elements 2013)

Colton is bordered by the cities of Rialto, San Bernardino, Loma Linda, and Grand Terrace and Riverside County. Located in San Bernardino County, Colton encompasses approximately 18 square miles and is located within the Santa Ana River floodplain. The UPRR main switching yard is located in the city, and a large

intermodal hub for the Burlington Northern Santa Fe (BNSF) railroad is located just a few miles north of Colton, in the city of San Bernardino. I-10 and I-215 also traverse the city, from east to west and south to north, respectively.

Its physical geographic characteristics and constraints associated with its convergence of rail and freeway corridors create the unique character of Colton. These issues also present limitations for development. The City's General Plan aims to support its existing position as a major transit/goods movement hub, while accompanying growth at the same time.

City of San Bernardino General Plan (2005)

San Bernardino is surrounded by Rialto to the west, Colton to the southwest, Loma Linda to the south, Redlands to the southeast, Highland to the east, and the San Bernardino National Forest to the north. San Bernardino is a gateway to mountain resorts and a gateway to southern California due to its proximity to the Cajon Pass, a major natural entry from the high deserts and points east. The historic development of San Bernardino as a transportation hub is directly related to the proximity to the Cajon Pass (e.g., railroad lines, Santa Fe rail depot, U.S. Route 66, I-215, SR-18). I-10 borders the southern edge of the city, and the city's total planning area is 71 square miles.

Key strategies that supported the development of this General Plan include entrepreneurship, Inland Empire economy, fiscal priorities, community diversity, quality housing and attractive neighborhoods, cultural and recreational opportunities, education, and community pride.

City of Loma Linda General Plan (2009)

Loma Linda is bordered by Redlands and San Bernardino to the north; Redlands and unincorporated San Bernardino County to the east; unincorporated Riverside and San Bernardino counties to the south; and unincorporated San Bernardino County and Colton and San Bernardino to the west. I-10 provides the northern border of the city. The planning area covers approximately 10.41 square miles.

The main vision for the City of Loma Linda is for it to continue to be a small, friendly, beautiful community with natural assets, a unique economy, and healthy lifestyle. Also important to the City is its university; to avoid large-scale, high-density development; and promote a pedestrian-friendly environment.

City of Redlands General Plan (1995)

Redlands is bounded on the north by the Santa Ana Wash, Highland, and the San Bernardino Mountains, on the east by Yucaipa, on the south by Riverside County, and on the west by Loma Linda and San Bernardino. I-10, SR-38, and SR-210 run through the middle of the city. The planning area encompasses 52 square miles. Major themes that are prevalent throughout the General Plan include maintaining its position as a freestanding city, its citrus heritage, small town feeling, and its sense of history.

City of Yucaipa General Plan (2004)

Yucaipa is bounded on the west by Redlands, and unincorporated San Bernardino County on all other sides. The San Bernardino Mountains are located immediately to the north of Yucaipa. I-10 runs through the middle of Yucaipa. The planning area encompasses almost 28 square miles. The major goals and objectives of the General Plan are intended to preserve the community's rural atmosphere.

Specific Plans

The following Specific Plans are located within or immediately adjacent to the proposed project alignment.

Centrelake Business Park Specific Plan (1983)

The Centrelake Business Park Specific Plan is master planned as a mixed-use park to be aesthetically pleasing and self sufficient. It is located adjacent to LA/Ontario International Airport and bound by I-10 to the north, Turner Avenue to the west, and Haven Avenue to the east in Ontario. A significant portion of Centrelake is intended for development as office facilities.

Crossroads Business Park Specific Plan (1997)

The Crossroads Business Park Specific Plan was approved for the exclusive development of light industrial uses. It attempts to duplicate the development standards established by California Commerce Center South. It is bounded by I-10 to the south, Etiwanda Avenue to the east, 4th Street to the north, and parcels adjacent to I-15 on the west in Ontario.

Guasti Plaza Specific Plan (2007)

The Guasti Plaza Specific Plan has a long history as an Italian agricultural/agrarian, working environment. It is bounded by I-10 to the north, Turner Avenue to the east, Old Guasti Road to the south, and Archibald Avenue to the west in Ontario. It is approved for the exclusive development of light industrial uses.

Meredith International Centre Specific Plan (1999)

The Meredith International Centre Specific Plan is a major mixed-use development on approximately 250 acres. A key amenity to the project is the Cucamonga/Guasti Regional Park, which occupies the northeast corner of the site. It is bounded by I-10 to the south, Archibald Avenue to the east, 4th Street to the north, and Vineyard Avenue to the west in Ontario. The land uses proposed for the plan are primarily office, hotel, and retail/commercial with some residential uses.

Mountain Village Specific Plan (1997)

The Mountain Village Specific Plan was approved to ensure the development of commercial, office, and residential uses. It is bounded by I-10 to the north, Colony Park and single-family residences to the south, single-family residences to the east, and multi-family residences to the west in Ontario. The Specific Plan area contains four Development Districts that are characterized by different land uses and design objectives, including "Entertainment District," "Main Street District," "Sixth Street District," and "Residential District."

Ontario Center Specific Plan (1981)

The Ontario Center Specific Plan consists of a mix of uses, including commercial, residential, and open space covering 549 acres. It is bounded by I-10 to the south, Turner Avenue to the west, 4th Street to the north, and Milliken Avenue to the east in Ontario.

Ontario Mills Specific Plan (1996)

The Ontario Mills Specific Plan consists primarily of commercial and office land uses and encompasses approximately 251 acres. It is generally bounded by 4th Street to the north, Milliken Avenue to the west, I-15 to the east, and I-10 to the south in Ontario. The site is located at the interchange of two freeways, frontage on major arterials, and within close proximity of LA/Ontario International Airport.

Rancon Center Specific Plan (1991)

The Rancon Center Specific Plan is approved for the development of light industrial uses. It is bounded by I-10 to the south, I-15 to the west, light industrial to the north, and parcels adjacent to Etiwanda to the east in Ontario.

Shea Business Center Specific Plan (1996)

The Shea Business Center Specific Plan is approved for the development of industrial/commercial/office uses. It is bounded by I-10 to the north, I-15 to the west, Airport Drive to the south, and Etiwanda Avenue to the east in Ontario.

Transpark Specific Plan (1981)

The Transpark Specific Plan is approved for the development of commercial and industrial uses. It is bounded by I-10 to the south, one parcel from Archibald Avenue to the west, Inland Empire Boulevard to the north, and Turner Avenue to the east in Ontario.

Wagner Properties Specific Plan (1982)

The Wagner Properties Specific Plan contains approximately 54 acres. The plan is to guide creation of a commercial center with commercial and residential uses. It is bounded by I-10 to the south, Turner Avenue to the west, 4th Street to the north, and Haven Avenue to the east in Ontario.

Fontana Gateway Specific Plan (1987)

The Fontana Gateway Specific Plan is located in the unincorporated area of San Bernardino County, adjacent to Fontana's Southwest Gateway corridor. The site is bounded by I-10 on the north, Mulberry Avenue on the east, Jurupa Avenue on the south, and Etiwanda Avenue on the west. The Fontana Gateway Specific Plan is primarily a planned industrial land use encompassing approximately 755 acres in the urbanizing area of southwest Fontana. The project would create a major new employment center, providing jobs for existing city residents and new residents of nearby planned residential communities.

Southwest Industrial Park Specific Plan (2012)

The Southwest Industrial Park (SWIP) Specific Plan is located within the southwest area of Fontana, between I-10 and the San Bernardino/Riverside county boundary. The SWIP plan area of the project is generally bounded by Jurupa Avenue on the north, Etiwanda Avenue on the west, the county line on the south, and Mulberry Avenue on the east. The second industrial park area (Jurupa Industrial Park Plan Area) of the project is defined by an irregular boundary, generally bounded by Slover Avenue on the north, Cherry Avenue on the west, Jurupa Avenue on the south, and Catawba Avenue on the east, with two additional areas extending north of the freeway to Valley Boulevard. The Original SWIP plan area is divided into 55 separate parcels ranging in size from 1.25 to 21.28 acres. The average parcel size is 7.03 acres. Most of the developments are oriented toward the transportation industry.

Empire Center Specific Plan (1990)

The Empire Center Specific Plan is generally bounded on the north by the UPRR/Southern Pacific Railroad, on the east by the city limits boundary, on the south

by Slover Avenue, and on the west by Sierra Avenue in Fontana. The City of Fontana has taken various actions since 1990 that have covered the 292.5-acre Empire Center Specific Plan or the more than 500-acre Empire Center project area. The Empire Center will include a business park, community commercial area, entertainment center, neighborhood commercial area, park-and-ride facility, promotional center, and a regional mall.

Gateway Specific Plan (1990)

The Gateway Specific Plan consists of 366 acres of land north of I-10 at the Riverside Avenue intersection in Rialto. Existing development is a mixture of industrial, commercial, retail, and residential uses, as well as vacant land.

West Valley Specific Plan (1996)

The West Valley Specific Plan consists of East and West Subareas, separated by a section of county land. The West Subarea is bounded by San Bernardino Avenue on the north, the city boundary on the west, I-10 on the south, and the Southern Pacific Railroad and county line on the east. The East Subarea is bounded by C Street on the north, Grand Avenue on the west, I-10 on the south, and the UPRR and Santa Fe Railroad tracks on the east in Colton. A large portion of the specific plan was designed around the railroad uses, and the area is approved for a large mix of uses.

East Valley Corridor Specific Plan (1989)

The East Valley Corridor Specific Plan includes approximately 4,300 acres and is generally bounded by the Santa Ana River Wash on the north; Texas Street on the east, north of I-10; Kansas Street on the east, south of I-10; Barton Road on the south; California Street on the west; and Mountain View Avenue on the west, north of I-10 in Redlands. The area consists of a mix of uses, including agriculture.

Agua Mansa Specific Plan (1986)

The Agua Mansa Specific Plan is intended to be a master plan for the economic development of the 4,285-acre project area, which comprises segments of unincorporated San Bernardino and Riverside counties and Colton and Rialto. It is bounded by I-10 on the north, Rancho Avenue on the east, and the Santa Ana River on the southeast. The southwesterly boundary is formed by Market Street and Rubidoux Boulevard; the northwesterly boundary varies from I-10 and Lilac Avenue on the north to Hall Avenue. The easterly portion of the study area is located in the floodplain of the Santa Ana River on the westerly bank of the main channel. It is

approved for a mix of uses within the various jurisdictions; however, the land use trend within the study area has been primarily towards heavy industrial development.

Freeway Corridor Specific Plan (2007)

The Freeway Corridor Specific Plan site encompasses 1,234.3 acres and is located in the southwestern corner of Yucaipa. The Specific Plan site is bisected by I-10 and abuts the Riverside county line to the south. The proposed Specific Plan is composed of three distinct neighborhoods. Each neighborhood includes residential, commercial, business park, public facilities, and open space land uses.

Oak Hills Marketplace Specific Plan (2007)

The Oak Hills Marketplace (OHM) property occupies approximately 63.66 acres located in southern Yucaipa. The site is located adjacent to eastbound I-10, immediately east of Live Oak Canyon Road. Wildwood Creek traverses the project site, and several unnamed hills are located along the southern border of the property.

Robinson Ranch Planned Development (2011)

The Robinson Ranch Planned Development area covers 522 acres in the southwest portion of Yucaipa. The Planned Development area is divided into the following three primary planning areas: Robinson Ranch North, West Oak Center, and Wildwood Ranch. In total, the planned development envisions 4,159 multiple and single-family attached and detached dwelling units distributed throughout 305 acres, 109 acres of general commercial uses, and 28 acres of business park uses. Approximately 119 acres of improved open space and 49 acres of natural open space areas would be included within these land uses.

Environmental Consequences

Alternative 1: No Build Alternative

The No Build Alternative would maintain the current configurations of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and the existing multimodal transportation system would not be enhanced by new choices for commuting, as well as improved traffic conditions on I-10, without the proposed project improvements. The No Build Alternative is inconsistent with various goals and policies identified in Table 3.1.1-3. Some of the goals and policies the No Build Alternative is inconsistent with include creating a more efficient transportation system; improving travel safety and reliability for all people and goods; promoting sustainability; accommodating pedestrians, bicyclists, and motorists; and improving

intersection capacity. The No Build Alternative would not create a more efficient transportation system.

Common to All Build Alternatives

City and County General Plans

The adoption of either of the build alternatives may require the affected counties and cities to amend their General Plan Land Use and Circulation Elements to reflect the final I-10 CP alignment interchange locations that may need to be acquired for the project.

The purpose of the proposed project is to reduce volume-to-capacity (v/c) ratios, improve travel times, and relieve congestion within the corridor, in addition to providing consistency with the SCAG RTP. The proposed project is generally consistent with each of the County General Plans, Area Plans, and City General Plans. These plans anticipate growth within the study area and have adopted goals and policies to reduce congestion. The Circulation Elements of all plans reference improvements to I-10 specifically. Many of these same plans also emphasize goals to minimize the effect of the expansion of I-10 on the surrounding community, including providing landscaping and buffers between I-10 and the community.

The proposed project is generally consistent with local plans, as long as efforts to minimize effects are included in the project plans. The proposed improvements would support continued economic vitality of the surrounding communities by improving conditions for the movement of goods and people. The project would enhance public safety and security through the improvement of driving conditions, enhance environmental conditions through an improvement in traffic mobility and accessibility, and serve as a benefit to the surrounding communities and future land use goals. Landscaping elements and buffers between I-10 and the community will be included in project designs to the greatest extent feasible to concur with the goals of applicable General Plans.

Specific Plans

The proposed project is consistent with each of the Specific Plans described in Section 3.1.1.2, Consistency with State, Regional, and Local Plans and Programs. The Specific Plans identified in Section 3.1.1.2 may require modifications to land use designations immediately adjacent to I-10 as a result of implementation of the I-10 CP.

Because the proposed project is not anticipated to alter any planning policies, the jurisdictions located within the proposed project area would not experience any deviations from growth projections or development opportunities identified in the above-referenced plans. The proposed project is anticipated to improve traffic flow and ease congestion along I-10, which will in turn eliminate the need for those traveling along I-10 to use alternate routes through the neighboring communities. As a result, the proposed project would create beneficial impacts, including easing traffic flow on surface streets adjacent to I-10.

Alternative 2

Alternative 2 is included in SCAG's 2012 RTP/SCS, which was found to be conforming by FHWA/FTA on January 22, 2010. On September 11, 2014, the SCAG Regional Council approved Amendment #2 to the 2012-2035 RTP/SCS after a 30-day public review and comment period. Amendment #2 was developed as a response to changes to projects in the 2012-2035 RTP/SCS but also includes the complete list of modeled projects. Alternative 2 is identified with the following RTP Project ID: 4H01001; Description: I-10 HOV Lane Addition – From Haven (Ontario) to Ford Street (Redlands) – Widening from 8-10 lanes, aux lanes widening, undercrossing and reconstruction of ramps where needed.

Alternative 2 is also included in the 2013 Federal Transportation Improvement Program (FTIP), which was found to be conforming by the FHWA/FTA on December 14, 2012 (RTP Project ID: 4H01001; Description: I-10 HOV Lane Addition – From Haven [Ontario to Ford St (Redlands)] – widening from 8-10 lanes, AUX lanes widening undercrossings and overcrossings and reconstruction of ramps where needed). Alternative 2 is consistent with the scope of the design concept of the RTP and FTIP.

Alternative 3

Alternative 3 is also identified in Amendment No. 2 of the RTP/SCS. This alternative has two entries in the RTP: (RTP Project ID: 4122004 and 4122005 and is described as "I-10 Express Lane Addition from Garey Avenue to the Ford Street Undercrossing – Express Lane widening to implement two (2) express lanes in each direction for a total of 12 lanes including auxiliary lane widening, undercrossings, overcrossings, and reconstruction of ramps where needed."Alternative 3 is consistent with the scope of the design concept of the RTP. The FTIP does not currently include Alternative 3; an amendment will be required if Alternative 3 is selected as the preferred alternative.

Temporary/Construction Impacts

TCEs would be required to construct both build alternatives. Alternative 2 would require 122 TCEs, and Alternative 3 would require 433 TCEs. Construction of the proposed project would create some temporary and intermittent inconvenience for some current land uses due to equipment operations, storage, and staging.

TCEs would not be needed for the No Build Alternative. No temporary impacts to land use are expected.

Avoidance, Minimization, and/or Mitigation Measures

The design of the I-10 corridor will be carried out to minimize ROW impacts. The project is generally consistent with current and future planned local land uses as identified through the local government planning process. Both build alternatives have been designed to avoid existing built land uses to the extent practicable while adhering to design and operational criteria to maintain a safe roadway. During PS&E, efforts will be undertaken to further minimize construction and operation impacts to existing and planned land uses.

3.1.1.3 Parks and Recreational Facilities

The information in this section is from the Community Impact Assessment (October 2015) and the Section 4(f) Technical Study (September 2016) prepared for this project. The project area for parks and recreational facilities includes those resources within a 0.5-mile radius of the project.

Regulatory Setting

This project will affect facilities that are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400-5409). The Park Preservation Act prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

Affected Environment

A total of 39 public parks and recreation areas and 4 trails are located within 0.5 mile of the existing I-10 corridor and are considered Section 4(f) resources. Of these Section 4(f) properties, Sylvan Park is also identified as a Section 6(f) resource.

Table 3.1.1-4 lists the parks and recreational areas within the study area.

Table 3.1.1-4 Parks and Recreational Facilities within the Study Area

Property Name	Location	Current Ownership	Facilities
Kiwanis Park	950 Weber Street Pomona, CA 91768	City of Pomona	6.37 acres; basketball court, playground, community center, picnic tables, drinking fountains
Ganesha Park	1575 N. White Avenue Pomona, CA 91768	City of Pomona	60.74 acres; picnic pavilions bandshell, walking trails, playground, tennis courts, pool with water slide, picnic tables, drinking fountains, restroom
Ted Greene Park	2105 N. Orange Grove Avenue Pomona, CA 91767	City of Pomona	1.11 acres; baseball field, playground, grass field, picnic tables, drinking fountains, concession stand, restroom
Lincoln Park	400 East Lincoln Avenue Pomona, CA 91767	City of Pomona	3.45 acres; baseball fields, playground, restrooms, picnic tables, restrooms, community center
Jaycee Park	2000 N. San Antonio Avenue Pomona, CA 91767	City of Pomona	5.11 acres; baseball fields, playgrounds, grass field, restrooms, community center
Rancho San Jose Park	600 Block of W. San Jose Avenue Claremont, CA 91711	City of Claremont	0.95 acre; basketball court, playgrounds, grass fields, picnic tables, benches, picnic shelter
Wheeler Park	626 Vista Drive Claremont, CA 91711	City of Claremont	6.88 acres; baseball field, playground, roller hockey rink, basketball court, wading pool, restrooms, community center
Blaisdell Park	440 S. College Avenue Claremont, CA 91711	City of Claremont	2.65 acres; softball field, tennis court, grass field, playground, picnic shelter, restrooms, community center
Montvue Park	1555 Cordova Street Pomona, CA 91767	City of Pomona	6.08 acres; baseball field, softball field, playground, open grass, picnic shelters, drinking fountains, restrooms, concession stand
Moreno Vista Park	4600 Block of Moreno Street Montclair, CA 91763	City of Montclair	1.27 acres; tennis courts, grass field
Wilderness Basin Park	S. of the I-10 Corridor Bounded by Mills Avenue and Monte Vista Avenue Montclair, CA 91763	City of Montclair	5.72 acres; walking trail, benches, native plant demonstration garden, grass field
MacArthur Park	5450 Deodar Street Montclair, CA 91763	City of Montclair	2.64 acres; playground, baseball/ softball backstop, grass field, benches
George Gibbs Park	S. of the I-10 Corridor Bounded by W. Fifth Street and W. Princeton Street Ontario, CA 91762	City of Ontario	0.36 acre; softball field, soccer field, grass field, picnic benches, barbeques

Table 3.1.1-4 Parks and Recreational Facilities within the Study Area

Property Name	Location	Current Ownership	Facilities
Anthony Munoz Hall of Fame Park	1240 W. Fourth Street Ontario, CA 91762	City of Ontario	1.24 acres; basketball courts, baseball fields, soccer fields, hockey court, playground, restrooms, community center
Citrus Park	8th Street between San Antonio Avenue and Mountain Avenue Upland, CA 91786	City of Upland	5.63 acres; baseball fields, a grass field, barbeques, restrooms, playground
Fern Reservoir Park	8th Street between Euclid Avenue and San Antonio Avenue Upland, CA 91786	City of Upland	0.87 acre; playground, grass field, picnic tables
Olivedale Park	8th Street between Campus Avenue and Sultana Avenue Upland, CA 91786	City of Upland	6.58 acres; baseball field, concession stand, playground, picnic tables, barbeques, picnic shelter, restrooms
8th Street Reservoir Park	8th Street and Campus Avenue Upland, CA 91786	City of Upland	1.28 acres; baseball fields, bleachers, benches
John Galvin Park	Grove Avenue and 4th Street Ontario, CA 91764	City of Ontario	31.74 acres; Jay Littleton baseball fields, basketball courts, concession stand, tennis courts, volleyball courts, multipurpose concrete court, sheltered picnic areas, restrooms, playgrounds, community center, West Cucamonga Creek Trail
Memorial Grove Park	Grove Avenue and "I" Street Ontario, CA 91764	City of Ontario	1.15 acres; rolling grass field, scattered trees
Vineyard Park	E. 6th Street and N. Baker Avenue Ontario, CA 91764	City of Ontario	2.39 acres; basketball court, swimming pool, playground, multipurpose trail, barbeques, picnic tables, benches
Cucamonga-Guasti Regional Park	800 N. Archibald Avenue Ontario, CA 91764	San Bernardino County Regional Parks	31.17 acres; two fishing lakes, pedal boating, playground, swimming complex, picnic areas, barbeques, benches
Ayala Park	Valley Boulevard Fontana, CA 92335	San Bernardino County Regional Parks	5.32 acres; basketball court, grass field, playground, picnic shelters, barbeques, walking path, dog park
Fleming Park	535 N. La Cadena Drive Colton, CA 92324	City of Colton	1.61 acres; stage, amphitheater seating, benches, grass lawns, landscaped vegetation, Vietnam War Memorial
Central Park	Colton Avenue and "E" Street Colton, CA 92324	City of Colton	1.46 acres; baseball field, bleacher seating, gazebo

Table 3.1.1-4 Parks and Recreational Facilities within the Study Area

Property Name	Location	Current Ownership	Facilities
Colton Plunge Park	601 N. Mount Vernon Avenue Colton, CA 92324	City of Colton	7.53 acres; baseball fields, soccer fields, basketball courts, tennis courts, picnic tables, grass field, pools, playground
Veterans Park	290 E. "O" Street Colton, CA 92324	City of Colton	12.61 acres; softball fields, basketball court, horseshoes, handball courts, playground, splash pad, community center, picnic shelters, restrooms
Rich Dauer Park	955 Torrey Pines Drive Colton, CA 92324	City of Colton	3.85 acres; playground, open grass, picnic shelter, BBQs, restrooms
Mid City Connector Trail (Future)	North of I-10 Corridor from 40th Street to Santa Ana River Trail San Bernardino, CA 92408	San Bernardino County Regional Parks Department	A future 7.5-mil paved off-street, Class I bicycle path
Santa Ana River Trail	Along the Santa Ana River from Waterman Avenue to the Riverside County Line San Bernardino County, CA 92408	San Bernardino County Regional Parks Department	7.5 miles of trail; paved off-street, Class I bicycle path
Colony Park	Weir Road and Harwick Drive San Bernardino, CA 92408	City of San Bernardino	0.36 acre; softball field, benches, playground, picnic tables, restrooms
Cooley Ranch Park	2020 Duron Street Colton, CA 92324	City of Colton	2.53 acres; basketball courts picnic shelters picnic tables, BBQs; drinking fountains
Ted and Lila Dawson Park	Anderson Street and Court Street Loma Linda, CA 92354	City of Loma Linda	0.29 acre; small grass lawn, landscaped vegetation, park bench
Elmer Digneo Park	Corner of Anderson Street and Parkland Street Loma Linda, CA 92354	City of Loma Linda	5.03 acres; basketball court, playground restrooms, BBQ pit benches, drinking fountains
Sun Park	25300 E. 3rd Street Loma Linda, CA 92354	City of Loma Linda	0.62 acre; gazebo, picnic tables, landscaped vegetation, park benches
Cottonwood Park	Corner of Cottonwood Road and Mountain View Avenue Loma Linda, CA 92354	City of Loma Linda	0.89 acre; playground, gazebo, open grass areas
Orange Blossom Trail (Future)	Between Mountain View Avenue and Ford Street Redlands, CA 92373	City of Redlands	A future 3.7-mile paved off-street, multiple-use trail; some portions already constructed outside study area
Jeannie Davis Park	923 W. Redlands Boulevard Redlands, CA 92373	City of Redlands	3.42 acres; multipurpose trail, playground, grass field, picnic tables

Table 3.1.1-4 Parks and Recreational Facilities within the Study Area

Property Name	Location	Current Ownership	Facilities
Ed Hales Park	101 E. State Street Redlands, CA 92373	City of Redlands	0.20 acre; benches, sheltered seating, fountain
The Terrace Park	106 & 500 E. Colton Avenue Redlands, CA 92374	City of Redlands	1.97 acres; multipurpose trail with benches
Sylvan Park	730 Chapel Street Redlands, CA 92374	City of Redlands	19.41 acres; volleyball courts, baseball field, horseshoe pits, lawn bowling, walking trails, playground, multipurpose field, community garden, picnic tables and shelters, stage, restrooms
Zanja Trail (Future)	Between Church Street and Grove Street Redlands, CA 92374	City of Redlands	A future 0.7-mile natural-surface trail and greenway
Ford Park	955 Parkford Drive Redlands, CA 92374	City of Redlands	19.83 acres; tennis courts, picnic tables, playground, fishing pond, grass field

Source: Section 4(f) Technical Study, 2016.

Environmental Consequences

Alternative 1: No Build Alternative

The No Build Alternative would maintain the current configurations of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and no impacts to parks or recreational activities would occur.

Alternative 2

Alternative 2 would not result in any permanent impacts to parks and recreational activities.

Alternative 3

Alternative 3 would require acquisition of 0.14 acre of MacArthur Park, which represents 5.3 percent of the park's pre-project acreage. This acquisition would be necessary to widen I-10, accommodate on-ramp realignment at the I-10/Central Avenue interchange, and replace a soundwall on top of the retaining wall. The 0.14-acre acquisition would be used for project ROW and converted to transportation uses. The 0.14-acre area contains only landscaping, with no recreational facilities or playing fields. Although the acquisition area would minimally reduce the overall size of the park from 2.64 acres to 2.50 acres, it would not inhibit existing recreational activities within the park. In addition, a 0.04-acre footing easement would be required to provide structural support for the new soundwall on top of the retaining wall to be

constructed adjacent to MacArthur Park. The footing easement would be underground and would not permanently affect recreational activities, features, or attributes within the park. The surface above the footing easement area would be returned to pre-project conditions after temporary use of the area during construction.

Temporary/Construction Impacts

Alternative 2

Table 3.1.1-5 includes a summary of temporary impacts associated with Alternative 2.

Table 3.1.1-5 Alternative 2 Temporary Parks and Recreation Impacts

Property Name	Property Description
Santa Ana River Trail	Temporary overnight closures of the trail would be required to widen the I-10 mainline bridge.
Orange Blossom Trail and the Zanja Trail (Future)	1.12 miles of the trail would be affected by temporary closures and detours that would be required to widen the I-10 mainline bridge.

Source: Section 4(f) Technical Study, 2016.

Alternative 3

Alternative 3 would result in the same temporary impacts as Alternative 2, as well as an additional temporary impact to MacArthur Park in Montclair (Table 3.1.1-6).

Table 3.1.1-6 Alternative 3 Temporary Parks and Recreation Impacts

Property Name	Property Description
MacArthur Park	0.16-acre TCE
Santa Ana River Trail	Temporary overnight closures of the trail would be required to widen the I-10 mainline bridge.
Orange Blossom Trail and the Zanja Trail (Future)	1.12 miles of the trail would be affected by temporary closures and detours that would be required to widen the I-10 mainline bridge.

Source: Section 4(f) Technical Study, 2016.

Santa Ana River Trail. Under Alternatives 2 and 3, a temporary closure of the Santa Ana River Trail would be necessary to widen three I-10 mainline bridges that cross over the trail.

There would be no interference with the activities and purpose of the Santa Ana River Trail during construction of the I-10 CP. The duration of occupancy would be temporary, no changes would occur to the trail, and land would be fully restored to pre-project or better conditions.

Orange Blossom Trail and the Zanja Trail (Future). Under Alternatives 2 and 3, a detour of approximately 1.12 miles of the western segment of the planned Orange

Blossom Trail would be necessary to widen the I-10 mainline bridge, which crosses over the trail on both sides. The proposed trail closure would occur from Mountain View Avenue to California Street in Redlands. If the trail is opened prior to construction of the I-10 CP, trail traffic would be detoured during project construction at this location for approximately 18 months.

MacArthur Park. Under Alternative 3, a 0.16-acre TCE would be required at MacArthur Park to allow mainline roadway widening along I-10 and construction of a new soundwall adjacent to the park. Although this TCE would temporarily reduce the overall park area during construction, it would not affect existing recreational activities, features, or attributes in the park because construction activities would only occur within landscaped areas. Access to and parking for MacArthur Park would be maintained at all times during construction and operation of Alternative 3. In addition, no traffic impacts are anticipated.

Indirect Impacts

Although a partial acquisition is anticipated from the MacArthur Park property, it would not inhibit existing recreational activities within the park; therefore, it would not create any indirect impacts.

Avoidance, Minimization, and/or Mitigation Measures

The following measures were identified for the proposed project. Further details are identified in the Section 4(f) Technical Study.

LU-1: SANBAG shall request the County of San Bernardino and the City of Montclair 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: Return any landscaping temporarily disturbed or removed during construction to pre-project or better conditions.

LU-3: Access and circulation for recreational users will be maintained at impacted locations identified in Section 3.1.1 and the Section 4(f) Technical Study. Detours for any temporary closures of the recreational facilities identified will be implemented. Post informational and detour signage in advance to inform users of any temporary closures and detour routes.

LU-4: The trail closures would occur at night after sunset to avoid all impacts to users of the Santa Ana River Trail. Given that the Santa Ana River Trail is only open from sunrise to sunset, work outside of these hours would not require closure or detour of the trail.

LU-5: The Right-of-Way Agent and Project Manager will coordinate with the City of Montclair to provide the compensation required under the Park Preservation Act.

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3.1.2 Growth

Analysis of the potential growth-inducing impacts of the proposed project is based on demographic information from the 2010 United States Census data, the Southern California Association of Governments (SCAG) 2012–2035 Regional Transportation Plan (RTP) growth forecasts for the cities of Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, Redlands, and Yucaipa, and San Bernardino and Los Angeles counties.

3.1.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 *Code of Federal Regulations* [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

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

3.1.2.2 Affected Environment

The growth impact analysis is based on the Community Impact Assessment (CIA) (July 2015) and follows the First-Cut Screening guidelines provided in the California Department of Transportation's (Caltrans) Guidance for Preparers of Growth-Related, Indirect Impact Analyses (August 2007).

Under NEPA and CEQA, growth inducement is not necessarily considered detrimental, beneficial, or environmentally significant. Typically, the growth-inducing potential of a project is considered significant if it fosters growth or a concentration of population in excess of what is assumed in relevant master plans, land use plans, or in projections made by regional planning agencies. Significant growth impacts could be manifested through the provision of infrastructure or service capacity to accommodate growth beyond the levels currently permitted by local or

regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way.

Different transportation projects will influence growth to different degrees and in different ways, and the guidance adopted a two-phase approach to the evaluation of growth-related impacts. The first phase, called "first-cut screening," is designed to help the environmental planner figure out the likely growth potential effect and whether further analysis of the issue is necessary. The first-cut screening involves examining a variety of interrelated factors to address the following issues:

- To what extent would travel times, travel cost, or accessibility to employment, shopping, or other destinations be changed? Would this change affect travel behavior, trip patterns, or the attractiveness of some areas to development over others?
- To what extent would change in accessibility affect growth or land use change—its location, rate, type, or amount?
- To what extent would resources of concern be affected by this growth or land use change?

This section discusses whether the proposed I-10 Corridor Project (I-10 CP) improvements would result in unforeseen direct, indirect, or secondary growth, or would otherwise influence population growth. Examples of potentially growth-influencing projects include those that create access to an area previously inaccessible or occur within an already developed area and remove barriers to future growth. Growth influence is generally dependent on the presence or lack of existing utilities and municipal or public services. The provision of roadways, utilities, water, and sewer service to a previously unserviced area can induce growth by removing impediments to development. There are many factors that may affect the amount, location, and rate of growth in the region of a project. Such factors include:

- Market demand for housing, employment, and commercial services
- Desirability of the climate and living or working environment
- Strength of the local employment and commercial economy
- Availability of other roadway improvements
- Availability of other services and infrastructure (e.g., schools, water)
- Land use and growth management policies of the local jurisdictions

The growth-inducing potential of a project could be considered significant if it fosters growth in excess of what is projected in general plans (land use elements) or in forecasts made by regional planning agencies. Factors affecting growth and its effects tend to be regional and specific in nature; therefore, this analysis presents information about the larger region (San Bernardino County) and the 13 jurisdictions comprising the study area.

The project study area, as well as all of southern California, has experienced dramatic growth in the last 30 years, and this trend is expected to continue. During the past several decades, the SCAG region, including Orange, Imperial, Riverside, San Bernardino, Los Angeles, and Ventura counties, has been one of the fastest-growing regions in the nation. Between 1950 and 1970, the population doubled in size, growing at a rate of 5 percent per year. Between 1980 and 1990, the region's population grew by more than 25 percent, to 14.6 million. Between 1990 and 2000, the region's population grew by nearly 15 percent, to 16.5 million. Additional population and employment growth within the study area is expected to take place through the natural increase and redevelopment of existing land uses or infill development of vacant parcels. Land uses within the study area are already established, with limited opportunity for a new unplanned large-scale development.

SCAG population, household, and employment estimates and the annual average growth rates between 2008 and 2035 for growth forecasts for cities within the study area, including Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, Redlands, and Yucaipa; San Bernardino and Los Angeles counties; and the SCAG region, for comparison, are provided in Table 3.1.2-1.

According to these forecasts, cities within San Bernardino County are projected to increase at a faster rate than cities within Los Angeles County and the SCAG region overall. The projected growth shown includes future approved development as discussed in Section 3.1.1, Land Use. Due to the lack of undeveloped private vacant land in the study area, there are limited opportunities for large-scale new development to occur in the study area.

Table 3.1.2-1 Annual Average Growth Rate Percentages

Jurisdiction	Population 2008-2035	Households 2008-2035	Employment 2008-2035
Regional			
SCAG	0.9	1.0	0.8
Los Angeles County	0.6	0.7	0.4
San Bernardino County	1.3	1.5	1.9
Los Angeles County Cities			
Pomona	1.2	1.0	0.3
Claremont	0.3	0.	0.5
San Bernardino County Cities			
Montclair	0.8	0.9	0.4
Upland	0.4	0.9	0.7
Ontario	3.3	3.5	3.2
Fontana	1.2	1.4	1.7
Rialto	1.0	1.4	1.6
Colton	1.4	1.5	0.9
San Bernardino	0.9	1.1	1.6
Loma Linda	1.4	1.7	3.2
Redlands	1.0	1.2	1.7
Yucaipa	0.8	1.1	1.6

3.1.2.3 Environmental Consequences

Permanent Impacts

Direct growth inducement is generally regarded as providing urban services and extending infrastructure to undeveloped areas. Growth inducement is also possible if capacity enhancements are provided well beyond expected or planned growth in demand.

No Build Alternative

Under the No Build Alternative, no modifications to the existing freeway facility would occur. The existing condition of the Interstate 10 (I-10) corridor within the study area is not consistent with the regional mobility goals of Caltrans, the San Bernardino Associated Governments (SANBAG), or the affected cities, and it would not provide the transportation infrastructure or meet the goals and objectives of SANBAG's Long-Range Transportation Plan and the SCAG RTP. These regional

planning documents anticipate the growth planned within the local jurisdictions within San Bernardino County, specifically the study area, and respond to this projected growth. The No Build Alternative would not influence the level of growth within the local cities in the study area because these jurisdictions are primarily built out, and there are limited areas available for development or redevelopment; therefore, the No Build Alternative is not anticipated to influence the amount, location, and/or distribution of growth or housing and jobs in the local cities and unincorporated areas within the study area. Existing congestion would remain within the study area and is projected to continue in the future under this alternative.

Common to Both Build Alternatives

The "first-cut screening" for the proposed build alternatives is discussed below.

The build alternatives do not change points of current accessibility along I-10 or provide new access to the area. Access to I-10 general purpose (GP) lanes remains unchanged because neither of the build alternatives would remove or limit access. Both alternatives would result in improvements to existing interchanges; Alternative 2 would improve one interchange, and Alternative 3 would improve four interchanges. These improvements would create benefits for those traveling to work, shopping centers, or other destinations by improving the travel times due to the decreased congestion; however, no new on- or off-ramps to employment or commercial amenities are proposed.

The build alternatives would provide continuity to the existing high-occupancy vehicle (HOV) system or a new travel option currently unavailable to those traveling along I-10 in this area. The build alternatives are intended to reduce congestion and improve travel times within the corridor. The build alternatives would not accommodate additional traffic beyond what is currently projected. Auxiliary lanes, ramps, interchanges, and other planned system improvements would reduce congestion, increase throughput, and enhance trip reliability for the planning design year of 2045. The build alternatives do not remove an impediment to growth because the proposed project would not provide an entirely new public facility.

In terms of influencing growth, both build alternatives would address existing operational and capacity deficiencies and would not foster growth in excess of what is projected per SCAG and general plans. The build alternatives would not be expected to influence the amount, location, and/or distribution of growth in the cities within the study area or the counties because no new interchanges are proposed and much of the

study area is built out. It is not anticipated that the proposed project would induce land development. Some interchanges would be reconfigured to accommodate current and future traffic congestion. Because there are very few open areas available in the close vicinity of the study area, the build alternatives would not create new housing or opportunities for capital investment by the public or private sectors.

In terms of project-related growth, the proposed project is not growth inducing because it includes minor land use changes that would convert existing uses to transportation uses. The proposed project would not influence growth because it accommodates existing and future plans for the project area. In addition, the location, timing, and level of future growth in the study area would also depend on the availability of certain types of infrastructure/services (e.g., water, sanitary sewers, and schools). Accommodating critical future infrastructure is addressed by the individual jurisdictions and agencies providing these services that would affect the location, level, and timing of future development regardless of the proposed project. No infrastructure plans have been identified in any local agency plans or service providers at this time. Because the proposed transportation improvements accommodate existing and planned development, the proposed project would have minor influence for stimulating the location, rate, timing, or amount of growth locally or regionally.

The build alternatives include capacity enhancements along an existing freeway corridor that are intended to respond to expected demand and improve current operations.

The build alternatives are not anticipated to influence the amount, location, and/or distribution of growth or housing and/or jobs in the local cities and unincorporated areas within the study area. All land use plans in the counties and cities within the study area include future growth. Service providers also regularly evaluate growth trends and provide required infrastructure upgrades as needed. As noted above, the build alternatives would not result in project-related growth or influence growth.

This “first-cut screening” analysis demonstrates that the build alternatives would not change access but would instead facilitate improved mobility through reduced congestion and trip reliability, resulting in improved commute times for I-10 corridor users. Utilities, land use, community facilities, and traffic would not be affected because the build alternatives are not growth inducing and would not result in

reasonably foreseeable growth. Based on the analysis above, the build alternatives do not require further analysis of growth-related impacts.

Alternative 2

Alternative 2 would include capacity enhancements for HOVs, including decreasing travel times and increasing travel speed for HOVs; however, the improvements in accessibility are not substantial and are not expected to influence trip patterns or the attractiveness of some areas to development over others. The build alternatives would not induce or influence growth directly or indirectly because of minor changes in land use, minor influence on economic vitality, and not anticipated to encourage population density or construction of additional housing.

Alternative 3

The "first-cut screening" requires an assessment of any change in travel cost, time, or accessibility and whether these changes would affect travel behavior, travel patterns, or attractiveness of one area over another. Under Alternative 3, the Express Lanes would be free or price-managed lanes in which vehicles not meeting the minimum occupancy requirement would pay a toll. Alternative 3 encourages carpooling and/or maximizing capacity by requiring a toll for single-occupancy vehicle (SOV) drivers and incentives for vehicles carrying more than two occupants. During peak periods, any excess capacity in the Express Lanes that is not used by carpools would be used by SOV drivers paying a toll. The volume of traffic using the Express Lanes would be managed to minimize congestion in the Express Lanes. This would be accomplished by limiting the volume of traffic in the Express Lanes. Toll amounts would increase when the target volume is exceeded to reduce the volume in the Express Lanes; conversely, toll amounts would decrease when volumes fall below the target volume to attract more vehicles into the Express Lanes.

In terms of accessibility, Alternative 3 would provide the greatest improvements related to decreased travel time and increased travel speed by maximizing use of capacity within the toll facility. Alternative 3 would provide another option currently unavailable to existing I-10 users, which includes two Express Lanes in each direction of I-10 from the LA/SB county line to California Street (near SR-210) in Redlands and one Express Lane in each direction from California Street to Ford Street in Redlands, a total of 33 miles. By adding Express Lanes, there would be increased accessibility, including improved speeds to reach the existing interchanges and employment, as well as the interchanges that would be improved as a result of the proposed project. The Express Lanes would be price-managed lanes in which vehicles

not meeting the minimum occupancy requirement would pay a toll. West of Haven Avenue, a single new lane would be constructed and combined with the existing HOV lane to provide two Express Lanes in each direction; east of Haven Avenue, all Express Lanes would be constructed by the project.

As discussed above, Alternative 3 would not induce or influence growth directly or indirectly because of minor changes in land use or minor influence on economic vitality, and it is not anticipated to encourage population density or construction of additional housing. The improvements in accessibility are not substantial and are not expected to influence travel trip patterns or the attractiveness of some areas to development over others.

Temporary/Construction Impacts

No Build Alternative

The No Build Alternative does not involve construction activities; therefore, there would be no temporary impacts on growth-inducing factors.

Build Alternatives

The build alternatives would not have any temporary direct or indirect impacts on growth-inducing factors because temporary construction does not induce growth.

3.1.2.4 Avoidance, Minimization, and/or Mitigation Measures

The proposed project is not growth-inducing, and no further analysis of growth-related impacts is required. The potential for unplanned development is limited given the built-out nature of the study area and entitlement status of existing vacant land. Therefore, no avoidance, minimization, and/or mitigation measures are required.

3.1.3 Farmlands

Within the study corridor, agriculture faces continuing conversion pressures from urbanization, foreign competition, and rising production costs for agricultural producers; therefore, the conversion of agricultural land to nonagricultural uses represents an important environmental concern requiring appropriate consideration as part of this environmental analysis. This section identifies applicable federal, state, and local policies regarding agricultural resources, summarizes existing agricultural conditions in the study area, and identifies potential project impacts for each of the build alternatives.

3.1.3.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act of 1981 (FPPA) (7 United States Code [U.S.C.] 4201-4209; and its regulations, 7 *Code of the Federal Regulations* [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

The FPPA requires that before taking or approving any federal action that would result in conversion of farmland, the agency must examine the effects of the action using criteria set forth in the FPPA, and, if there are adverse effects, must consider alternatives to lessen them.

The California Environmental Quality Act (CEQA) requires the review of projects that would convert lands preserved under the California Land Conservation Act of 1965 (the Williamson Act) from agricultural to nonagricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses. According to California Government Code Section 51291(b), the California Department of Conservation (DOC) must be notified when there is a need for a public agency or other eligible entity to acquire land enrolled in a Williamson Act contract or located in an agricultural preserve. Specific information must accompany the notification to ensure that the requirements of the applicable Government Code are met.

3.1.3.2 Affected Environment

The information and analysis in this section regarding farmlands are based on the Community Impact Assessment (CIA) (July 2015) prepared for this project.

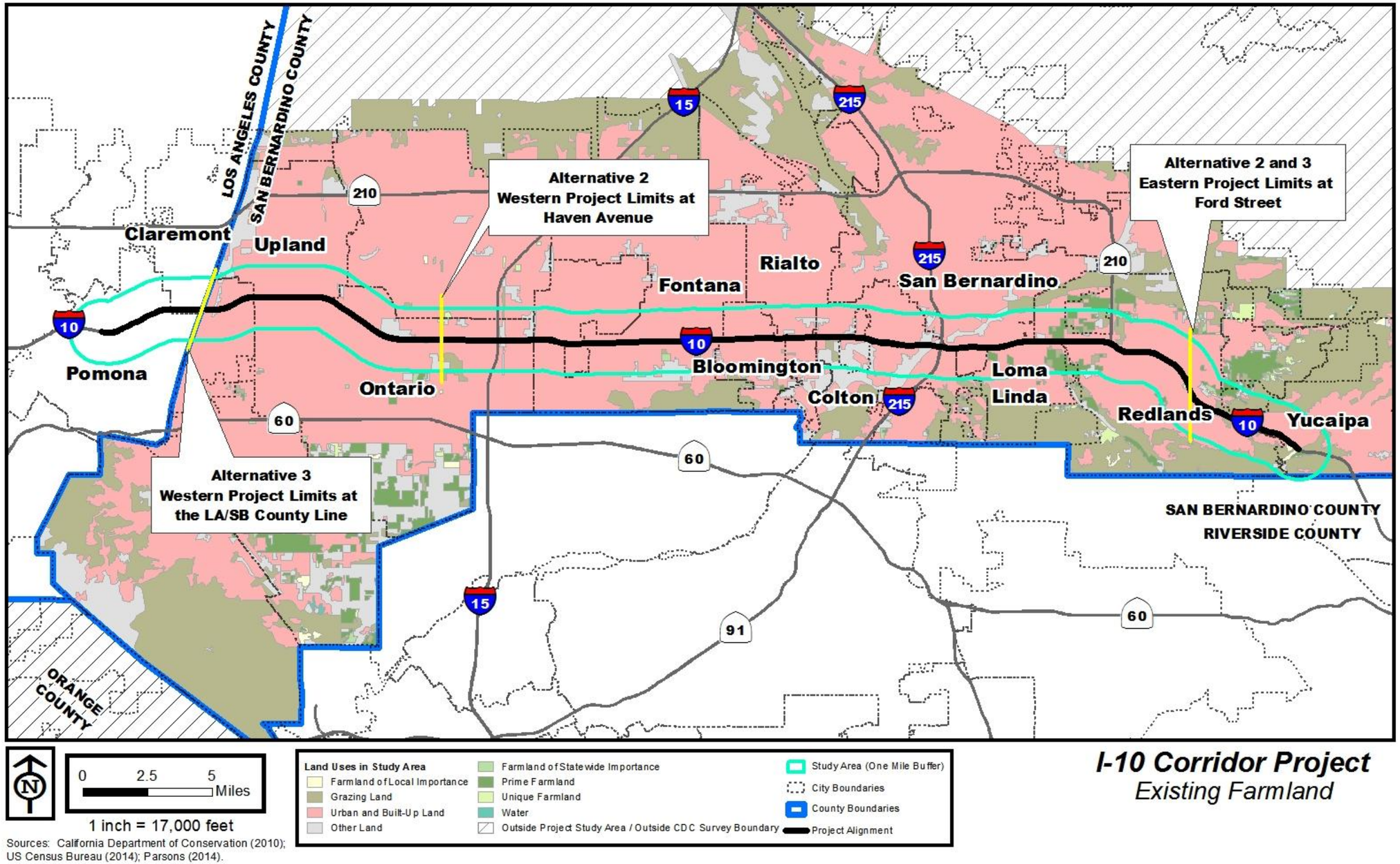
Given that all affected farmland parcels are within 1-mile of I-10, a 1-mile buffer for the farmland resource study area was established (Figure 3.1.3-1).

Farmland Designations and Existing Agricultural Uses

Farmland Mapping and Monitoring Program Agricultural Land Designations

Pursuant to California Government Code, Section 65570, the California DOC Farmland Mapping and Monitoring Program (FMMP) reports biannually on the conversion of farmland and grazing land, and it compiles important farmland maps and datasets for each county in the state. The farmland maps incorporate data from the USDA NRCS soil survey and current county land use information. Maps and statistics are produced every 2 years using a process that integrates aerial photo interpretation, field mapping, computerized mapping, and public review. The FMMP maps and datasets categorize land use into nine different mapping categories to describe farmland and nonagricultural uses, as described below:

1. **Prime Farmland:** Prime Farmland is land that has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
2. **Farmland of Statewide Importance:** Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. It must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
3. **Unique Farmland:** Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance that has been used for the production of specific high-economic-value crops at some time during the 4 years prior to the mapping date. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agriculture use.



Sources: California Department of Conservation (2010); US Census Bureau (2014); Parsons (2014).

Figure 3.1.3-1 Farmland Mitigation and Monitoring Plan Data for the I-10 CP Study Area

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4. **Farmland of Local Importance:** Farmland of Local Importance is either currently producing crops, has the capability of production, or is used for the production of confined livestock. Farmland of Local Importance is land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. This land may be important to the local economy due to its productivity or value. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
5. **Grazing Land:** Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock. The minimum mapping unit for Grazing Land is 40 acres. Grazing Land does not include land previously designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. It also does not include heavily brushed, timbered, excessively steep, or rocky lands that restrict the access and movement of livestock, rural residential land, or publicly owned land for which there is an adopted policy preventing agricultural use.
6. **Urban and Built-Up Land:** Urban and Built-Up Land is used for residential, industrial, commercial, construction, institutional, public administrative process, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of Urban and Built-Up Land if they are part of the surrounding urban area.
7. **Other Land:** Land that does not meet the criteria of any other category is designated as Other Land. Typical uses include low-density rural development, heavily forested land, mined land, or government land with restrictions on use.
8. **Water:** Water areas with an extent of at least 40 acres are designated Water.
9. **Area Not Mapped:** Areas that fall outside of the NRCS soil survey are designated Area Not Mapped.

Existing Agricultural Uses

In general, agricultural production in the study area is limited due to continued and proposed conversion of remaining farmlands along I-10 to nonagricultural uses. According to annual Crop Reports prepared by the San Bernardino County Department of Agriculture/Weights and Measures, the total value of production in the county dropped from approximately $520 million in 2011 to $386 million in 2013, representing a 32 percent decline. Much of the change in the total value of production was due to a continued decline in the dairy industry, which constituted approximately 60 percent of production as of 2013. From 2011 to 2013, dairy production in San Bernardino County dropped by 24 percent, from $306 million in 2011 to $232 million in 2013.

There are FMMP mapped farmlands in the study area in the cities of Colton, Fontana, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Yucaipa, and unincorporated sections of San Bernardino County. Figure 3.1.3-1 shows the locations of these mapped farmlands. Table 3.1.3-1 summarizes the amount of farmland within the study area by each of the FMMP land mapping categories. A total of 4,437.23 acres (8.28 percent) of the project study area is designated as farmland according to the DOC FMMP maps; whereas 49,177.22 acres (91.72 percent) of the study area are categorized as nonagricultural lands by the FMMP.

Table 3.1.3-1 I-10 CP Study Area Farmland Acres by Land Category

Land Mapping Category	Total Acres within the Study Area	% of Total Study Area Acres
Agricultural Lands		
Prime Farmland	1,099.92	2.10
Farmland of Statewide Importance	131.37	0.20
Unique Farmland	83.77	0.20
Farmland of Local Importance	0.50	0.00
Grazing Land	3,121.67	5.80
Nonagricultural Lands		
Urban and Built-Up Land	40,601.02	75.70
Other Land	3,240.43	6.00
Outside of Survey Boundary/Data Not Available	5,335.77	10.00
Total Agricultural Lands	**4,437.23**	**-**
Total Nonagricultural Lands	**49,177.22**	**-**
Total Acres within the Study Area	**53,614.45**	**-**

Source: Farmland Mapping and Monitoring Program, State of California DOC, 2010.

In addition to FMMP farmlands, there are many existing citrus groves, which are zoned as different land uses but are not identified as farmlands in the FMMP data, along I-10 in Redlands.

According to the latest California DOC Land Conservation Maps, Geographic Information System (GIS) datasets, and Farmland Conversion Reports, there are no parcels with Williamson Act contracts or agricultural preserves located within the proposed project study area.

3.1.3.3 Environmental Consequences

Permanent Impacts

No Build Alternative

The No Build Alternative would maintain the current configuration of I-10 in the study area. Under the No Build Alternative, the project would not be constructed; therefore, no impacts to farmland would occur.

Alternative 2

Conversion of Designated Farmland

No conversion of designated farmland or other permanent impacts to existing farmland would occur as a result of Alternative 2.

Agricultural Preserves, Williamson Act Contract Lands, and Timberlands

There are no agricultural preserves, Williamson Act Contract lands, or timberlands in the study area; therefore, Alternative 2 would result in no permanent impacts to these lands.

Alternative 3

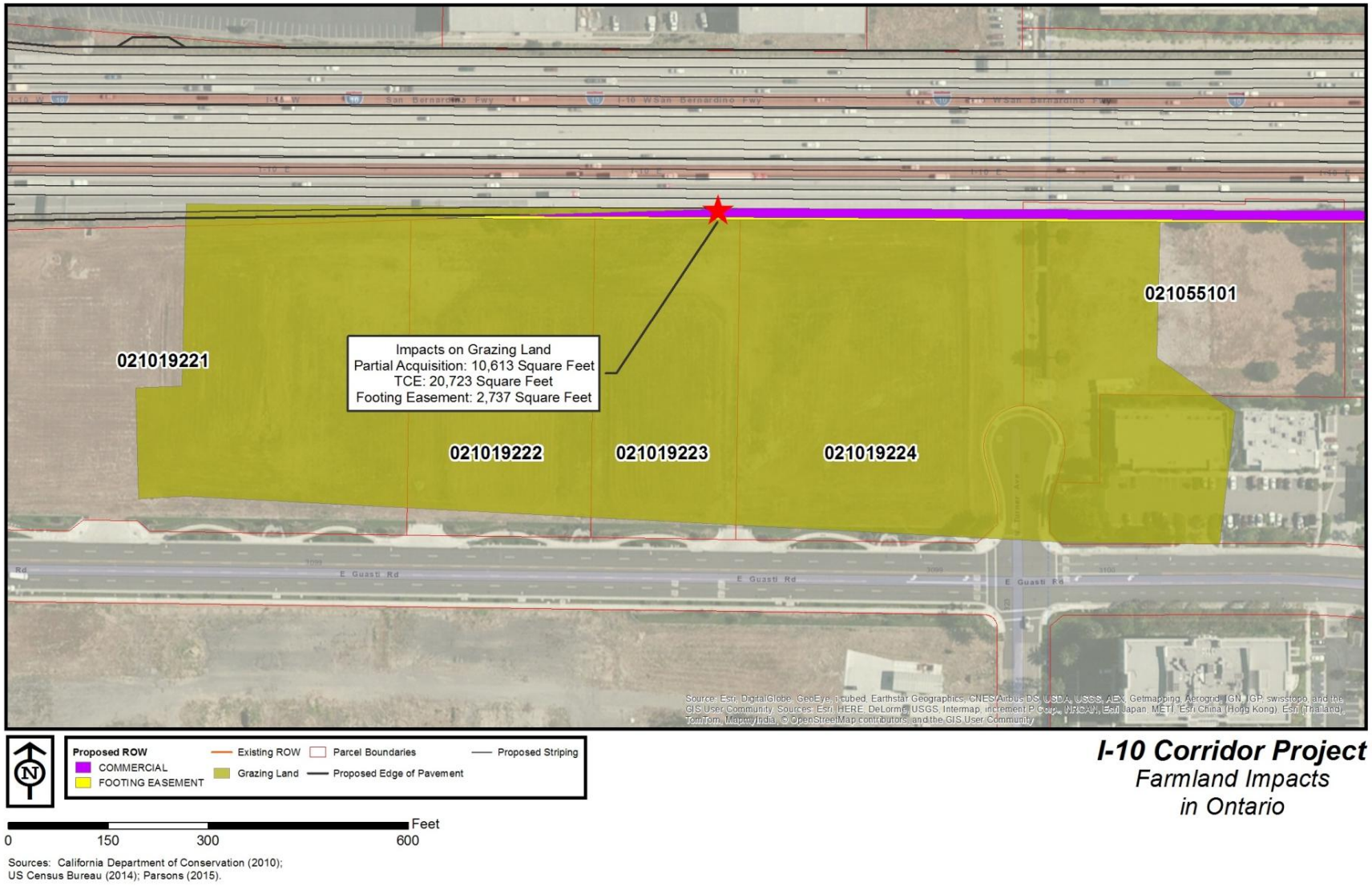
A summary of potential impacts to farmlands that would result from construction and operation of Alternative 3 is provided in Table 3.1.3-2. Figures 3.1.3-2 and 3.1.3-3 show the affected FMMP-designated parcels in Ontario and Redlands. Detailed information on potential impacts at each parcel is provided below. Coordination with the NRCS was conducted in March 2015; Figure 3.1.3-4 shows the results of the coordination.

Table 3.1.3-2 Summary of Potential Impacts to Farmlands under Alternative 3

APN	City	FMMP Designation	Partial Acquisition (Square Feet)	Permanent Footing Easement (Square Feet)	Temporary Construction Easement (Square Feet)
021-019-221	Ontario	Grazing Land	0	0	3,498
021-019-222	Ontario	Grazing Land	300	405	3,236
021-019-223	Ontario	Grazing Land	1,450	453	2,715
021-019-224	Ontario	Grazing Land	4,056	880	5,282
021-055-101	Ontario	Grazing Land	4,807	999	5,992
029-203-313	Redlands	Prime Farmland	379	0	9,501
029-203-314	Redlands	Prime Farmland	0	64	4,120
029-206-402	Redlands	None*	41	0	2,581
		TOTAL	**11,033**	**2,801**	**36,925**

*Zoned as commercial in the City of Redlands Zoning Ordinance.

Source: I-10 Corridor ROW data, 2015.



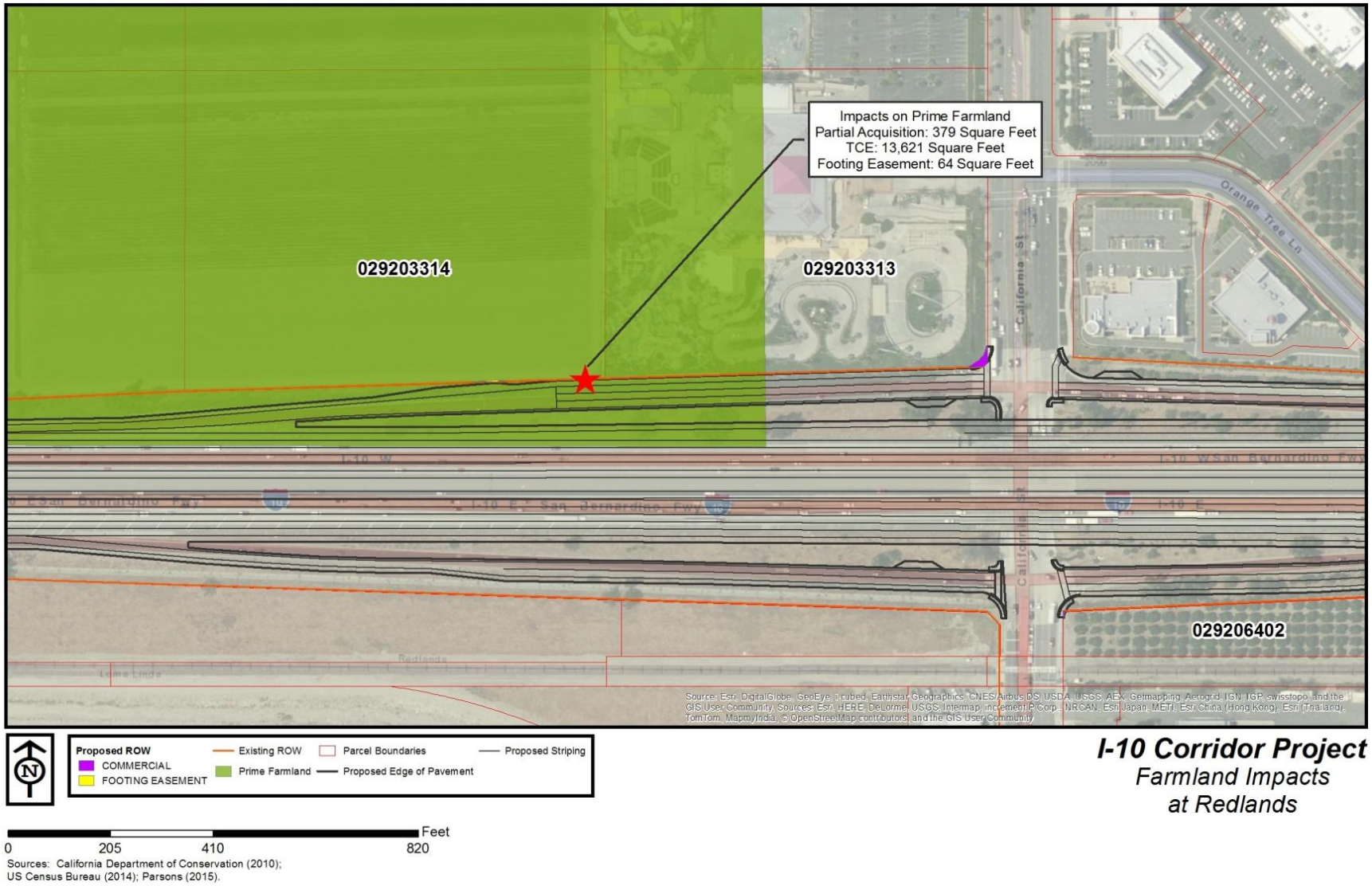
Proposed ROW
COMMERCIAL
FOOTING EASEMENT
Existing ROW
Grazing Land
Parcel Boundaries
Proposed Edge of Pavement
Proposed Striping

Feet
0 150 300 600

Sources: California Department of Conservation (2010); US Census Bureau (2014); Parsons (2015).

I-10 Corridor Project
Farmland Impacts in Ontario

Figure 3.1.3-2 Farmland Impacts in Ontario



Proposed ROW
COMMERCIAL
FOOTING EASEMENT
Existing ROW
Prime Farmland
Parcel Boundaries
Proposed Edge of Pavement
Proposed Striping

0 205 410 820 Feet

Sources: California Department of Conservation (2010); US Census Bureau (2014); Parsons (2015).

I-10 Corridor Project
Farmland Impacts at Redlands

Figure 3.1.3-3 Farmland Impacts in Redlands

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 3/13/15	4. Sheet 1 of 1
1. Name of Project **Interstate 10 Corridor Project**	5. Federal Agency Involved **Federal Highway Administration (FHWA)**	
2. Type of Project **Transportation**	6. County and State **San Bernardino County, CA**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 3/13/15	2. Person Completing Form Kim Lary
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated 40,961 / Average Farm Size 635
5. Major Crop(s) **Citrus, avocados, apples, and strawberries**	6. Farmable Land in Government Jurisdiction Acres: 58,141 % 0.4	7. Amount of Farmland As Defined in FPPA Acres: 39,925 % 0.31
8. Name Of Land Evaluation System Used **CA Revised Storie Index**	9. Name of Local Site Assessment System **San Bernardino County LESA system**	10. Date Land Evaluation Returned by NRCS 3/24/15

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		0.000	0.000	0.253	
B. Total Acres To Be Converted Indirectly, Or To Receive Services		0.000	0.000	0.000	
C. Total Acres In Corridor			0.2	26.3	
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		0	0.00	4.7	
B. Total Acres Statewide And Local Important Farmland		0	0.2	15	
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0	0.00000344	0.00045	
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		0	0.00000344	0.00045	
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*			5	5	
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	0	0	0	
2. Perimeter in Nonurban Use	10	0	0	0	
3. Percent Of Corridor Being Farmed	20	0	0	0	
4. Protection Provided By State And Local Government	20	0	0	0	
5. Size of Present Farm Unit Compared To Average	10	0	0	0	
6. Creation Of Nonfarmable Farmland	25	0	0	0	
7. Availablility Of Farm Support Services	5	0	0	5	
8. On-Farm Investments	20	0	0	15	
9. Effects Of Conversion On Farm Support Services	25	0	0	0	
10. Compatibility With Existing Agricultural Use	10	0	0	1	
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	21	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	0	5	5	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	21	0
TOTAL POINTS *(Total of above 2 lines)*	260	0	5	26	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☑

5. Reason For Selection:

Signature of Person Completing this Part: DATE 10-22-2015

NOTE: Complete a form for each segment with more than one Alternate Corridor

Figure 3.1.3-4 Farmland Conversion Impact Rating Form (NRCS CPA-106)

Conversion of Designated Farmland

Designated Grazing Land in Ontario: It is anticipated that 2,737 square feet of permanent underground footing easements and 10,613 square feet of partial acquisitions would be required from four of the five adjacent parcels located in Ontario. Although the four parcels are designated as Grazing Land in the FMMP dataset, the land is not currently occupied by any grazing animals, and there is no sign that any of the parcels have been used for grazing or other agricultural purposes in recent years. In addition, those parcels are currently zoned for office/commercial uses in the Guasti Plaza Specific Plan Land Use Map, adopted by the City of Ontario in May 2011. The footing easement and partial acquisition would not inhibit use of the parcel for future agricultural purposes. After installation of the footings, temporarily disturbed portions of the site would be restored to pre-project conditions. No adverse permanent impacts to these designated grazing lands are anticipated. Temporarily disturbed portions of the site would also be restored to pre-project conditions.

Designated Prime Farmland in Redlands: A 64-square-foot permanent underground footing easement for a proposed retaining wall would be required at Assessor's Parcel Number (APN) 029-203-314 located in Redlands. The parcel is identified in the FMMP dataset as Prime Farmland and is actively used for the production of row crops. The permanent underground footings would occur well below the root line of the traditional row crops that are cultivated at the site. Given that the footing easement would not change ownership of the parcel, inhibit or limit use of the site for agricultural purposes, or otherwise permanently convert the site to nonagricultural use, no permanent impacts at this site are anticipated.

The footing easement needed on APN 029-203-314 would not inhibit use of the parcel for future agricultural purposes. After installation of the footings, temporarily disturbed portions of the site would be restored to pre-project conditions. No adverse permanent impacts to these designated prime farmlands are anticipated.

The 379-square-foot partial acquisition of APN 029-203-314 and footing easement for APN 029-203-313 required for the project would not inhibit use of the remaining portion of the parcels for future agricultural purposes.

California Street Citrus Grove in Redlands: Alternative 3 would result in a partial acquisition of 41 square feet of APN 029-206-402, an existing citrus grove. The parcel and citrus grove are owned and operated by the City of Redlands, and they are located at the southeastern quadrant of the I-10/California Street interchange. Partial

acquisition at this parcel would be required to accommodate a new sidewalk and curb ramp and to support retaining wall construction along the eastbound on-ramp. The 5.08-acre parcel is zoned for commercial use in Redlands, but the parcel is identified as "Developed" in the FMMP dataset. The proposed partial acquisition at this parcel would not result in direct loss of any citrus trees because there are no citrus trees located on the acquired portion of the property. The proposed acquisition would not otherwise inhibit access to or movement within the site; therefore, although a small portion of the site (0.02 percent of the total acreage) would be acquired, the City's current zoning for this parcel would remain the same after project construction.

Agricultural Preserves, Williamson Act Contract Lands, and Timberlands

There are no agricultural preserves, Williamson Act Contract lands, or timberlands in the study area; therefore, Alternative 3 would result in no permanent impacts to these lands.

Temporary/Construction Impacts

No Build Alternative

The No Build Alternative would maintain the current configuration of I-10 in the study area. Under the No Build Alternative, the project would not be constructed; therefore, no impacts to farmland would occur.

Alternative 2

No temporary construction easements (TCEs), footing easements, or other direct temporary construction impacts to existing farmland would occur as a result of Alternative 2. Temporary fugitive dust emissions from grading and exhaust emissions from construction equipment may have an indirect impact on farmlands adjacent to construction areas under Alternative 2. These impacts would be minimized through implementation of the dust control measures described in Measures AQ-1 through AQ-21, which are discussed in Section 3.2.6, Air Quality.

Alternative 3

TCEs needed for Alternative 3 would temporarily affect farmland identified by the FMMP as Grazing and Prime Farmland designations. In addition, a citrus grove owned and operated by the City of Redlands, zoned for commercial use, would also be temporarily affected by a TCE.

Designated Grazing Land in Ontario: It is anticipated that 20,723 square feet of TCEs would be needed from four adjacent parcels to construct a proposed retaining wall. All four parcels are designated as grazing land; however, they are not currently

used for grazing or other agricultural purposes. These parcels have been entitled for development as part of the Guasti Plaza Specific Plan, which designated these four parcels as office/commercial use. The proposed TCEs would be needed for approximately 9 months. The TCEs would be temporary and would not inhibit use of the remaining portion of the site for agricultural purposes. Temporarily disturbed portions of the site would be restored to pre-project conditions. No adverse permanent impacts to these designated grazing lands are anticipated.

Designated Prime Farmland in Redlands: TCEs totaling 13,621 square feet would be required from two parcels for approximately 9 months for a proposed footing and a retaining wall. Measure FARM-1, described in Section 3.1.3.4, has been developed to avoid accidental damage to environmentally sensitive areas (ESAs) identified within these parcels. The site is identified in the FMMP dataset as Prime Farmland; however, plans to build an approximately 1-million-square-foot warehouse on the parcel were approved by the Redlands City Council. Therefore, although this site is designated as prime farmland by the FMMP, no impacts to agricultural activities are anticipated by the proposed TCE at this location. The area used as a TCE would be restored to pre-project conditions once use of the area is complete; therefore, no adverse impacts to these farmland parcels are anticipated.

California Street Citrus Grove in Redlands: A 2,581-square-foot TCE would be needed for a proposed retaining wall, located along the EB on-ramp. No citrus trees would need to be removed to accommodate this work. In addition, access to the site and movement within the site would be maintained during construction and operation.

In addition to farmland areas being used for TCEs, temporary fugitive dust emissions from grading and exhaust emissions from construction equipment may have an indirect impact on farmlands that are adjacent to construction areas under Alternative 3. These impacts would be minimized through implementation of the dust control measures described in Measures AQ-1 through AQ-18, which are discussed in Section 3.2.6, Air Quality.

3.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

FARM-1: ESA fencing will be installed at the limits of construction for all temporarily and permanently impacted farmlands prior to initiating work within or adjacent to these sites. No construction will occur within these ESAs. All construction equipment will be operated in a manner so as to prevent accidental damage to nearby ESAs. No

structure of any kind, or incidental storage of equipment or supplies, will be allowed within the ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of fill material in areas where vegetation is adjacent to planned grading activities.

FARM-2: All existing citrus trees within the proposed partial acquisition and TCE at APN 029-206-402 will be protected in place.

FARM-3: All farmlands temporarily impacted by the project will be restored to pre-project conditions.

FARM-4: Access to all temporarily and permanently impacted farmlands will be maintained during construction and operation.

3.1.4 Community Impacts

This section discusses impacts to the community as a result of implementation of the proposed project. The analysis is based on the results of the Community Impact Assessment (CIA) (October 2015) prepared for this project.

3.1.4.1 Community Character and Cohesion

Community character is all of the attributes, including social and economic characteristics, and assets that make a community unique and that establish a sense of place for its residents. Community cohesion is the degree to which residents have a "sense of belonging" to their neighborhood, a level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, usually because of continued association over time.

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [U.S.C.] 4331[b][2]). The Federal Highway Administration (FHWA) in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

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

Affected Environment

Figures 3.1.4-1 and 3.1.4-2 identify the census tract study area within 0.25 mile from the proposed project for both build alternatives. Alternative 2 consists of 28 census tracts delineated for the 2010 Census. Alternative 3 consists of 57 census tracts delineated for the 2010 Census. The study area includes an area much larger than that directly affected by project construction and right-of-way (ROW) acquisitions, but it

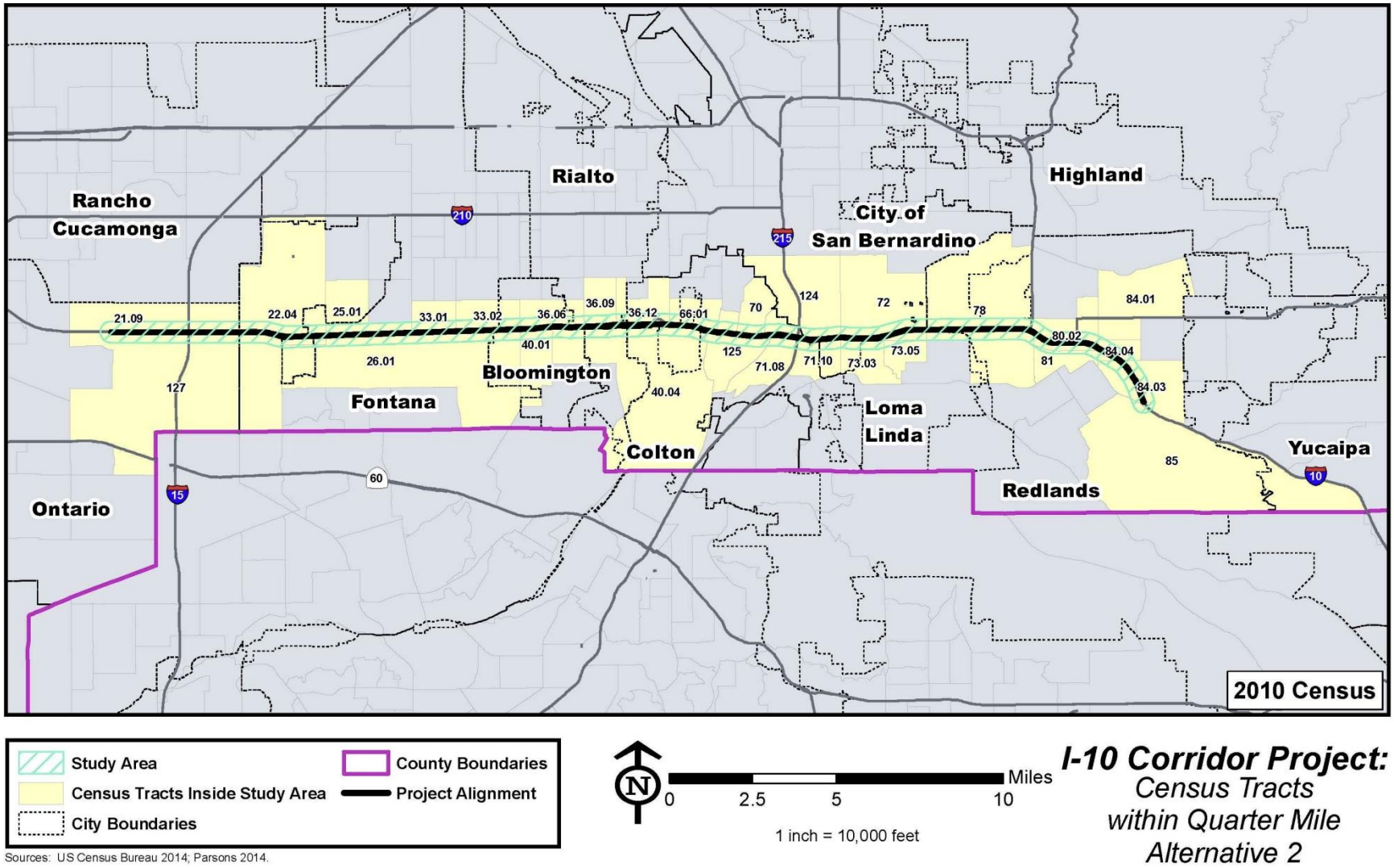
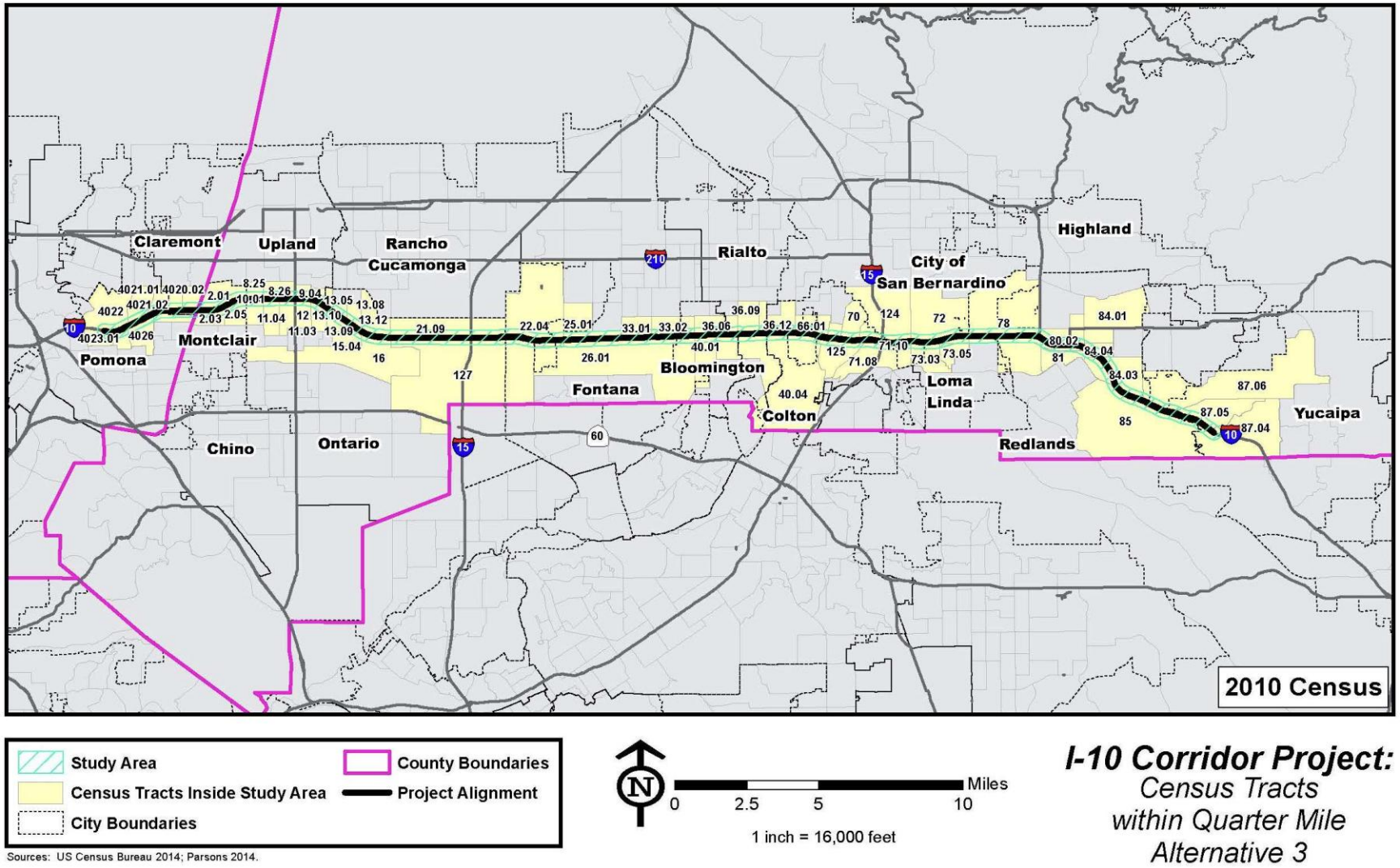


Figure 3.1.4-1 Census Tracts within 0.25 Mile (Alternative 2)



Sources: US Census Bureau 2014; Parsons 2014.

Figure 3.1.4-2. Census Tracts within 0.25 Mile (Alternative 3)

provides a broader picture of the area affected by the project than city and county demographics alone can provide. City and county demographic data were analyzed to present the general population and housing characteristic of the study area. Census tracts are also used to incorporate populations that may not be directly affected by the project but may be indirectly affected by project construction and operation.

Neighborhoods

The following neighborhoods were identified within the study area for the proposed project; neighborhoods for Alternative 2 include any that fall between Ontario and Redlands, as shown in Table 3.1.4-1.[1]

Table 3.1.4-1 Neighborhoods

Neighborhood	Alternative 2	Alternative 3
Pomona		
Arrow Corridor Neighborhood (North of I-10)		X
Lincoln Park Neighborhood (South of I-10)		X
North Pomona Neighborhood (North of I-10)		X
East Pomona Neighborhood (South of I-10)		X
Claremont		
Vista Neighborhood (North of I-10)		X
Oakmont Neighborhood (North of I-10)		X
Claremont South Neighborhood (South of I-10)		X
Montclair		
East Montclair Plaza Neighborhood (North of I-10)		X
San Bernardino Street/Rosewood Street Neighborhood (South of I-10)		X
City Center Neighborhood (South of I-10)		X
Upland		
South of Foothill Neighborhood (North of I-10)		X
North Ontario Neighborhood (North of I-10)		X
Ontario		
North Ontario Neighborhood (North of I-10)	X	X

[1] Neighborhood research retrieved May 16, 2014, from http://www.neighborhoodscout.com/ and http://www.city-data.com/.

Table 3.1.4-1 Neighborhoods

Neighborhood	Alternative 2	Alternative 3
Fontana		
Downtown Fontana Neighborhood (Both North/South of I-10)	X	X
Fontana Gateway Neighborhood (South of I-10)	X	X
Jurupa Industrial Park Neighborhood (Both North/South of I-10)	X	X
Bloomington		
Aqua Mansa Neighborhood (Both North/South of I-10)	X	X
Rialto		
I-10 Corridor Neighborhood (Both North/South of I-10)	X	X
Colton		
Iron Horse Neighborhood (North of I-10)	X	X
West Colton Neighborhood (South of I-10)	X	X
Rana Neighborhood (North of I-10)	X	X
Downtown Neighborhood (North of I-10)	X	X
East Colton Heights Neighborhood (South of I-10)	X	X
San Bernardino		
Ward 3 Neighborhood (Both North/South of I-10)	X	X
North Loma Linda Neighborhood (North of I-10)	X	X
Loma Linda		
Victoria Neighborhood (North of I-10)	X	X
Redlands		
Crown Jewel/Marigold Neighborhood (Both North/South of I-10)	X	X
Colton Avenue/Tennessee Street Neighborhood (Both North/South of I-10)	X	X
University of Redlands Neighborhood (Both North/South of I-10)	X	X
Evergreen Center/Lytle Street Neighborhood (Both North/South of I-10)	X	X
Yucaipa		
Dunlap Acres (North of I-10)		X
Yucaipa Boulevard and 14th Street (North of I-10)		X
5th Place and Avenue H (North of I-10)		X

Source: http://www.neighborhoodscout.com/ and http://www.city-data.com/, 2014.

Pomona

Arrow Corridor Neighborhood (North of I-10). The Arrow Corridor is located west of Damien Avenue, east of Towne Avenue, north of McKinley Avenue, and south of Bonita Avenue, covering 3.7 square miles. This neighborhood is home to a population of 14,302 residents and has a population density of 3,811 people per square mile.

Lincoln Park Neighborhood (South of I-10). The Lincoln Park neighborhood is located west of Towne Avenue, east of Garey Avenue, south of Interstate 10 (I-10), and north of Alvarado Street, covering 0.32 square mile. This neighborhood is home to 4,282 residents and has a population density of 13,255 people per square mile.

North Pomona Neighborhood (North of I-10). The North Pomona neighborhood is located west of Garey Avenue, north of I-10, east of Fairplex Drive, and south of Arrow Highway, covering 6.7 square miles. The neighborhood is home to a population of 37,174 and has a population density of 5,514 people per square mile.

East Pomona Neighborhood (South of I-10). The East Pomona neighborhood is located east of North Towne Avenue, west of Mills Avenue, south of I-10, and north of State route (SR) 60, covering 4.6 square miles. The neighborhood is home to a population of 40,582 residents and has a population density of 8,729 people per square mile.

Claremont

Vista Neighborhood (North of I-10). The Vista neighborhood is located north of Palo Verde Street, south of the Metrolink railroad tracks, west of Indian Hill Boulevard, and east of Mountain Avenue, covering 0.4 square mile. This neighborhood has a population of 2,233 and a population density of 5.3 people per square mile.

Oakmont Neighborhood (North of I-10). The Oakmont neighborhood is located east of Indian Hill Boulevard, west of Mills Avenue, north of Palo Verde Drive, and south of the Metrolink Railroad tracks, covering 0.6 square mile. The neighborhood is home to 3,468 residents and has a population density of 6,264 people per square mile.

Claremont South Neighborhood (South of I-10). The Claremont South neighborhood is located north of San Bernardino Avenue, south of I-10, west of Mills Avenue, and east of Mountain Avenue, covering 0.2 square mile. The neighborhood

is home to 371 residents and has a population density of 2,417 people per square mile.

Montclair

East Montclair Plaza Neighborhood (North of I-10). The East Montclair Plaza neighborhood is located north of I-10, south of Arrow Highway, east of Mills Avenue, and west of Benson Avenue. The neighborhood has a population density of 3,693 people per square mile.

San Bernardino Street/Rosewood Street Neighborhood (South of I-10). The San Bernardino Street/Rosewood Street neighborhood is located south of I-10, north of Benito Street, east of Mills Avenue, and west of Fremont Avenue. The neighborhood has a population density of 7,874 people per square mile.

City Center Neighborhood (South of I-10). The City Center neighborhood is located south of I-10, north of Benito Avenue, east of Fremont Avenue, and west of Benson Avenue. The neighborhood has a population density of 7,563 people per square mile.

Upland

South of Foothill Neighborhood (North of I-10). The South of Foothill neighborhood is located east of Vineyard Avenue, west of Monte Vista Avenue, south of Foothill Avenue, and north of I-10, covering 8.7 square miles. This neighborhood is home to 61,657 residents and has a population density of 7,100 people per square mile.

North Ontario Neighborhood (North of I-10). The North Ontario neighborhood is located south of 9th Street, north of I-10, west of Grove Avenue, and east of Euclid Avenue, covering 0.6 square mile. This neighborhood is home to 4,219 residents and has a population density of 7,158 people per square mile.

Ontario

North Ontario Neighborhood (North of I-10). The North Ontario neighborhood is located south of 9th Street, north of I-10, west of Grove Avenue, and east of Euclid Avenue, covering 0.6 square mile. This neighborhood is home to 4,219 residents and has a population density of 7,158 people per square mile.

Fontana

Downtown Fontana Neighborhood (Both North/South of I-10). The Downtown Fontana neighborhood is located south of Foothill Avenue, north of Jurupa Avenue, west of Alder Avenue, and east of Juniper Avenue, covering 2.9 square miles. This neighborhood is home to 15,942 residents and has a population density of 5,549 people per square mile.

Fontana Gateway Neighborhood (South of I-10). The Fontana Gateway neighborhood is located south of I-10, north of Jurupa Street, west of Mulberry Avenue, and east of Etiwanda Avenue, covering 1.3 square miles. The neighborhood is home to 1,227 residents and has a population density of 915 people per square mile.

Jurupa Industrial Park Neighborhood (Both North/South of I-10). The Jurupa Industrial Park neighborhood is located north of Jurupa Street, west of Catawba Avenue, south of Valley Boulevard, and east of Banana Avenue, covering 2.0 square miles. This neighborhood is home to 5,917 residents and has a population density of 2,921 people per square mile.

Bloomington

Aqua Mansa Neighborhood (Both North/South of I-10). The Aqua Mansa neighborhood is located south of Valley Boulevard, north of SR-60, west of La Cadena Drive, and east of Cedar Avenue, covering 6.5 square miles. This neighborhood is home to 8,049 residents and has a population density of 1,236 people per square mile.

Rialto

I-10 Corridor Neighborhood (Both North/South of I-10). The I-10 Corridor neighborhood is located south of West Randall Avenue, north of West Slover, east of Cedar Avenue, and west of Pepper Avenue, covering 3.2 square miles. This neighborhood is home to 21,562 residents and has a population density of 6,807 people per square mile.

Colton

Iron Horse Neighborhood (North of I-10). The Iron Horse neighborhood is located east of South Riverside Avenue, west of South Rancho, north of I-10, and south of Rialto Avenue, covering 3.7 square miles. This neighborhood is home to 26,913 residents and has a population density of 7,283 people per square mile.

West Colton Neighborhood (South of I-10). The West Colton neighborhood is located east of Riverside Avenue, west of Interstate 215 (I-215), south of I-10, and north of Center Street, covering 6.5 square miles. This neighborhood is home to 9,478 residents and has a population density of 1,454 people per square mile.

Rana Neighborhood (North of I-10). The Rana neighborhood is located north of I-10, south of Foothill Avenue, west of I-215, and east of Pepper Avenue, covering 6.5 square miles. This neighborhood is home to 38,849 residents and has a population density of 6,003 people per square mile.

Downtown Neighborhood (North of I-10). The Downtown neighborhood is located north of I-10, south of Colton Avenue, west of Mount Vernon Avenue, and east of 9th Street, covering 0.32 square mile. This neighborhood is home to 1,771 residents and has a population density of 5,554 people per square mile.

East Colton Heights Neighborhood (South of I-10). The East Colton neighborhood is located south of I-10, north of Barton Road, east of I-215, and west of Waterman Avenue, covering 3.1 square miles. This neighborhood is home to 14,742 residents and has a population density of 4,739 people per square mile.

San Bernardino

Ward 3 Neighborhood (Both North/South of I-10). The Ward 3 neighborhood is located north of Barton Road, south of 5th Street, east of Pepper Avenue, and west of Mountain View Avenue, covering 8.9 square miles. This neighborhood is home to 31,824 residents and has a population density of 3,578 people per square mile.

North Loma Linda Neighborhood (North of I-10). The North Loma Linda neighborhood is located north of I-10, south of Palm Meadow Drive, west of Mountain View Avenue, and east of Tippecanoe Avenue, covering 1.1 square miles. This neighborhood is home to 5,150 residents and has a population density of 4,595 people per square mile.

Loma Linda

Victoria Neighborhood (North of I-10). The Victoria neighborhood is located north of I-10, south of San Bernardino Avenue, east of Richardson Street, and west of Mountain View Avenue, covering 0.3 square mile. This neighborhood is home to 2,082 residents and has a population density of 6,367 people per square mile.

Redlands

Crown Jewel/Marigold Neighborhood (Both North/South of I-10). The Crown Jewel/Marigold neighborhood is located south of the Santa Ana River, north of Barton Road, west of SR-210, and east of Sterling Avenue. The neighborhood has a population density of 776 people per square mile.

Colton Avenue/Tennessee Street Neighborhood (Both North/South of I-10). The Colton Avenue/Tennessee Street neighborhood is located south of San Bernardino Avenue, north of Redlands Boulevard, east of SR-210, and west of Church Street. The neighborhood has a population density of 5,254 people per square mile.

University of Redlands Neighborhood (Both North/South of I-10). The University of Redlands neighborhood is located south of Colton Avenue, north of Citrus Avenue, east of Church Street, and west of Ford Street. This neighborhood has a population density of 5,457 people per square mile.

Evergreen Center/Lytle Street Neighborhood (Both North/South of I-10). The Evergreen Center/Lytle Street neighborhood is located south of Citrus Avenue, north of Redlands Boulevard, east of Redlands Boulevard, and west of Wabash Avenue. The neighborhood has a population density of 2,870 people per square mile.

Yucaipa

Dunlap Acres (North of I-10). The Dunlap Acres neighborhood is located west of Wabash Avenue, north of Yucaipa Boulevard, east of Fremont Street, and south of Mill Creek Road. The neighborhood has a population density of 2,131 people per square mile.

Yucaipa Boulevard and 14th Street (North of I-10). The Yucaipa Boulevard and 14th Street neighborhood is located west of Oak Glen Road, north of I-10, east of Yucaipa Boulevard, and south of Yucaipa Boulevard. The neighborhood has a population density of 2,598 people per square mile.

5th Place and Avenue H (North of I-10). The 5th Place and Avenue H neighborhood is located west of 5th Street, north of I-10, east of Oak Glen Road, and south of Yucaipa Boulevard. The neighborhood has a population density of 3,009 people per square mile.

Demographic Data

Elements of community cohesion can be found in demographic data used to profile communities from the 2000 and 2010 Census. Some specific indicators of community cohesion are as follows (and discussed later in this chapter):

- **Age:** Elderly and stay-at-home parents tend to be more active in their community. They have time to become involved. The transit-dependent population is comprised of the population under age 18 and age 65 and older.
- **Ethnicity:** Ethnic homogeneity is associated with a higher degree of community cohesion.
- **Household Size:** Households of two or more people tend to correlate with a higher degree of community cohesion.
- **Home Ownership:** Prevalence of owner-occupied units is also associated with a high degree of community cohesion.

Age

Table 3.1.4-2 shows the distribution of the population by age in the state and in the study area cities and counties for 2000 and 2010. Census tract data was also collected for 2010 for both build alternatives. Alternative 3 consists of all census tracts contained within Table 3.1.4-2, while Alternative 2 census tracts are only those that are shaded in gray. According to the U.S. Census Bureau, between 2000 and 2010, the population under 18 years of age decreased for every jurisdiction and the state, as a whole. At the same time, the population between 18 and 64 increased, and for the most part, the population greater than 64 years old increased, with a few exceptions (Bloomington, San Bernardino, Loma Linda, and Yucaipa). Pomona saw the greatest decrease (5.2 percent) among the population less than 18 years, while Rialto saw the greatest increase (4.2 percent) in its population between 18 and 64. Claremont experienced the greatest increase (1.9 percent) in its population greater than 64, while Yucaipa saw the greatest decrease (2.2 percent) in its population greater than 64.

Table 3.1.4-2 Age Distribution

Geography	Year	Total (Percentage)		
		Population < 18	Population 18-64	Population > 64
State				
California	2000	9,249,829 (27.3%)	21,026,161 (62.1%)	3,595,658 (10.6%)
	2010	9,295,040 (25.0%)	23,712,402 (63.6%)	4,246,514 (11.4%)
County				
Los Angeles	2000	2,667,976 (28.0%)	5,924,689 (62.3%)	926,673 (9.7%)
	2010	2,402,208 (24.5%)	6,350,698 (64.6%)	1,065,699 (10.9%)
San Bernardino	2000	552,047 (32.3%)	1,010,928 (59.1%)	146,459 (8.6%)
	2010	594,588 (29.2%)	1,259,274 (61.9%)	181,348 (8.9%)
City/Community				
Pomona	2000	51,742 (34.6%)	88,180 (59.0%)	9,551 (6.4%)
	2010	43,853 (29.4%)	93,835 (63.0%)	11,370 (7.6%)
Claremont	2000	7,031 (20.7%)	22,001 (64.7%)	4,966 (14.6%)
	2010	6,459 (18.5%)	22,697 (65.0%)	5,770 (16.5%)
Montclair	2000	10,948 (33.1%)	19,345 (58.6%)	2,756 (8.3%)
	2010	10,756 (29.3%)	22,825 (62.3%)	3,083 (8.4%)
Upland	2000	18,699 (27.3%)	42,336 (61.9%)	7,358 (10.8%)
	2010	18,091 (24.5%)	46,743 (63.4%)	8,898 (12.1%)
Ontario	2000	54,304 (34.4%)	94,381 (59.7%)	9,322 (5.9%)
	2010	49,443 (30.2%)	103,427 (63.1%)	11,054 (6.7%)
Fontana	2000	48,794 (37.8%)	74,022 (57.5%)	6,113 (4.7%)
	2010	64,521 (32.9%)	120,464 (61.4%)	11,084 (5.7%)
Bloomington	2000	7,033 (36.4%)	10,840 (56.1%)	1,445 (7.5%)
	2010	8,013 (33.6%)	14,273 (59.8%)	1,565 (6.6%)
Rialto	2000	34,626 (37.7%)	51,335 (55.9%)	5,912 (6.4%)
	2010	32,604 (32.9%)	59,661 (60.1%)	6,906 (7.0%)
Colton	2000	16,655 (34.9%)	27,954 (58.7%)	3,053 (6.4%)
	2010	16,671 (32.0%)	31,820 (61.0%)	3,663 (7.0%)
San Bernardino	2000	65,180 (35.2%)	104,955 (56.6%)	15,266 (8.2%)
	2010	67,238 (32.0%)	126,152 (60.1%)	16,534 (7.9%)
Loma Linda	2000	4,100 (21.9%)	11,696 (62.7%)	2,885 (15.4%)
	2010	4,859 (20.9%)	15,161(65.2%)	3,241 (13.9%)
Redlands	2000	16,651 (26.2%)	38,959 (61.2%)	7,981 (12.6%)
	2010	16,273 (23.7%)	43,496 (63.2%)	8,978 (13.1%)
Yucaipa	2000	11,762 (28.5%)	23,070 (56.0%)	6,375 (15.5%)
	2010	13,444 (26.2%)	31,089 (60.5%)	6,834 (13.3%)

*Alternative 2 study area includes all shaded jurisdictions. Alternative 3 study area includes all jurisdictions included in the table.

Source: U.S. Census, 2000, 2010.

The CIA (2015) collected data for 57 census tracts within the project study area. According to data collected for these census tracts, the 18-64 age range contained most of the population within the study area, ranging from 57.3 of the population to 74.1 percent. The census tract with the lowest percentage of people in this age range was located in Colton (Tract 125), and the tract with the highest percentage was in Ontario (Tract 21.09). This same census tract had the lowest percentage of the elderly population along the proposed corridor (2.1 percent). The census tract with the highest percentage of elderly population was Tract 85 in Redlands. The youth population (younger than 18 years) percentage is concentrated between 20.4 percent in Loma Linda and 35.4 percent in Ontario. Please see Table 4-3 in the CIA for age distribution within census tracts included in the study area.

Ethnicity

Table 3.1.4-3 shows the ethnic composition of the study area counties and cities for 2000 and 2010. Census tract data was also collected for 2010 for both build alternatives. Based on the 2010 Census, the largest racial category in San Bernardino County and the study area cities was Hispanic or Latino. For several of the cities, the White racial category was the larger percentage, including Claremont, Upland, Loma Linda, Redlands, and Yucaipa.

For all jurisdictions located within the study area, the White racial category decreased between 2000 and 2010 and the Hispanic or Latino category increased during the same time. Between 2000 and 2010, Rialto and Bloomington experienced the greatest increase in the Hispanic or Latino population, at approximately 16 percent. Overall, Los Angeles County experienced the least amount of change in its ethnic composition of all the jurisdictions that were analyzed, with an approximately 3.1 percentage increase in its Hispanic or Latino population and a 3.3 percentage decrease in the White population.

As noted above for San Bernardino County, the Hispanic or Latino racial category contained the largest proportion of the population along the proposed project corridor in 2010. The census tract with the highest percentage of the Hispanic or Latino population was in Ontario at 91.1 percent. The census tract with the highest percentage of the white population was located in Redlands at 75.6 percent, while that same census tract (85) had the lowest percentage of the Hispanic or Latino population (12.4 percent). The black population throughout the corridor had a wide percentile range from less than 1 percent in Ontario (Tract 16) to almost 26 percent in Colton (Tract 71.08). The Asian population also had a wide range in population percentages

Table 3.1.4-3 Ethnic Composition

Geography	Year	Total (Percentage)							
		White	Black	American Indian/ Native Alaskan	Asian	Hawaiian/ Pacific Islanders	Other	Two or More Races	Hispanic or Latino
County									
Los Angeles	2000	2,959,614 (31.1%)	901,472 (9.5%)	25,609 (0.3%)	1,124,569 (11.8%)	23,265 (0.2%)	19,935 (0.2%)	222,661 (2.3%)	4,242,213 (44.6%)
	2010	2,728,321 (27.8%)	815,086 (8.3%)	18,886 (0.2%)	1,325,671 (13.5%)	22,464 (0.2%)	25,367 (0.3%)	194,921 (2.0%)	4,687,889 (47.7%)
San Bernardino	2000	752,222 (44.0%)	150,201 (8.8%)	9,804 (0.6%)	78,154 (4.6%)	4,387 (0.3%)	3,039 (0.2%)	42,240 (2.5%)	669,387 (39.2%)
	2010	677,598 (33.3%)	170,700 (8.4%)	8,523 (0.4%)	123,978 (6.1%)	5,845 (0.3%)	4,055 (0.2%)	43,366 (2.1%)	1,001,145 (49.2%)
City/Community									
Pomona	2000	25,348 (17.0%)	13,834 (9.3%)	505 (0.3%)	10,518 (7.0%)	247 (0.2%)	183 (0.1%)	2,468 (1.7%)	96,370 (64.5%)
	2010	18,672 (12.5%)	10,107 (6.8%)	320 (0.2%)	12,303 (8.3%)	240 (0.2%)	282 (0.2%)	1,999 (1.3%)	105,135 (70.5%)
Claremont	2000	22,098 (65.0%)	1,642 (4.8%)	81 (0.2%)	3,851 (11.3%)	44 (0.1%)	87 (0.3%)	974 (2.9%)	5,221 (15.4%)
	2010	20,568 (58.9%)	1,560 (4.5%)	80 (0.2%)	4,500 (12.9%)	35 (0.1%)	71 (0.2%)	1,193 (3.4%)	6,919 (19.8%)
Montclair	2000	7,784 (23.6%)	1,986 (6.0%)	124 (0.4%)	2,641 (8.0%)	84 (0.3%)	37 (0.1%)	570 (1.7%)	19,823 (60.0%)
	2010	5,293 (14.4%)	1,702 (4.6%)	93 (0.3%)	3,275 (8.9%)	60 (0.2%)	63 (0.2%)	434 (1.2%)	25,744 (70.2%)
Upland	2000	37,456 (54.8%)	4,990 (7.3%)	238 (0.3%)	4,866 (7.1%)	83 (0.1%)	104 (0.2%)	1,826 (2.7%)	18,830 (27.5%)
	2010	32,564 (44.2%)	5,031 (6.8%)	184 (0.2%)	6,057 (8.2%)	134 (0.2%)	149 (0.2%)	1,578 (2.1%)	28,035 (38.0%)

Table 3.1.4-3 Ethnic Composition

Geography	Year	Total (Percentage)							
		White	Black	American Indian/ Native Alaskan	Asian	Hawaiian/ Pacific Islanders	Other	Two or More Races	Hispanic or Latino
Ontario	2000	42,048 (26.6%)	11,317 (7.2%)	475 (0.3%)	5,914 (3.7%)	519 (0.3%)	284 (0.2%)	2,840 (1.8%)	94,610 (59.9%)
	2010	29,898 (18.2%)	9,598 (5.9%)	361 (0.2%)	8,078 (4.9%)	448 (0.3%)	386 (0.2%)	2,070 (1.3%)	113,085 (69.0%)
Fontana	2000	30,865 (23.9%)	14,629 (11.3%)	458 (0.4%)	5,398 (4.2%)	351 (0.3%)	197 (0.2%)	2,607 (2.0%)	74,424 (57.7%)
	2010	30,279 (15.4%)	18,157 (9.3%)	454 (0.2%)	12,456 (6.4%)	474 (0.2%)	338 (0.2%)	2,954 (1.5%)	130,957 (66.8%)
Bloomington	2000	5,581 (28.9%)	736 (3.8%)	115 (0.6%)	192 (1.0%)	28 (0.1%)	9 (<0.0%)	221 (1.1%)	12,436 (64.4%)
	2010	3,369 (14.1%)	555 (2.3%)	70 (0.3%)	283 (1.2%)	39 (0.2%)	27 (0.1%)	182 (0.8%)	19,326 (81.0%)
Rialto	2000	19,713 (21.5%)	19,954 (21.7%)	370 (0.4%)	2,162 (2.4%)	341 (0.4%)	194 (0.2%)	2,089 (2.3%)	47,050 (51.2%)
	2010	12,475 (12.6%)	15,457 (15.6%)	237 (0.2%)	2,037 (2.1%)	313 (0.3%)	186 (0.2%)	1,428 (1.4%)	67,038 (67.6%)
Colton	2000	9,911 (20.8%)	5,031 (10.6%)	224 (0.5%)	2,474 (5.2%)	69 (0.1%)	69 (0.1%)	950 (2.0%)	28,934 (60.7%)
	2010	6,803 (13.0%)	4,648 (8.9%)	126 (0.2%)	2,430 (4.7%)	136 (0.3%)	100 (0.2%)	872 (1.7%)	37,039 (71.0%)
San Bernardino	2000	53,630 (28.9%)	29,654 (16.0%)	1,129 (0.6%)	7,594 (4.1%)	582 (0.3%)	288 (0.2%)	4,502 (2.4%)	88,022 (47.5%)
	2010	39,977 (19.0%)	29,897 (14.2%)	867 (0.4%)	8,027 (3.8%)	704 (0.3%)	361 (0.2%)	4,097 (2.0%)	125,994 (60.0%)

Table 3.1.4-3 Ethnic Composition

Geography	Year	Total (Percentage)							
		White	Black	American Indian/ Native Alaskan	Asian	Hawaiian/ Pacific Islanders	Other	Two or More Races	Hispanic or Latino
Loma Linda	2000	8,799 (47.1%)	1,300 (7.0%)	62 (0.3%)	4,536 (24.3%)	33 (0.2%)	42 (0.2%)	859 (4.6%)	3,050 (16.3%)
	2010	8,600 (37.0%)	1,932 (8.3%)	52 (0.2%)	6,509 (28.0%)	139 (0.6%)	68 (0.3%)	790 (3.4%)	5,171 (22.2%)
Redlands	2000	40,265 (63.3%)	2,625 (4.1%)	336 (0.5%)	3,186 (5.0%)	118 (0.2%)	88 (0.1%)	1,669 (2.6%)	15,304 (24.1%)
	2010	37,103 (54.0%)	3,326 (4.8%)	236 (0.3%)	5,100 (7.4%)	201 (0.3%)	138 (0.2%)	1,833 (2.7%)	20,810 (30.3%)
Yucaipa	2000	31,626 (76.7%)	353 (0.9%)	277 (0.7%)	455 (1.1%)	35 (0.1%)	61 (0.1%)	839 (2.0%)	7,561 (18.3%)
	2010	33,866 (65.9%)	736 (1.4%)	242 (0.5%)	1,358 (2.6%)	62 (0.1%)	86 (0.2%)	1,074 (2.1%)	13,943 (27.1%)

*Alternative 2 study area includes all shaded jurisdictions. Alternative 3 study area includes all jurisdictions included in the table.

Source: U.S. Census, 2000, 2010.

from less than 1 percent to almost 25 percent. In Loma Linda and San Bernardino, there was a high concentration of Asians (Census Tracts 71.10, 72, 73.03, and 73.05). The other racial categories did not represent a large proportion of the population, ranging from zero to 4 percent. Please see Table 4-4 in the CIA (2015) for ethnic composition of each census tract within the study area.

Housing

As shown in Table 3.1.4-4, the affected communities in the I-10 corridor study area have a comparable percentage of owner-occupied and renter-occupied units to the Los Angeles County and San Bernardino County averages. Overall, Los Angeles County has a much larger number of housing units; however, only two of the total jurisdictions located within the study area are located in Los Angeles County. San Bernardino County has more owner-occupied units than Los Angeles County. Yucaipa has the highest proportion of owner-occupied units, at approximately 74 percent. The average household size is smaller in Los Angeles County than San Bernardino County. The cities of Claremont and Loma Linda have the smallest average household size, with approximately 2.6 persons per household. Vacancy rates are highest among the cities of San Bernardino and Loma Linda, at approximately 9 percent.

Based on the CIA (2015) census tract data collected for the study area show the number of housing units within each census tract ranges between 1,000 and 2,000 units; however, 1 tract in Yucaipa (87.06) has a higher number of almost 5,000 housing units. There is generally a high level of occupied units, with all census tracts showing an occupied rate above 87 percent. There is a wide percentile range of owner-occupied units compared to renter-occupied units. In Redlands, Census Tract 85 has the highest percentage of owner-occupied units (92.1 percent), and Census Tract 71.08 in Colton has the highest percentage of renter-occupied units at 91.7 percent. The average household size ranges from 2 to almost 5 people. Census Tract 40.01 in Bloomington had the largest average household size at 4.76 people. Please refer to Table 4-5 in the CIA for housing profile information for each census tract located within the study area.

Table 3.1.4-4 Housing Profile

Geography	Total (Percentage)					
	Total Housing Units	Housing Units, Occupied	Housing Units, Vacant	Owner-Occupied Units	Renter-Occupied Units	Average Household Size
Los Angeles	3,445,076	3,241,204 (94.1%)	203,872 (5.9%)	1,544,749 (47.7%)	1,696,455 (52.3%)	2.98
San Bernardino	699,637	611,618 (87.4%)	88,019 (12.6%)	383,573 (62.7%)	228,045 (37.3%)	3.26
Pomona	40,685	38,477 (94.6%)	2,208 (5.4%)	21,197 (55.1%)	17,280 (44.9%)	3.77
Claremont	12,156	11,608 (95.5%)	548 (4.5%)	7,700 (66.3%)	3,908 (33.7%)	2.57
Montclair	9,911	9,523 (96.1%)	388 (3.9%)	5,683 (59.7%)	3,840 (40.3%)	3.81
Upland	27,355	25,823 (94.4%)	1,532 (5.6%)	14,948 (57.9%)	10,875 (42.1%)	2.83
Ontario	47,449	44,931 (94.7%)	2,518 (5.3%)	24,832 (55.3%)	20,099 (44.7%)	3.63
Fontana	51,857	49,116 (94.7%)	2,741 (5.3%)	33,862 (68.9%)	15,254 (31.1%)	3.98
Bloomington	5,745	5,428 (94.5%)	317 (5.5%)	3,740 (68.9%)	1,688 (31.1%)	4.36
Rialto	27,203	25,202 (92.6%)	2,001 (7.4%)	16,294 (64.7%)	8,908 (35.3%)	3.92
Colton	16,350	14,971 (91.6%)	1,379 (8.4%)	7,766 (51.9%)	7,205 (48.1%)	3.46
San Bernardino	65,401	59,283 (90.6%)	6,118 (9.4%)	29,838 (50.3%)	29,445 (49.7%)	3.42
Loma Linda	9,649	8,764 (90.8%)	885 (9.2%)	3,432 (39.2%)	5,332 (60.8%)	2.56
Redlands	26,634	24,764 (93.0%)	1,870 (7.0%)	15,061 (60.8%)	9,703 (39.2%)	2.68
Yucaipa	19,642	18,231 (92.8%)	1,411 (7.2%)	13,503 (74.1%)	4,728 (25.9%)	2.79

*Alternative 2 study area includes all shaded jurisdictions. Alternative 3 study area includes all jurisdictions included in the table.

Source: U.S. Census, 2010.

Access and Circulation

I-10 is the main east-west transportation and traffic corridor along the southern United States. As a major regional east-west freeway corridor, I-10 is heavily used by travelers between San Bernardino County and Los Angeles County, and it is also a major truck route between southern California and the rest of the nation. As shown in the Traffic Study (2014), I-10 is currently at capacity within the proposed project corridor for many hours of the day, and that condition is expected to worsen significantly during the coming years if more capacity is not added.

Park-and-ride lots are used to encourage carpooling. There are two existing park-and-ride lots located within the project area. There is one in Pomona at 110 East McKinley, which is just east of Garey Avenue, with 112 parking spaces. The second lot is located in Bloomington at 10175 Cedar Avenue and has 20 parking spaces.

The primary components of the pedestrian circulation system are sidewalks and crosswalks. Most of the developed properties adjacent to the study area are improved with sidewalks.

Community Facilities and Services

Many community facilities and services are located in the I-10 corridor study area (Figure 3.1.4-3), including fire protection and emergency medical services, law enforcement, schools, and other public facilities (e.g., libraries, city halls, and post offices) that may be affected as a result of the proposed project. Utilities, fire protection, and emergency services are discussed in further detail in Section 3.1.5, Utilities.

Public Transit

Public transportation options are located throughout the proposed project area, with several lines that run through the proposed project, as identified below. Metrolink is the regional rail system for commuters in the southern California region. The San Bernardino Line runs through the proposed project in Colton. Foothill Transit provides fixed-route bus service to the San Gabriel and Pomona valleys and is governed by a joint powers authority of 22 member cities and the County of Los Angeles. Lines 292, 855, and 480 run through the proposed project area, while Line 699 and the Silver Streak run parallel and adjacent to the project area. Omnitrans is the public transit agency serving the San Bernardino Valley region. This operator carries approximately 16 million passengers each year throughout its service area. In addition to regular bus operations, Omnitrans offers its Access service for individuals

with disabilities. The following Omnitrans bus routes run through the proposed project area: 68, 65, 80, 83, 63, 61, 81, 82, 29, 19, 215, 5, sbX, 2, 8, 15, and 19.

Economic Outlook

This subsection provides a look into the guiding economic forces driving business growth within each jurisdiction along the proposed project corridor.

Los Angeles County. Los Angeles County has the largest county economy in the nation and would be the 21st largest economy in the world if it were a country. The entertainment industry is one of the most visible and important industries in Los Angeles County. Average annual employment in motion picture and sound recording is just over 118,000 jobs. International trade continues to play an important role in the local economy. The San Pedro Bay Ports of Los Angeles and Long Beach are the two busiest container ports in the nation. The professional, scientific, and technical services industry is the fifth largest in Los Angeles County. Firms in these industries employ a wide array of professionals, including architects, engineers, and attorneys. Employment in these sectors stood at 276,800 in 2013, up 3.7 percent from a year earlier. Growth is expected to continue in these sectors over the next 2 years.

San Bernardino County. Small firms comprise most of San Bernardino County's economy, but large firms remained more stable during the downturn. In the 2011-2013 Strategic Plan, the San Bernardino County Workforce Investment Board (WIB) identified the top five sectors that will employ the largest number of residents. These high demand sectors are health care; aviation; transportation and logistics; manufacturing; and green technology.

City of Pomona. Pomona continues to enjoy a broadly based diverse economy, albeit one with an emphasis on government, healthcare, and other service-oriented industries. Among Pomona's large employers are Pomona Unified School District, the City of Pomona itself, California State Polytechnic University, and the Department of Social Services. Notable private-sector employers include First Transit, Hamilton Sundstrand, Hayward Industries, Inland Valley Care and Rehab, Lloyd's Material Supply, Verizon, and Walmart. As a regional healthcare hub, Pomona boasts a premier facility in the Pomona Valley Hospital Medical Center, the Lanterman Developmental Center, and the nonprofit Casa Colina Centers for Rehabilitation.

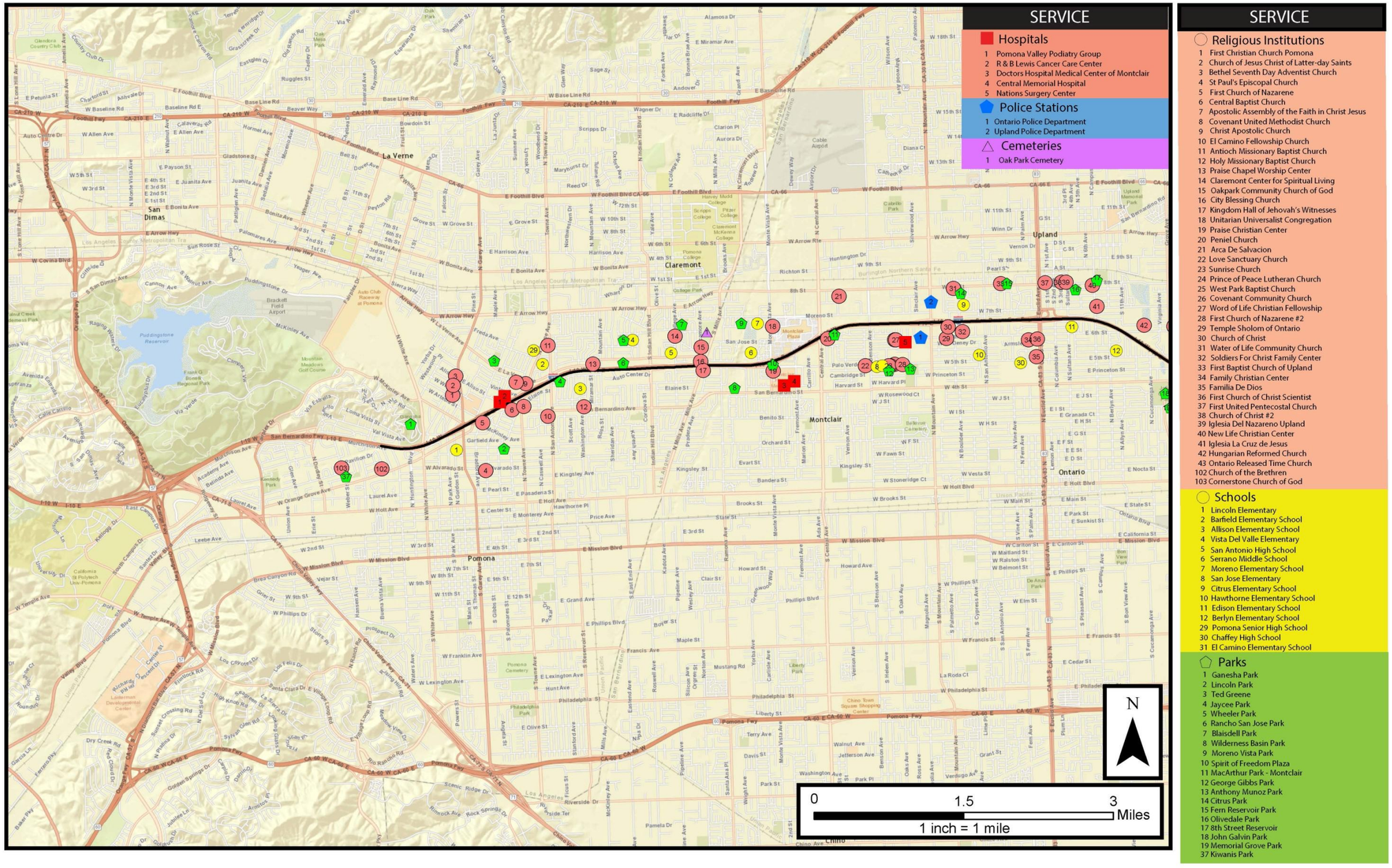


Figure 3.1.4-3 Community Facilities and Services (Sheet 1 of 5)

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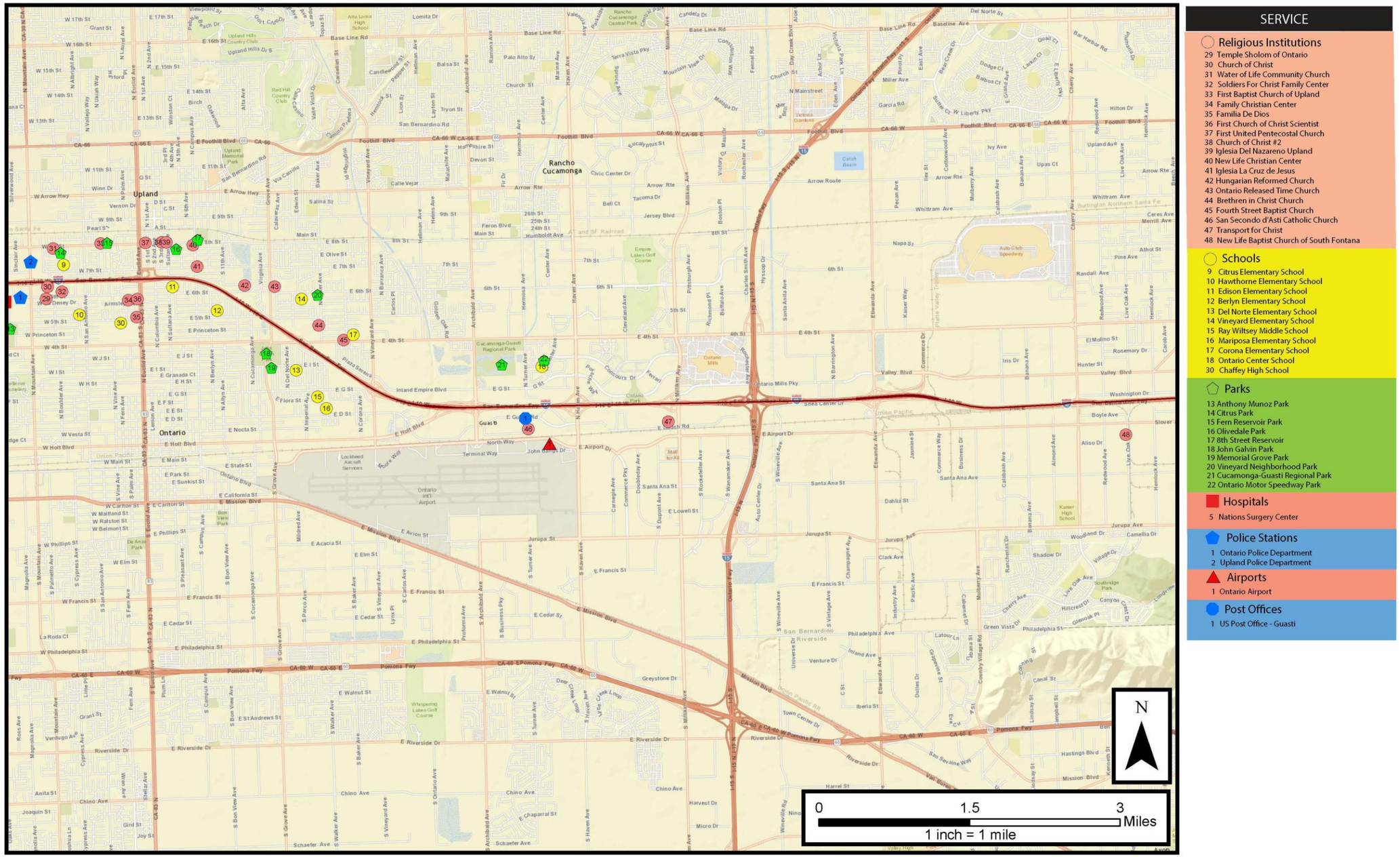

Figure 3.1.4-3 Community Facilities and Services (Sheet 2 of 5)

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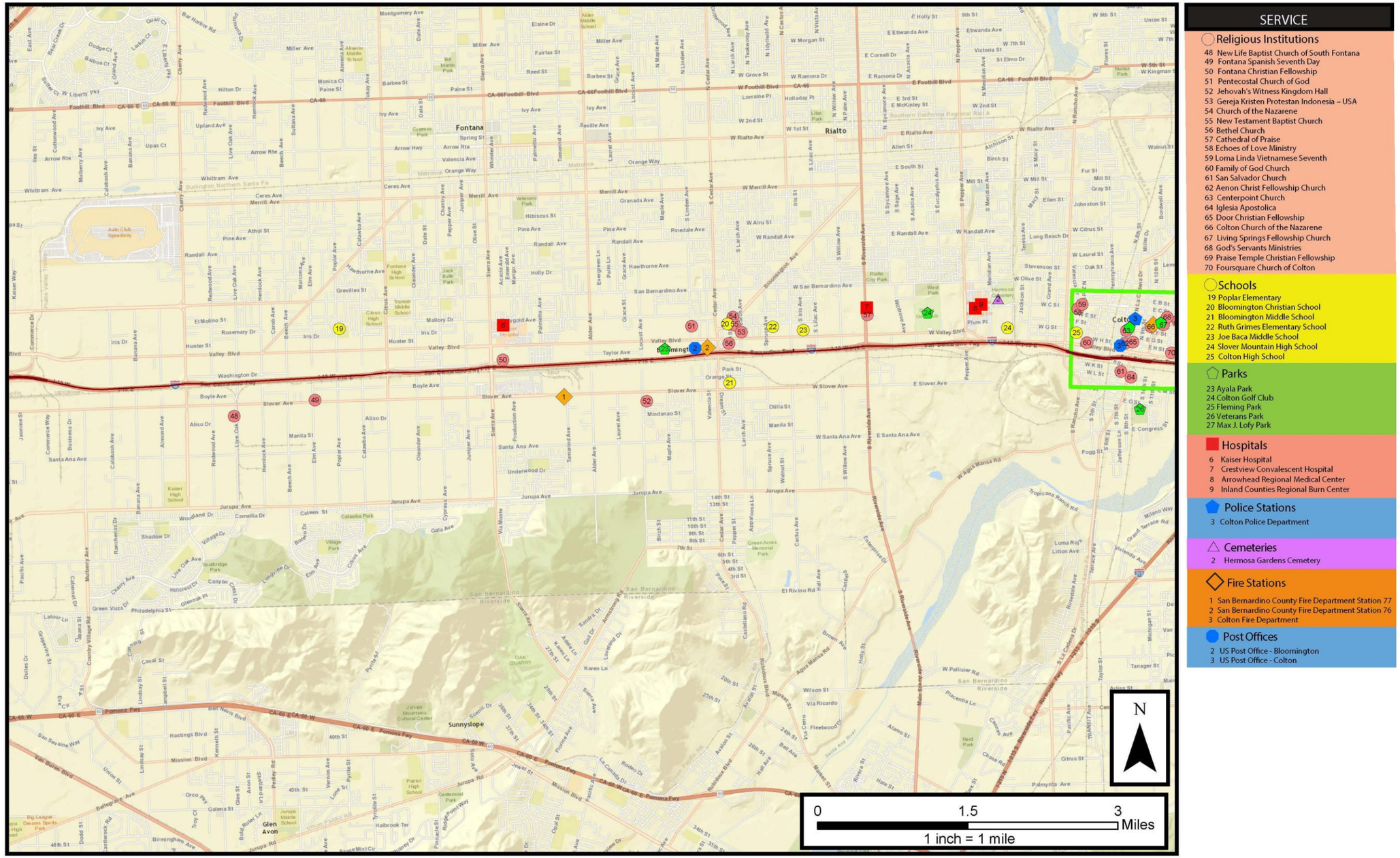

Figure 3.1.4-3 Community Facilities and Services (Sheet 3 of 5)

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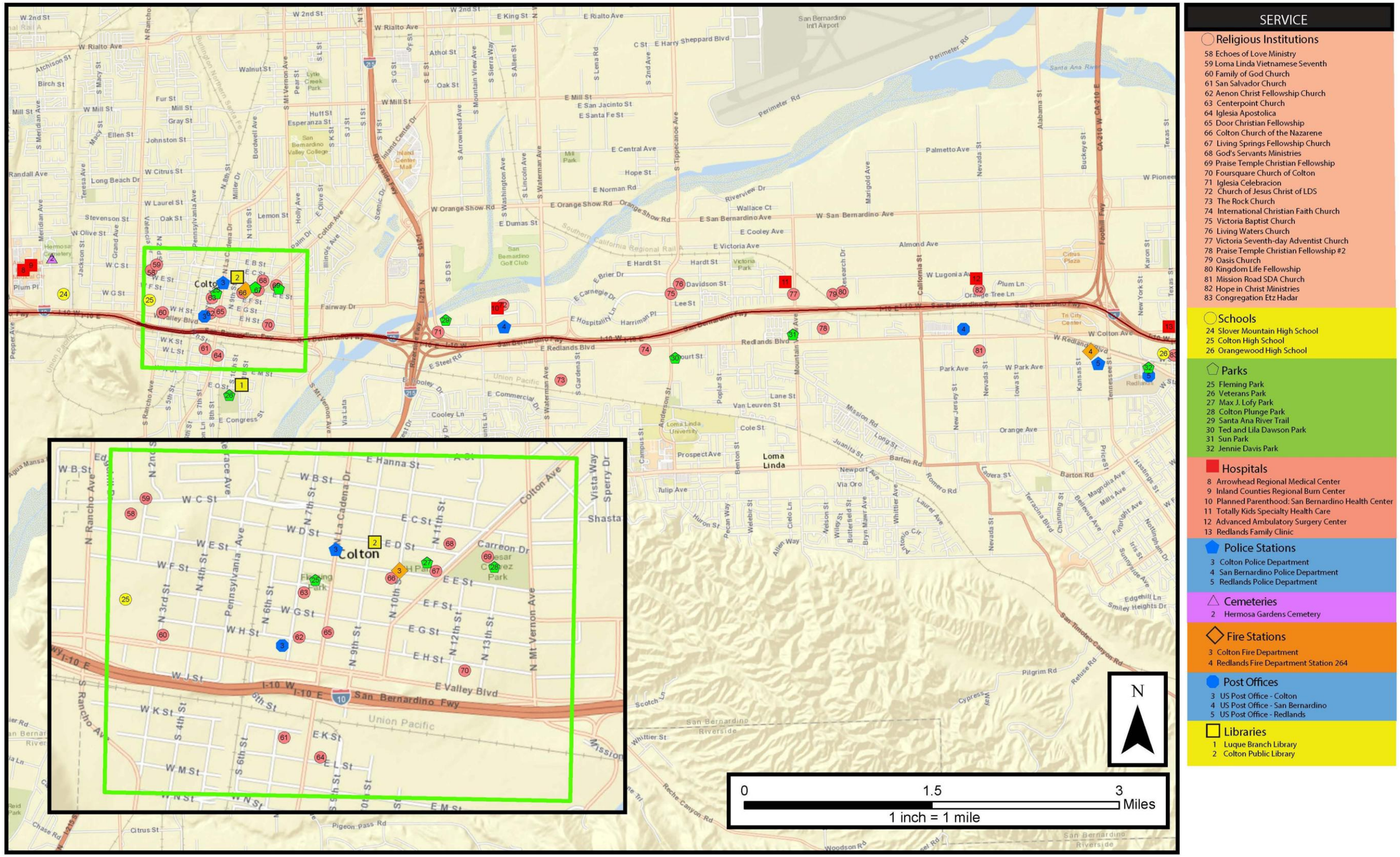

Figure 3.1.4-3 Community Facilities and Services (Sheet 4 of 5)

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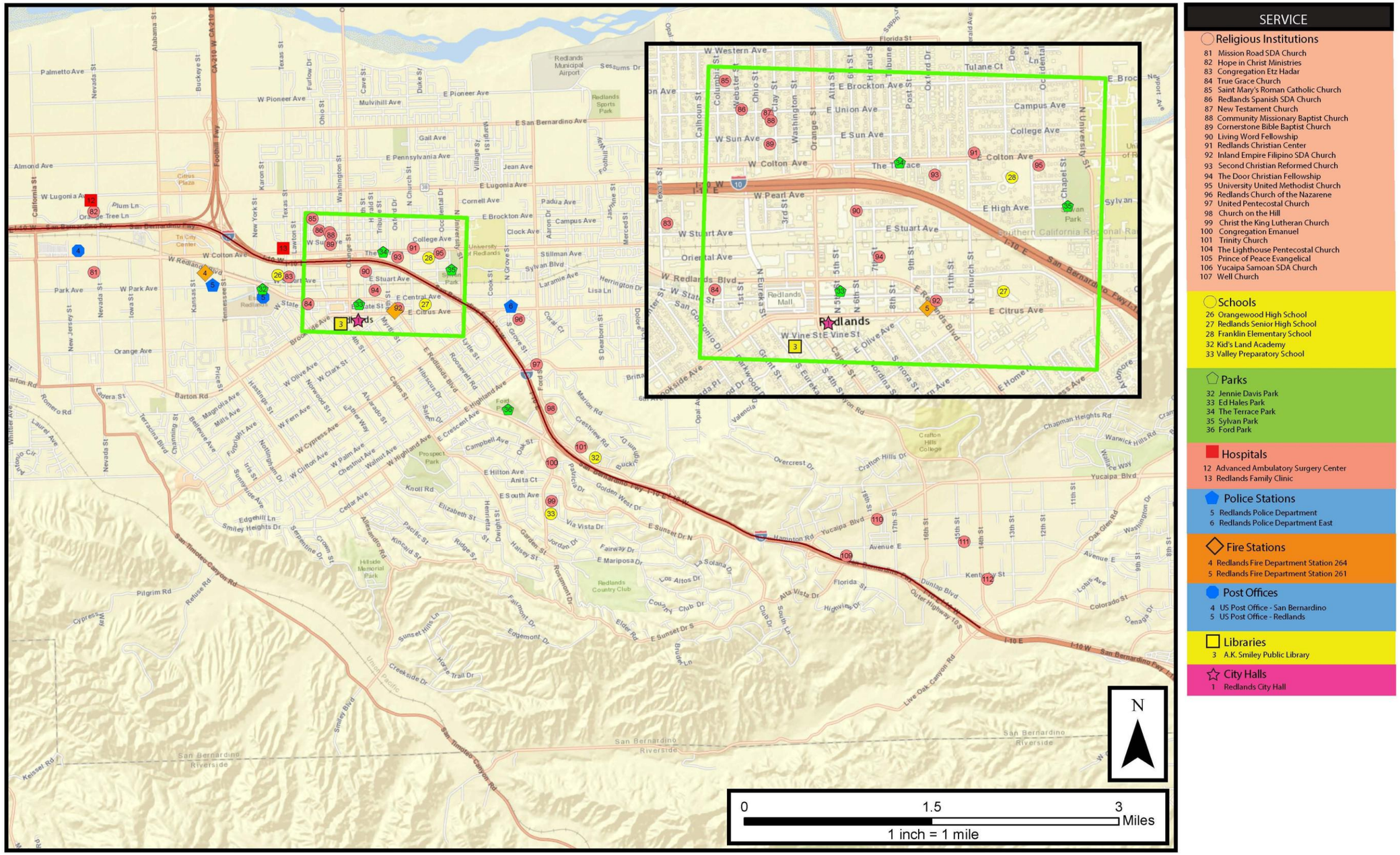

Figure 3.1.4-3 Community Facilities and Services (Sheet 5 of 5)

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City of Claremont. There are 1,555 businesses operating within Claremont, with more than 17,600 employees living in Claremont. Claremont has long been known as a cultural arts center for Pomona Valley. It continues to provide opportunities for a variety of cultural pursuits showcasing local talent, as well as attracting well-known national artists. Major Commercial enterprises located within Claremont include automobile retailers, hotels, restaurants, general retail, and service establishments, as well as several educational institutions. Many major economic development and commercial revitalization projects are currently in progress, with the goal of providing additional venues for entertainment, dining, and shopping. Changes in the economy, particularly in the auto industry, have had a significant effect on Claremont over the past several years. The auto center has lost many dealers, and only Claremont Toyota remains at this location. The loss of revenue related to sales tax from a decrease in auto sales in Claremont and the economic slowdown in general has resulted in the need to reduce expenditures.

City of Montclair. Montclair is home to the regional mall, Montclair Plaza, a 1.3-million-square-foot fashion mall with 4 major anchors and more than 200 specialty stores, plus a dining/entertainment district of top restaurants and retail. Recognized as a major Inland Valley destination, Montclair's job and retail growth continues to increase. The development of new retail, restaurants, and business parks throughout Montclair has contributed to the expansion of local employment.

City of Upland. Upland has also seen some positive movement in its local economy. Development activity has begun again, and there are several new residential developments under construction, causing a slight increase in building permit revenues. Sales tax revenues recently reported an increase of 2 percent over last year, and the opening of new stores in the Colonies will generate new sales tax revenue in the coming fiscal year.

City of Ontario. Ontario is referred to by the Southern California Association of Governments (SCAG) as the “Next Urban Center in Southern California” and the urban core of the Inland Empire. LA/Ontario International Airport is the 15th busiest airport in the nation, as measured by air cargo. Steady growth and rapid development adjacent to the airport, along freeway corridors, and throughout Ontario reflect the city’s distinctive advantages. City records show that Ontario is home to more than 10,000 businesses, which account for approximately 108,000 jobs.

City of Fontana. Fontana has faced a host of difficult problems, ranging from very high unemployment (10.2 percent) to stagnant median income levels and growing poverty levels. Although California's economy is improving in many ways, including employment growth and increases in retail sales and housing sales, the Inland Empire has experienced a rise in poverty as a result of the most recent recession. Wage and salary employment has slowed in the Inland Empire, with an increase of only 0.6 percent over the last year, adding only 7,300 jobs. The job growth has started to return, essentially due to expansion in logistics (28 percent), health care (17 percent), and resumption of construction projects (17 percent). Retail sales are increasing. Taxable sales are a major City revenue source that is now recovering from a steep downturn. Taxable retail sales were up 8.1 percent over the last year within Fontana, which was well above California's growth of 6.8 percent. Fontana is ranked fifth in taxable retail sales in the Inland Empire with sales of $2.5 billion.

Community of Bloomington. See the description above for San Bernardino County.

City of Rialto. Rialto's labor force consists of more than 45,000 people and has a diversified mix of manufacturing, distribution, service, and retail businesses. Rialto is home to a variety of recognizable manufacturing companies, including Angelus Block, Eagle Tile, Tree Top, and Biscomerica. Rialto has also become a logistics hub for many national companies, such as FedEx Ground, Home Depot, Unilever, Staples, Black and Decker, Target, and Toy 'R' Us, which have located their regional distribution facilities in Rialto. The top employers in Rialto are the Rialto School District and FedEx Ground.

City of Colton. Growth will continue throughout other areas of Colton, including the Chino Valley Ranchers food processing plant, United Packaging Group's facility expansion, Lineage Logistics' cold-storage facility, and completion of a more than 800,000-square-foot industrial building. The economic growth within Colton will enhance revenues, especially property and sales taxes.

City of San Bernardino. San Bernardino's labor force consists of 85,000 people and has a diversified mix of businesses. Top employers in the city of San Bernardino include Cal State University, San Bernardino; San Bernardino Community Hospital; San Bernardino County Schools; and San Bernardino County Sheriff, among others.

City of Loma Linda. Loma Linda is a unique community with strong ties to its religious, educational, and healing arts roots. The Loma Linda University Medical Center and the Jerry L. Pettis Memorial Veterans Medical Center provide much of the

economic base of the community through the employment of a highly trained local labor force. The City is seeking to expand upon this economic base with medical support services, research facilities, professional offices, and lodging accommodations for visitors to the medical centers and community. In addition to increasing commercial and industrial opportunities, Loma Linda is in the process of managing residential growth to provide an appropriate range of housing opportunities to accommodate the diverse work force needed by the medical facilities.

City of Redlands. The economy of Redlands is based largely in the service and trade sectors (i.e., health care, retail trade, government, and education) and light manufacturing. The region has a varied manufacturing and industrial base that has added to the relative stability of the unemployment rate over the years. Redlands has significant land still available for industrial/commercial/office use, with only a portion of these areas utilized. Major industries with headquarters or divisions within the electrical controls, furniture manufacturing, and automobile component manufacturing, include ESRI (Environmental Systems Research Institute); Redlands Unified School District; United States Postal Service; Redlands Community Hospital; Verizon; University of Redlands; City of Redlands; Beaver Medical Group; Walmart Stores, Inc.; La-Z-Boy, Inc.; Southern California Gas; and Loma Linda University Medical Center.

City of Yucaipa. Yucaipa is a mature, well-established community nestled in the foothills of the San Bernardino Mountains. The City of Yucaipa applies a sensitive balance of growth, technology, and regard for the environmental, cultural, and rural aspects of the area. Their initiatives focus on developing infrastructures, buildings, and sites; uptown revitalization; and creation of a strong regional identity to market the area, all intended to facilitate new investment and development in the community.

Environmental Consequences

Permanent Impacts

No Build Alternative

According to several indicators of community cohesion described above in this chapter, including high homeownership rates, ethnic homogeneity, and a high percentage of persons aged 65 and over, it can be concluded there is a high degree of community cohesion in many parts of the study area.

The No Build Alternative would maintain the current configuration of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and

congestion would continue to worsen for adjacent neighborhood residents without the proposed project improvements. Potential indirect impacts to the regional economy could result from the continued decrease in traffic flow and capacity associated with congested roadways such as I-10.

Common to Both Build Alternatives

Access and Circulation. Implementation of either of the build alternatives would promote economic growth and interregional/intraregional trade and goods movement by improving transportation linkages. Improved connectivity alone is not expected to affect the area's major employers in a substantial way. Such economic improvements are generally measured incrementally, in part by time savings on transport services and less roadway congestion and traffic delay. Area residents and workers would benefit with less time stuck in traffic congestion and improved access associated with any of the build alternatives. It is not expected that small or minority-owned businesses in the area would experience particular benefits.

The project would be designed to retain existing pedestrian and bicycle circulation routes. Several roadways would be designed to include new bikeways or sidewalks. Because no arterial roadways would be permanently closed and there are no permanent impacts to access or circulation, no indirect impacts are anticipated. No permanent impacts to public transportation are anticipated as a result of the proposed project, other than beneficial impacts associated with improved traffic flow and congestion.

Parking. Both build alternatives would result in the loss of parking, as identified below. In some cases, parking would be affected by construction of the proposed project, but it would be partially replaced, or in some cases, completely replaced. No park-and-ride lots would be affected by the proposed project.

Alternative 2

As shown in Table 3.1.4-5, Alternative 2 would not result in any permanent full acquisitions; however, there would be partial acquisitions and permanent easements.

Table 3.1.4-5. Potential Residential and Nonresidential Displacements

Type	Alternative 2	Alternative 3
Single-Family Residence	0	23
Multi-Family Residence	0	19
Retail	0	1
General Office	0	1
Light Industrial	0	2
Automotive repair	0	7
Water District Pump House	0	1
Total Displaced Residents	0	109
Total Displaced Employees	0	66

Source: I-10 Corridor DRIS, 2016.

Parking. A total of 22 parking spaces would be permanently removed after implementation of Alternative 2. The parking loss would result entirely in Fontana, at commercial locations, for public parking and employee parking.

Community Character/Cohesion. Changes to the community's visual character and quality may occur as a result of Alternative 2. This includes removal of mature trees and the addition of urbanizing elements (e.g., new bridges, soundwalls, widened pavement sections). Please refer to Section 3.1.7, Visual/Aesthetics, for further discussion of impacts to visual quality of communities. Alternative 2 would be constructed along an existing corridor; therefore, major permanent impacts to community character/cohesion within the study area are not anticipated.

Alternative 3

Alternative 3 would require full and partial acquisitions of private and publicly owned property, including residential and nonresidential uses (Table 3.1.4-5). In the case of full acquisitions that lead to relocations of residential and nonresidential uses, it is anticipated that displacees could be relocated in proximity to their locations of origin. More detail regarding acquisitions and displacements is available in Section 3.1.4.2, Relocations and Real Property Acquisition.

Residential Displacement Impacts. Alternative 3 would displace 42 residential units and result in physical changes that could alter the character of the existing community and affect community cohesion. The I-10 Corridor Project (I-10 CP) improvements would result in a wider facility than currently exists through the study area. On local streets affected by the project, sidewalks, crosswalks, lighting, and landscaping

familiar to the residents would be replaced with new sidewalks, crosswalks, lighting, and landscaping.

Housing occupancy status within the study area is presented above in Table 3.1.4-4. Vacancy rates in the study area range from 3.9 percent in Montclair to 9.4 percent in the city of San Bernardino. Alternative 3 would result in 35 residential impacts in Fontana, along with four single-family residences (SFR) in Montclair and three single-family residences in Ontario. The Draft Relocation Impact Statement (DRIS) prepared for this project identified adequate relocation resources for residential displacements that would occur with implementation of either of the build alternatives.

Adequate resources appear to currently exist within the city or area vicinity to relocate residents (i.e., a sufficient number of comparable replacement dwellings meeting the decent, safe, and sanitary standards exist within the study area or in neighboring communities). It is anticipated that finding replacement housing for owner- or tenant-occupied residences would not present any unusual problems for this project. Because I-10 is an existing facility, widening of the lanes would not divide an existing community or create a barrier between communities; therefore, no adverse permanent impacts to community character and cohesion would occur.

Nonresidential Displacement Impacts. Property acquisitions would result in the displacement of established businesses and places of employment. These displacements could affect community character and cohesion if the businesses were regularly frequented by local residents or if long-term employees become unemployed. Partial acquisitions of nonresidential properties could disrupt the visual character and familiarity of the area by affecting sidewalks, crosswalks, lighting, and landscaping, which would be replaced. The displacement of businesses would result in approximately 66 employees being relocated within the same city or area vicinity as the business. As shown in Table 3.1.4-5, only Alternative 3 would result in potential full acquisitions of nonresidential properties/businesses. The 12 businesses are located along I-10 in Montclair, Fontana, Rialto, and Colton. Because 12 nonresidential acquisitions would result from the implementation of Alternative 3, a small portion of employees along the corridor could be affected. If a business was relocated, but an employee did not choose to work at the new business location, they could lose their employment. There may be a few instances where people are displaced from their homes, but stay employed; however, they are forced to travel much farther, resulting in higher commuting costs. These employees or residents

could experience financial hardship as a result of their place of employment being displaced. This hardship would affect their quality of life and sense of community; however, the Caltrans relocation team would fully comply with the Uniform Relocation Assistance and Real Property Acquisition, including providing relocation assistance payments and counseling to persons and businesses affected by displacements resulting from the proposed project.

The proposed project would not create any permanent financial repercussions to the proposed project corridor or surrounding area as a result of the proposed project. No permanent secondary impacts would occur in the study area or nearby communities. Beneficial impacts associated with improved traffic flow and capacity could indirectly affect port operations at the Ports of Long Beach and Los Angeles by allowing greater access for goods movement operations for trucks on I-10.

Community Facilities and Services. As discussed in Section 3.1.1.3, Parks and Recreational Facilities, there would be a partial acquisition of MacArthur Park under Alternative 3. Although the acquisition area would minimally reduce the overall size of the park, it would not inhibit existing recreational activities within the park. In addition, no community facilities impacts would create any indirect impacts as a result of the proposed project.

Alternative 3 would add additional capacity along this freeway segment and beyond, thereby providing enhanced access to and from LA/Ontario International Airport and the surrounding area, which also includes significant logistics, UPS airlines, and distribution businesses developed around the airport. Coordination, including an interview, was conducted with the General Manager of the airport and is documented in Chapter 5 of this document.

The proposed project would be built along an existing corridor and would not create any permanent repercussions for the proposed project corridor or surrounding area.

Parking. A total of 210 parking spaces would be permanently removed after implementation of Alternative 3. Most of the parking losses would occur in Fontana and Montclair. In Fontana, commercial, light industrial, and parking at one multi-family residential (MFR) property would be affected by Alternative 3. After replacement parking is implemented, movie theater and strip mall parking at the Baralat Property would experience the greatest impact. Montclair would lose an estimated 17 street parking spaces, as well as church parking and mall parking. In Colton, 47 street parking spaces would be removed as a result of Alternative 3.

Community Character/Cohesion. Changes to the community's visual character and quality may occur as a result of Alternative 3. This includes removal of mature trees and the addition of urbanizing elements (e.g.,, new bridges, soundwalls, widened pavement sections). Please refer to Section 3.1.7, Visual/Aesthetics for further discussion of impacts to visual quality of communities. Alternative 3 would be constructed along an existing corridor; therefore, major permanent impacts to community character/cohesion within the study area are not anticipated.

Temporary/Construction Impacts

Construction of the I-10 CP has the potential to result in short-term effects to neighborhoods (e.g., temporary road closures). Construction activities include grading, excavation, road detours, and temporary road closures. Implementation of a Transportation Management Plan (TMP), which is discussed in detail in the Avoidance, Minimization, and/or Mitigation Measures section below, would reduce project-related temporary impacts to community character and cohesion.

Long-term closure (6 to 12 months) that could affect access to schools may be required during bridge construction. Coordination with affected schools would be ongoing. It is anticipated that San Antonio Avenue, Richardson Street, Sultana Avenue, Campus Avenue, and 6th Street would experience long-term, temporary impacts and would affect access to/from nearby schools. These impacts are subject to change as the design process moves forward.

Also under Alternative 3, a 0.07-acre TCE would be required at Edison Elementary School for retaining wall construction and profile change near Sultana Avenue. The proposed TCE is adjacent to mature trees and an existing grass field, which is likely used for recreational activities.

Although the TCE associated with Alternative 3 may temporarily reduce the overall area available for recreation at Edison Elementary School during construction, it would not affect existing recreational activities, features, or attributes at the school because the area consists of landscaping and does not partially or fully contain recreational features.

Access and Circulation

The presence of construction equipment and the temporary removal of signage could diminish the visibility of businesses from freeways and local roadways. Access to some businesses situated in the immediate vicinity of the project corridor could be restricted; however, access would be maintained at all times during construction.

As shown in Table 5-2 in the CIA (2015), 10 arterial roadways within the project area would require bridge replacement, resulting in temporary impacts to the existing nonmotorized transportation circulation patterns. For each of these closures, there are multiple alternate routes that can be used. Closure of streets that are located in close proximity to one another would not coincide so that there would be convenient nearby alternate routes available for school pedestrians.

As noted in the Ramp Closure Study (Appendix E of the CIA), several on- or off-ramps would require closure during construction of between 10 to 30 days, with other ramp closures less than 10 days. No two consecutive off-ramps or on-ramps in the same direction would be closed at the same time. Preliminary detour routes for all long-term closures have been identified to accommodate access changes lost due to the temporary long-term closures. The following ramps were identified to potentially result in long-term closure and detours:

- Monte Vista Avenue westbound (WB) off-ramp
- Monte Vista Avenue WB on-ramp
- Monte Vista Avenue eastbound (EB) off-ramp
- Monte Vista Avenue EB on-ramp
- Central Avenue EB on-ramp
- Central Avenue WB off-ramp
- 4th Street EB off-ramp
- Etiwanda Avenue EB loop on-ramp
- Etiwanda Avenue EB on-ramp
- 9th Street EB off-ramp
- La Cadena Dr EB off-ramp
- Sunwest Lane WB on-ramp
- Waterman Avenue EB on-ramp
- Alabama Street EB off-ramp
- Tennessee Street EB off-ramp

Temporary impacts to circulation and access would result from construction activities, including mainline lane closures and ramp connector closures. The freeway and street closures and detours could temporarily delay goods shipment, affect business parking, and impede business access.

Ramps that provide access to major shopping centers would not be closed from November 1 to January 31. In addition, ramp closures would be coordinated with the Auto Club Speedway so that they do not occur on major race days.

Temporary impacts to public transportation would result from construction activities, including mainline lane closures and ramp connector closures. Coordination with local jurisdictions and public transportation providers will continue through the plans, specifications, and estimate (PS&E) phase to identify public transit routes and emergency service routes that serve hospitals, fire/police stations, emergency shelters, emergency command centers, and other facilities that provide essential services in times of emergencies within the study area. Emergency service routes would be maintained during construction, or alternate routes would be provided. Additional coordination with public transportation providers would provide detour information, as well as information regarding temporary bus stop alternatives when complete roadway closure is required for construction. The temporary impacts to access, circulation, and parking would be the same as temporary public transportation impacts.

Avoidance, Minimization, and/or Mitigation Measures

No Build Alternative

No avoidance, minimization, and/or mitigation measures are required.

Build Alternatives

Community Impacts

Community disruption during project construction as a result of construction activities would be temporary and mitigated by implementing a traffic staging plan and a TMP as required by Measure T-1 (Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities), as summarized below, as well as the measures in Section 3.1.7, Visual/Aesthetics; Section 3.2.7, Noise; and Section 3.2.6, Air Quality.

The San Bernardino Associated Governments (SANBAG) and Caltrans shall prepare a TMP to minimize direct and cumulative construction impacts on the community. Upon completion, the final TMP will be available to the public and can be obtained by request from SANBAG. The TMP shall be submitted with the construction plan to the police and fire departments of affected cities prior to commencement of construction activities. The TMP shall include, but not be limited to, the following features:

- Public Information: Provide project update to the affected residents, businesses, general public, schools, and public transportation agencies via brochures and mailers, community meetings, project website, radio and newspaper advertisements, and broadcast via social media.
- Motorist Information: Provide project information using changeable message signs (CMS) and ground-mounted signs.
- Incident Management: Implement Construction Zone Enhanced Enforcement Program (COZEEP), freeway service patrol, and California Highway Patrol (CHP) traffic handling.
- Traffic Management during Construction: Provide traffic lane closure chart, detour route, pedestrian routes, residential and commercial access routes, and temporary traffic signals during construction.

Additionally, the following measures are required to minimize project construction effects on neighborhoods and community cohesion:

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 (2015).

Community Services and Facilities

SANBAG and Caltrans would continue the outreach program discussed in Chapter 5, Comments and Coordination, to keep residents, businesses, community facilities and any service providers within the affected area informed, and to inform the surrounding communities about the proposed project construction schedule, traffic-impacted areas and the TMP. Minimization measures, in addition to outreach programs, include the following:

COM-3: To keep residents, businesses, community services, and service providers within the affected area informed about the proposed project construction schedule and traffic-impacted areas, provide motorist information (i.e., existing CMSs, portable CMSs, stationary ground-mounted signs, traffic radio announcements, and the Caltrans Highway Information Network [CHIN]).

COM-4: 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 to maintain the number of lanes needed, allowing night work and extended weekend work, maintaining business access, and maintaining pedestrian and bicycle access) will be incorporated into project design to keep residents, businesses, community services, and service providers within the affected area informed about the proposed project construction schedule and traffic-impacted areas.

COM-5: Implementation of alternate and detour routes strategies; street/ intersection improvements (e.g., widening, pavement rehabilitation, removal of median) 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; 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-6: Coordination with the relevant park 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.

Utilities

COM-7: Close coordination with utility service providers and the implementation of a public outreach program will be conducted to minimize impacts to surrounding communities.

Circulation and Access

COM-8: Caltrans shall implement a TMP throughout the duration of the construction activities. The TMP would minimize project-related construction disruptions by including traffic strategies designed in coordination with local jurisdictions.

COM-9: Close coordination with railroad owners and operators will be conducted during the PS&E and construction phases to minimize impacts to railroad operations.

COM-10: During design and construction, the Project Manager, Resident Engineer, and Contractor 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 a robust public outreach program to minimize objections to the unavoidable construction impacts. SANBAG will implement a community information plan to maintain good 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 notifications, and electronic messaging on the freeway.

COM-12: Design all pedestrian facilities to meet or exceed requirements of the Americans with Disabilities Act (ADA) and current safety standards. Access to the pedestrian and bicycle facilities shall be maintained to the extent practicable during the construction period.

COM-13: Coordinate with Metrolink, Foothill Transit, Omnitrans, and other affected transit providers to request and comply with applicable procedures for any required temporary bus stop relocations or other disruptions to transit service during construction.

3.1.4.2 Relocations and Real Property Acquisition

This section addresses impacts to the communities as a result of required ROW acquisitions and project construction activities. The analysis is based on the results of the CIA (2015) and the DRIS (2016).

Regulatory Setting

Caltrans' Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 *Code of Federal Regulations* (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer

disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, *et seq.).* Please see Appendix C for a copy of Caltrans' Title VI Policy Statement.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646)

Frequently referred to as the Uniform Relocation and Assistance Act, this law provides for the uniform and equitable treatment of persons displaced from their homes or businesses by federally assisted programs. "Displaced persons" include any individual, family, corporation, partnership, or association required to move from real property or required to move personal property from real property acquired in part or in whole because of a written notice from the agency to vacate a property needed for public projects. Displacees may be entitled to moving cost reimbursements or replacement housing payments (i.e., purchase supplements, rental assistance, and down payments). Implementation protocols also provide for the acquisition of real property on a "fair market" basis, which permits displacees to obtain independent property appraisals and arbitration, if required.

Affected Environment

The project study area is located within an extensively urbanized area of Los Angeles and San Bernardino counties. The dominant land uses within the project study area consists of a mixture of urbanized mixed-use, residential, agricultural, industrial, commercial, and open space land uses. As described below, relocations of residential and nonresidential uses would occur in Montclair, Ontario, Fontana, and Colton.

Environmental Consequences

Permanent Impacts

No Build Alternative

No homes would be displaced, and no relocation of residences or businesses would be required under this alternative.

Alternative 2

Partial Acquisitions and Footing Easements: Under Alternative 2, six partial acquisitions would be required, totaling 0.33 acre. In addition, permanent underground footing easements would be needed at four parcels, totaling 0.14 acre.

Residential Displacements: No homes would be displaced, and no relocation of residential units would be required with implementation of Alternative 2.

Nonresidential Displacements: No nonresidential displacements would be required with implementation of Alternative 2.

Alternative 3

Partial Acquisitions and Footing Easements: Under Alternative 3, 150 partial acquisitions would be required, totaling 9.82 acres. In addition, permanent underground footing easements would be needed at 134 parcels, totaling 4.39 acres. None of these partial acquisitions or permanent footing easements would result in the displacement of residences or businesses.

Residential Displacements: A total of 42 residential units would be acquired to construct Alternative 3, including 23 single-family residences and 19 units in multi-family residences. Total resident displacements are estimated at 109, based on an average of 2.58 residents per unit calculated by the 2010 U.S. Census. Under Alternative 3, residential displacements would occur in the cities of Montclair, Ontario, and Fontana. Residential displacements are illustrated in Figure 3.1.4-4.

Nonresidential Displacements: Based on preliminary engineering, permanent acquisition of 11 parcels that are currently used for nonresidential purposes would be required to construct Alternative 3. One utility-related structure would also be displaced to a different location on its existing parcel, which would not result in full acquisition of the parcel. These nonresidential displacements would occur in the cities of Montclair, Fontana, Rialto, and Colton. The locations of nonresidential displacements are illustrated in Figure 3.1.4-4. To the extent feasible, during the project approval and PS&E phase of the project, ROW impacts to these parcels would be minimized and some may be avoided. Property owners of impacted parcels would be entitled to compensation to the extent provided by law in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended.

Based on current market research conducted for the DRIS, there are comparable locations where these businesses can be reestablished. Relocation assistance payments and counseling would be provided to persons and businesses subject to replacement in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and in conformance with all applicable regulations. All real property to be acquired would be appraised to determine its fair

market value. An offer of just compensation, not less than the approved appraisal, would be made to each property owner.

Onsite appraisals to determine actual market value would be conducted for each property to be relocated or affected based on current market conditions prior to acquisition. Any person (i.e., individual, family, corporation, partnership, or association) who moves from real property or moves personal property from real property as a result of the acquisition of the real property, or as a result of a written notice from Caltrans to relocate from the real property required for a transportation project is eligible for Relocation Assistance, including Last Resort Housing benefits, should that be necessary. All activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Caltrans ROW Manual.

Impacts associated with the displacement of the 12 businesses could result in losses to property and sales tax revenue. This loss in tax revenue is anticipated to be minimal, with businesses relocating within the same municipality and continuing to pay taxes after resettling.

To the extent practicable, businesses would be relocated within the areas and jurisdictions in which they were previously located. It should be noted, however, that tax-related impacts to the jurisdiction in which it is located would only result if the business cannot be relocated within the same jurisdiction or if the business ceases operation. Moreover, partial acquisition of property by the proposed project would not normally affect tax revenue unless the use of the parcel is significantly affected. Additional information on the 12 nonresidential displacements that would occur under Alternative 3 is provided below.

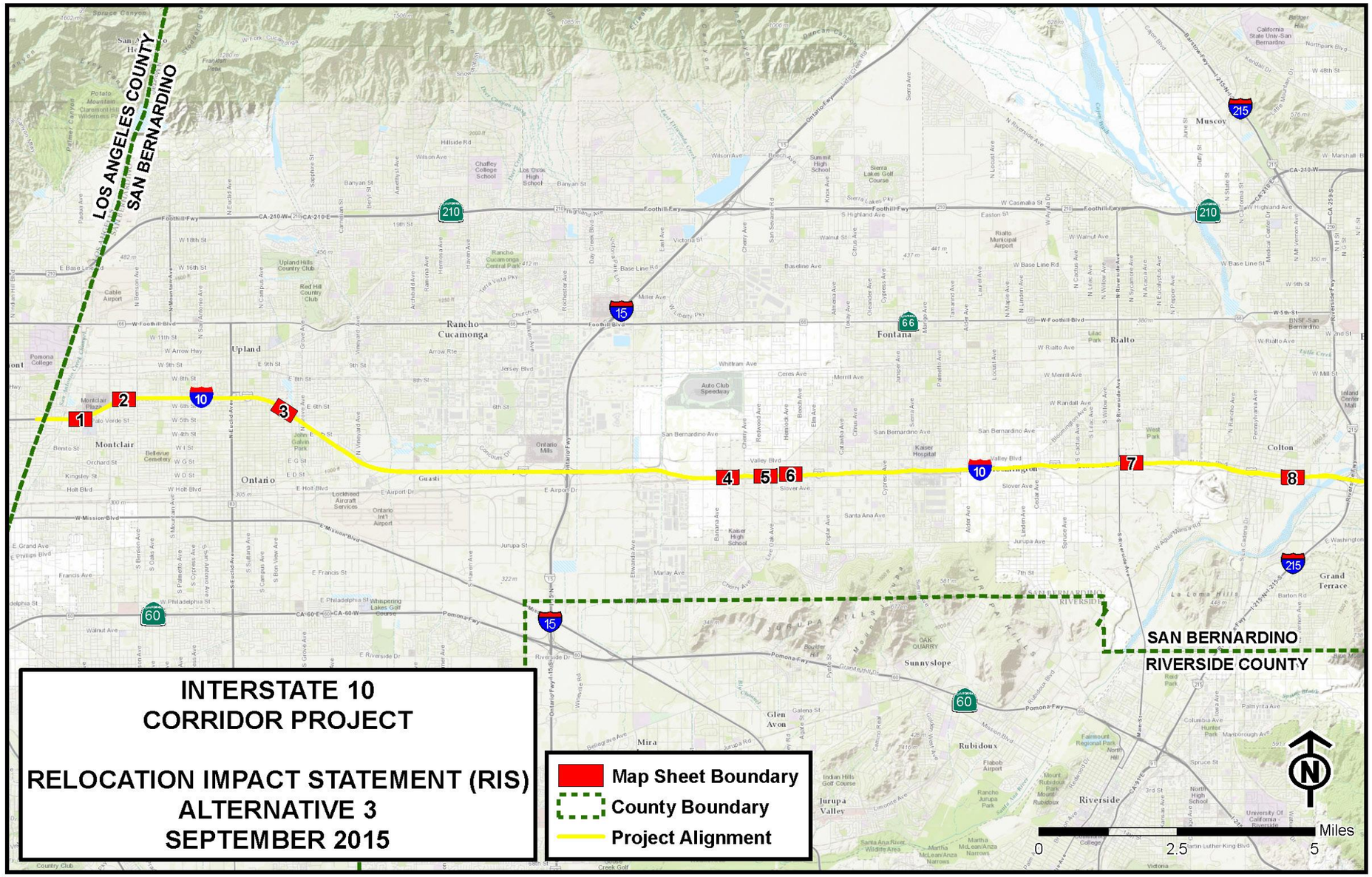

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3)

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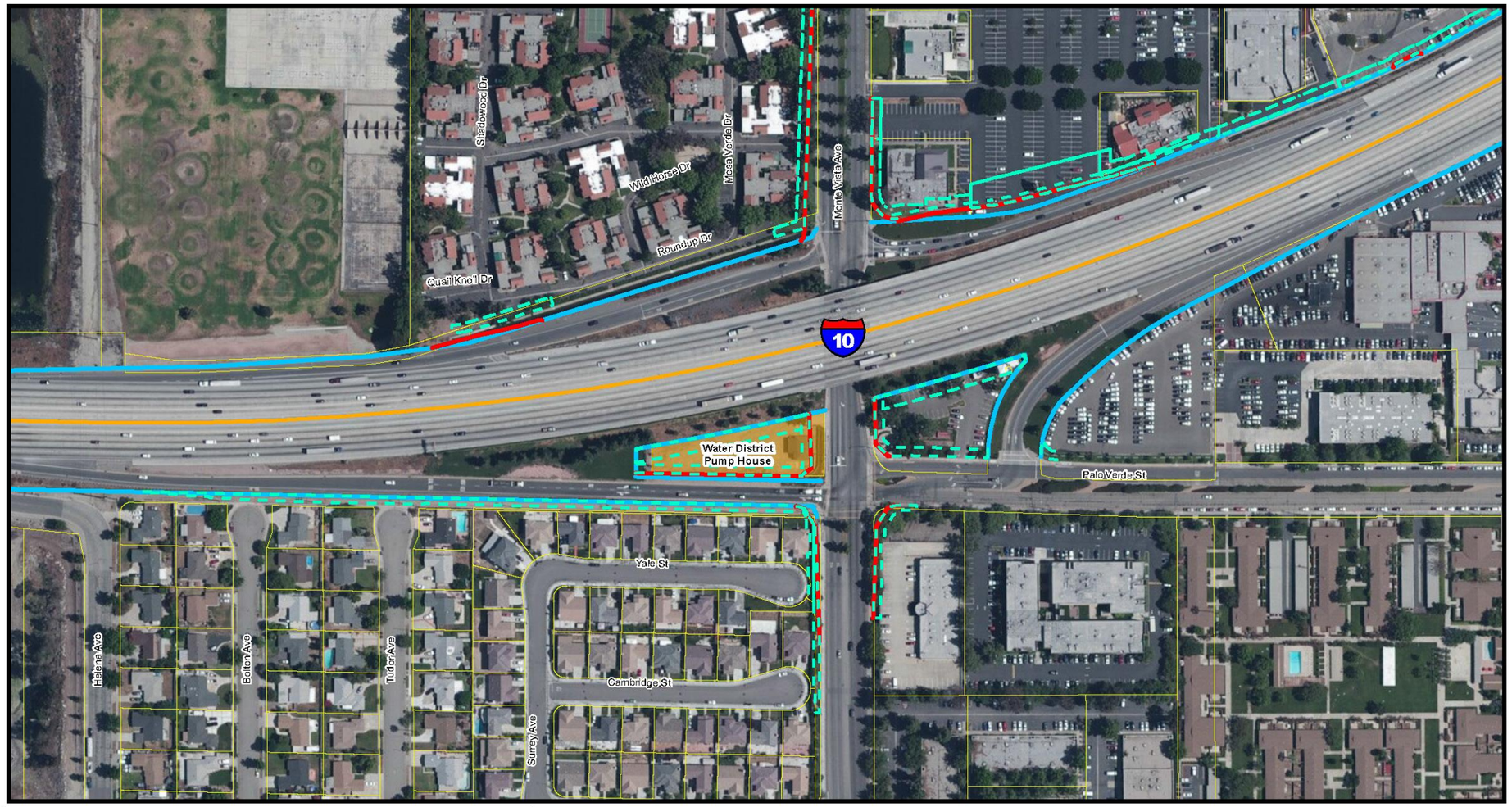

Existing ROW
Proposed ROW*
Temporary Construction Easement
Potential Relocation Impact
Parcel Boundary
City Boundary
Project Alignment

0 250 500 Feet
1 inch = 170 feet

N

I-10 Corridor Project
Map of Potential Relocation Impacts for Alternative 3
Sheet 1 of 8

Sources: GeoEye Aerial Imagery 2013; Cal-Atlas 2013; U.S. DOE 2013; Parsons 2015.
* The Proposed ROW follows the Existing ROW unless drawn otherwise.

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 1 of 8)

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Sources: GeoEye Aerial Imagery 2013; Cal-Atlas 2013; U.S. DOE 2013; Parsons 2015.
* The Proposed ROW follows the Existing ROW unless drawn otherwise.

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 2 of 8)

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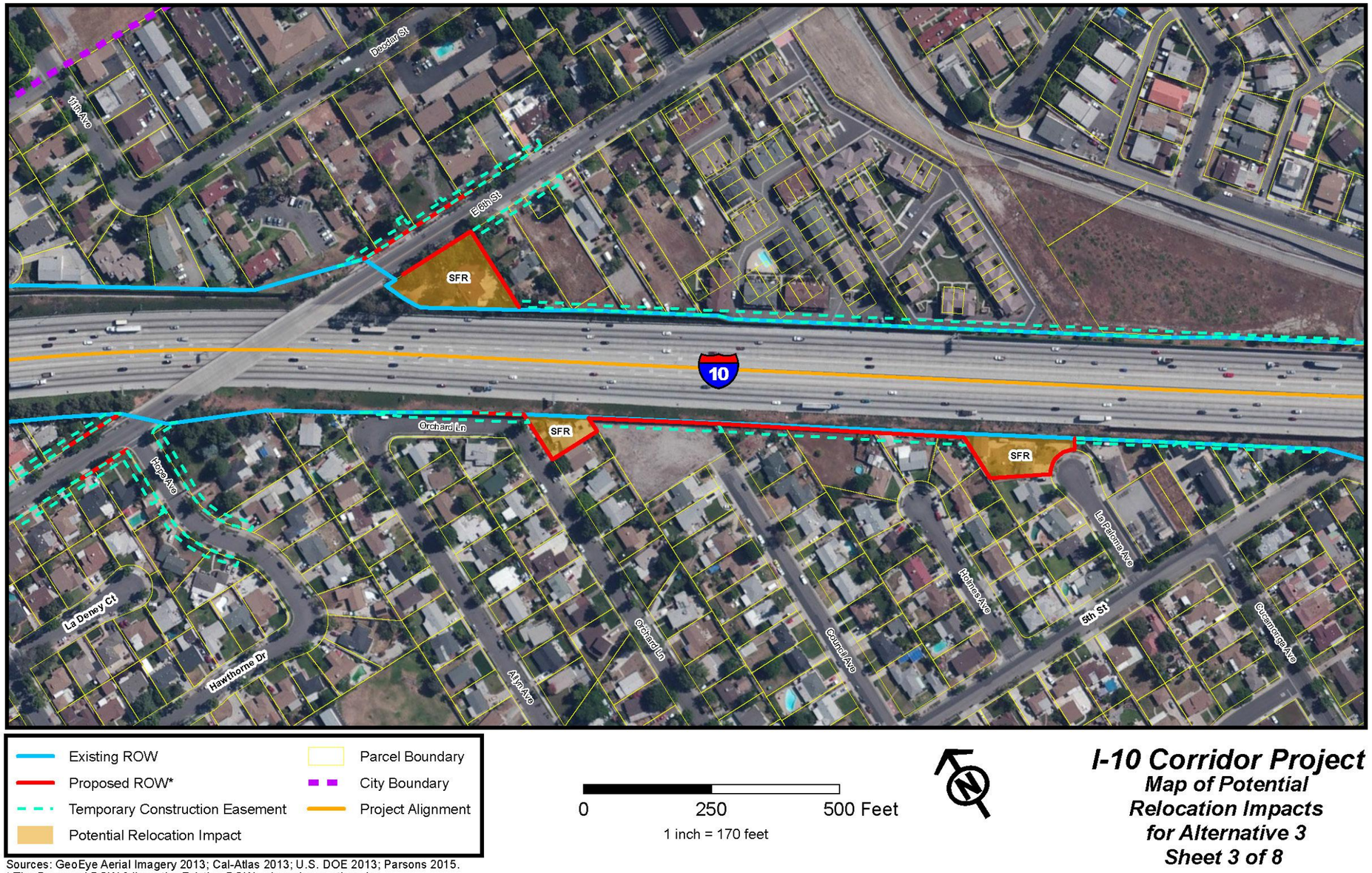

Sources: GeoEye Aerial Imagery 2013; Cal-Atlas 2013; U.S. DOE 2013; Parsons 2015.
* The Proposed ROW follows the Existing ROW unless drawn otherwise.

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 3 of 8)

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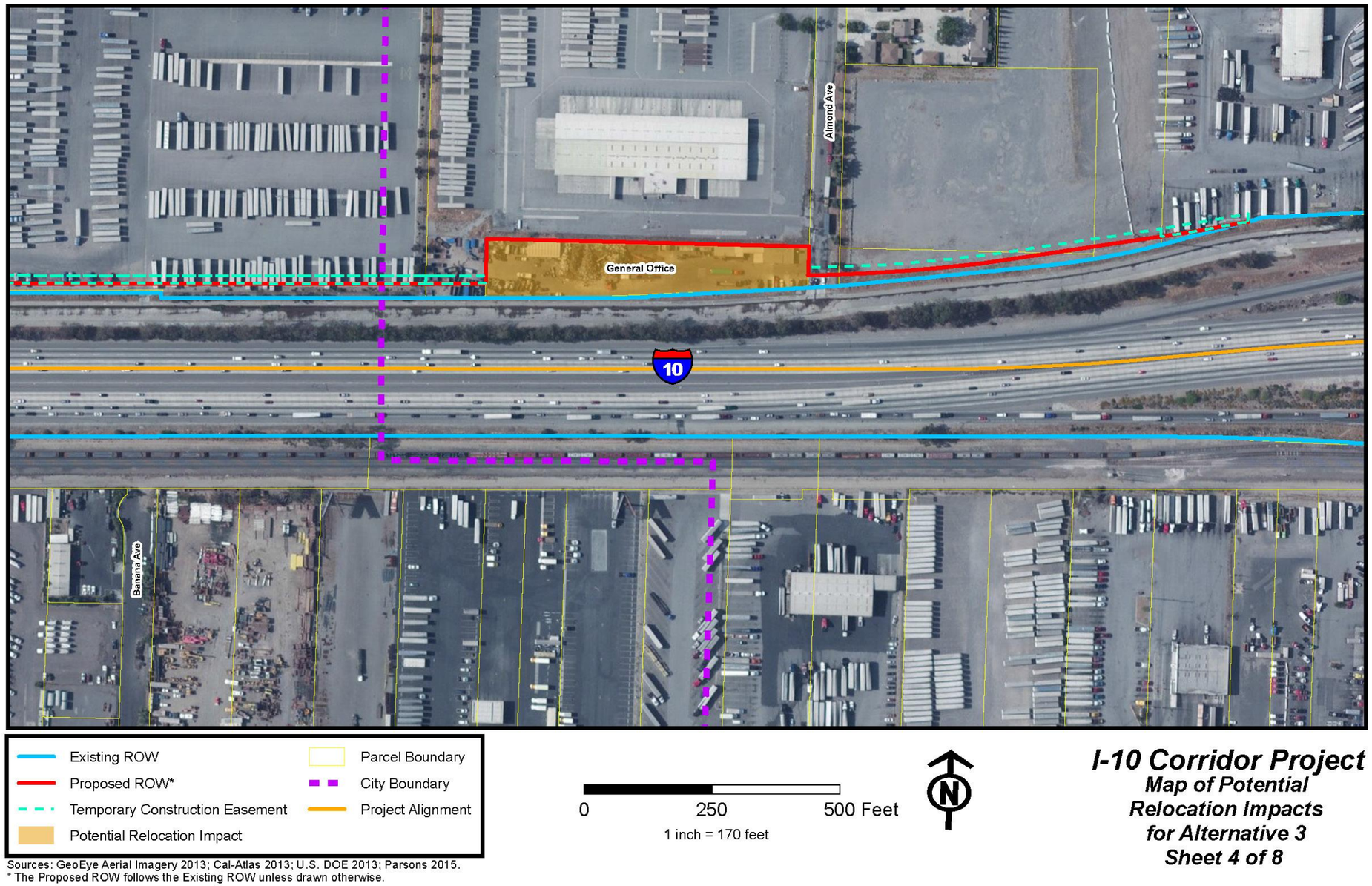

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 4 of 8)

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Existing ROW
Proposed ROW*
Temporary Construction Easement
Potential Relocation Impact
Parcel Boundary
City Boundary
Project Alignment

0 250 500 Feet
1 inch = 170 feet

N

I-10 Corridor Project
Map of Potential Relocation Impacts for Alternative 3
Sheet 5 of 8

Sources: GeoEye Aerial Imagery 2013; Cal-Atlas 2013; U.S. DOE 2013; Parsons 2015.
* The Proposed ROW follows the Existing ROW unless drawn otherwise.

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 5 of 8)

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Sources: GeoEye Aerial Imagery 2013; Cal-Atlas 2013; U.S. DOE 2013; Parsons 2015.
* The Proposed ROW follows the Existing ROW unless drawn otherwise.

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 6 of 8)

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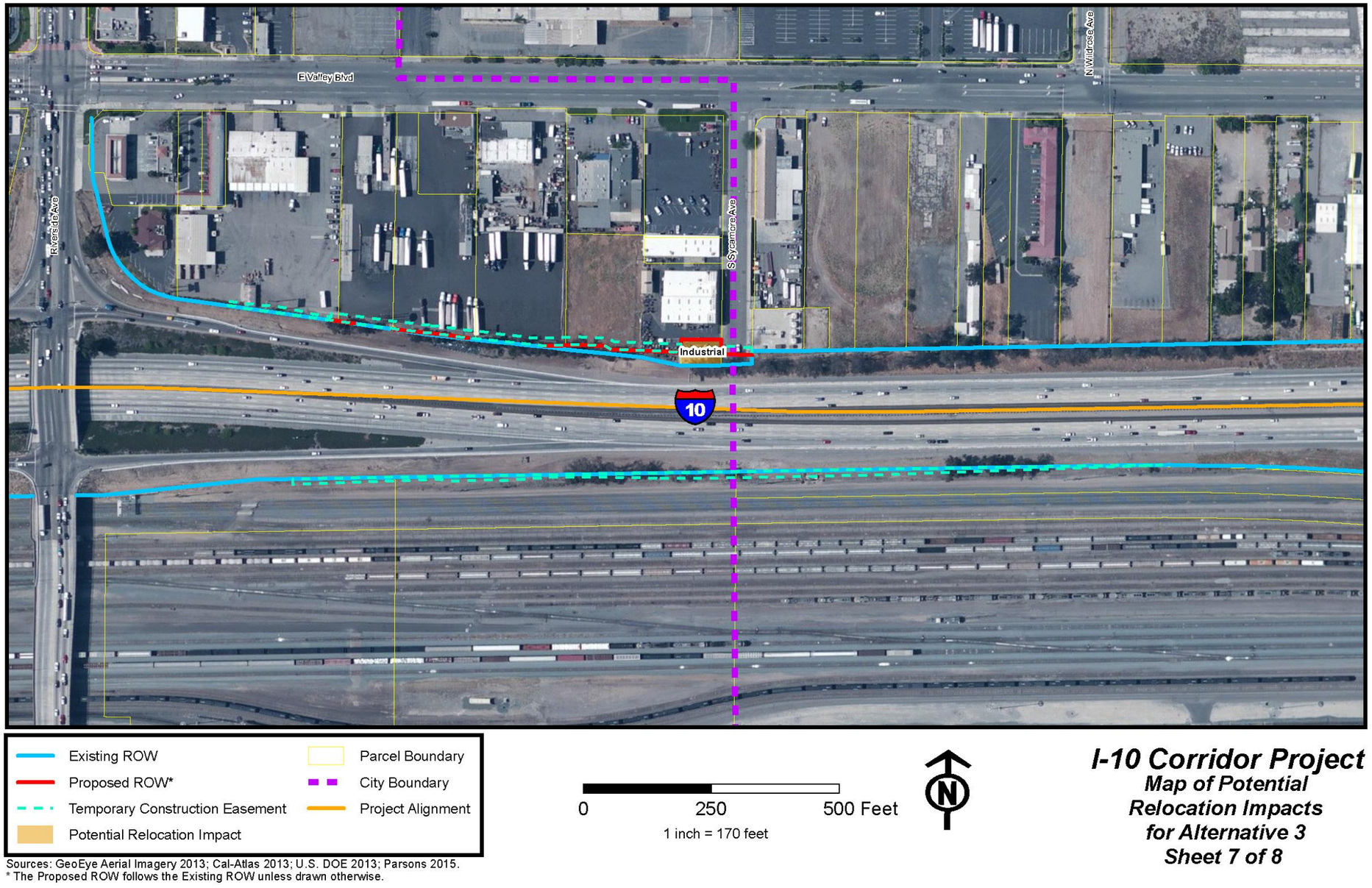

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 7 of 8)

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Existing ROW
Proposed ROW*
Temporary Construction Easement
Potential Relocation Impact
Parcel Boundary
City Boundary
Project Alignment

0 250 500 Feet
1 inch = 170 feet

N

I-10 Corridor Project
Map of Potential Relocation Impacts for Alternative 3
Sheet 8 of 8

Sources: GeoEye Aerial Imagery 2013; Cal-Atlas 2013; U.S. DOE 2013; Parsons 2015.
* The Proposed ROW follows the Existing ROW unless drawn otherwise.

Figure 3.1.4-4 Residential and Nonresidential Impacts (Alternative 3) (Page 8 of 8)

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Monte Vista Water District Pump House (Montclair): During project construction, the Monte Vista Water District pump house facility would be displaced in Montclair. During PS&E, Caltrans will work with the Monte Vista Water District to reconfigure the site, relocate the pump house, and maintain temporary and permanent utility service to the District's customers. Closure and relocation of the pump house is not anticipated to result in temporary or permanent job loss for Monte Vista Water District employees, or loss of income or tax revenue.

Titan Industrial Metal Corporation (Fontana): Titan Industrial Metal Corporation, also known as TIMCORP, is a wholesale scrap metal recycling merchant that was established in 2004. TIMCORP buys and sells aluminum, brass, copper, stainless steel, and other scrap metals, and it provides services such as cleanups and removal of junk vehicles, machinery, and truck bodies. According to records obtained on January 29, 2015, from manta.com, this company has annual revenues of $2.1 million and 12 employees. Under Alternative 3, the entire parcel (Assessor's Parcel Number [APN] 023-420-101) would be acquired, which would require the permanent relocation of this business. As discussed previously, based on analysis conducted for the DRIS, ample relocation properties are available for this business. All efforts would be made to relocate displaced businesses affected by Alternative 3 within the same city or area vicinity, thereby minimizing income or tax revenue loss.

Automotive Repair Businesses (Fontana and Colton): Of the 12 total nonresidential displacements, 7 are informal automotive repair businesses, which are operated on parcels zoned as single-family residential, in Fontana and Colton. During windshield surveys (2014) at each of these parcels, no signage with business names was observed, nor was any online presence confirmed for these informal businesses. Therefore, given the informal nature and lack of identifying information available for these businesses, no further information on years of operation, number of employees, or estimated income and tax revenue is available. For the purposes of impact analysis, each automotive repair facility is assumed to have 5 employees, which is typical of similarly sized automotive repair businesses within the study corridor. Under Alternative 3, the entire parcel for each of the 7 businesses would be acquired, which would require the permanent relocation of this business within the same city or area vicinity; employees could experience income loss if the business owners decide not to relocate or dismiss existing employees when relocated.

Peterson Equipment Systems Incorporated (Fontana): This business provides construction equipment and supplies, and it is also a transportation company licensed

to haul general freight within California. During windshield surveys at the site, no employees were observed. At the time of the site visit in 2014, the parcel was being used for staging of concrete k-rails, traffic control devices, and other construction materials. According to the information listed on the City of Fontana's Chamber of Commerce website, this company has 15 employees and annual sales between $1 million and $1,999,999. Under Alternative 3, the entire parcel (APN 023-518-204) would be acquired, which would require the permanent relocation of this business. As discussed previously, based on analysis conducted for the DRIS, ample relocation properties are available for this business.

Myers Select Material Handling (Rialto): The Myers Select Material Handling business in Rialto sells new and used forklifts, and it provides forklift rentals, repairs, and training. The business operates out of four adjacent parcels (APN 013-221-105, 013-221-106, 013-221-108, and 013-221-111). The impacted parcel (APN 013-221-108) contains one traditional single-family residential building, which has been converted for use as a business office. Although a full parcel acquisition would occur, no closure, displacement, or other significant impact to the business is anticipated. Currently, less than half (0.61 acre of 1.41 acres) of APN 013-221-111 is actively used. The remnant 0.80 acre within the parcel is undeveloped. Therefore, it is anticipated that the remnant acreage within the site could be reconfigured to accommodate relocation of the business office, resulting in no impacts to the business, its employees, or tax revenues resulting from its operations.

Gold Brothers – So Cal Gold Club (Colton): This business is a consignment/pawn shop that specializes in buying gold, silver, and platinum. No published information is available on the annual revenues or number of employees for this establishment. A review of records was conducted on January 29, 2015, on www.manta.com for five similar establishments in the study corridor area. Based on this review, it is anticipated that this business has annual revenues between $500,000 and $1 million, and has between two and four employees. Under Alternative 3, the entire parcel (APN 016-304-129) would be acquired, which would require the permanent relocation of this business within the same city or area vicinity; employees could experience income loss if the business owner decides not to relocate or dismisses existing employees when relocated.

Economic Impacts to Property Taxes, Sales Taxes, and Employment: When properties are permanently acquired for new ROW, the property tax base is reduced.

The removal of residences and business operations and the acquisition of ROW for the proposed project for Alternative 3 would result in the loss of property tax revenue.

Alternative 3 may require the displacement of 42 residential units (23 single-family residences and 19 multi-family units) and 12 nonresidential properties, as discussed in the DRIS. Most of the residential acquisitions would occur in Fontana, along with 4 single-family residences in Montclair and 3 single-family residences in Ontario. According to the jurisdiction's 2013-2014 Annual Budgets, property tax revenue for Montclair was $2,459,398, Ontario was $41,250,000, and Fontana was $108,133,010. Fontana's property tax revenue is significantly higher than the other affected jurisdictions along the project corridor, and it is anticipated the acquisition of these residential properties in any of the affected cities would not result in a significant decrease in property tax revenue as a result of the proposed project.

Temporary impacts are anticipated to have little or no impact on property values in the proposed project area because the project would be constructed along an existing ROW, business access would be maintained throughout construction, and temporary impacts would end when construction of the proposed project is finalized.

Sales tax may decrease as a result of the 12 nonresidential properties that may be acquired or displaced in Montclair, Fontana, Rialto, and Colton. Displacement of the Water District Pump House would not result in any changes to sales tax because it would be relocated on the same parcel. As discussed in the CIA, the total sales tax revenue collected in 2013 in Fontana was $30,300,000, $7,218,000 in Rialto, and $5,827,000 in Colton. Acquisition of the nonresidential properties would result in an insignificant decrease in sales tax revenue along the total project area because most businesses would be relocated within the same city or area vicinity and the tax would remain within the City's tax base. The overall impact would be less than significant due to the small proportion of sales tax generated from these businesses compared to the overall sales tax generated in the cities. Impacts to sales tax would be temporary until the relocation process has been completed for the project.

As stated earlier in this section, up to 12 businesses would be subject to full acquisition to accommodate the proposed corridor improvements. Based on conservative estimates, approximately 66 employees would become unemployed if the owners of these businesses decided to discontinue their businesses. According to the State of California Employment Development Department, the unemployment rate of San Bernardino County was 7.0 percent, or 60,700 unemployed workers, in

December 2014. Given the scale of the local and regional economies, the potential loss of employment as a result of the proposed business relocations would not adversely affect the local and regional economy over the long term. Impacts to employment would be temporary until the relocation process has been completed for the project.

Temporary/Construction Impacts

No Build Alternative

Because there would be no construction activity and no relocation of any residences or businesses, no indirect or secondary impacts on community or business disruption are anticipated.

Alternative 2

Proposed improvements along I-10 would occur mostly within the existing Caltrans ROW; however, 122 TCEs from adjacent public and privately owned parcels are anticipated to accommodate construction of the proposed improvements. Areas and/or activities would be restricted within TCEs when construction activities are occurring, and temporary use restrictions are not anticipated to result in substantial effects on business operations, neighborhoods, or community cohesion.

Alternative 3

Temporary construction-related project effects would be the same as Alternative 2, but would require 433 TCEs.

Avoidance, Minimization, and/or Mitigation Measures

COM-14: 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.

3.1.4.3 Environmental Justice

Executive Order (EO) 12898 requires each federal agency (or its designee) to take the appropriate and necessary steps to identify and address “disproportionately high and adverse” effects of federal proposed projects on the health or environment of minority and low-income populations.

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2010, this was $22,050 for a family of four.

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

Affected Environment

The environmental justice analysis was conducted using census tract information from the 2010 Census for the referenced populations of Los Angeles County, San Bernardino County, and the census tracts located within 0.25 mile of the proposed project, as shown in Table 3.1.4-6. The following analysis provides a comparison of four measures with which to evaluate environmental justice:

- Percentage of Non-White residents in the study area census tracts, as shown in Figure 3.1.4-5 (Alternative 2) and Figure 3.1.4-6 (Alternative 3)
- Percentage of Hispanic or Latino residents in the study area census tracts, as shown in Figure 3.1.4-7 (Alternative 2) and Figure 3.1.4-8 (Alternative 3)
- Percentage of population below poverty level in the study area census tracts, as shown in Figure 3.1.4-9 (Alternative 2) and Figure 3.1.4-10 (Alternative 3)
- Median household income in the study area census tracts, as shown in Figure 3.1.4-11 (Alternative 2) and Figure 3.1.4-12 (Alternative 3)

Table 3.1.4-6 Environmental Justice

Census Tract	Non-White	Hispanic or Latino	Persons below Poverty Level	Median Household Income
2.01 (Montclair)	74.3%	60.3%	21.4%	$52,279
2.03 (Montclair)	84.0%	64.5%	9.4%	$60,625
2.05 (Montclair)	78.4%	51.8%	12.9%	$55,824
8.25 (Upland)	82.3%	54.7%	18.7%	$41,576
8.26 (Upland)	63.2%	43.1%	7.8%	$57,127
9.04 (Upland)	72.2%	61.9%	12.9%	$46,218
10.01 (Ontario)	78.9%	65.1%	13.7%	$41,848
11.03 (Ontario)	43.4%	31.7%	3.4%	$67,674
11.04 (Ontario)	66.7%	60.5%	11.6%	$60,016
12 (Ontario)	59.1%	44.6%	10.7%	$62,270
13.05 (Ontario)	91.2%	85.4%	14.7%	$46,357
13.08 (Ontario)	86.4%	75.2%	25.6%	$49,406
13.09 (Ontario)	85.1%	63.8%	23.7%	$55,087
13.10 (Ontario)	78.8%	70.4%	9.0%	$58,882
13.12 (Ontario)	74.1%	55.1%	5.1%	$65,139
15.04 (Ontario)	88.9%	66.2%	28.9%	$46,343
16 (Ontario)	95.2%	94.7%	30.0%	$35,974
21.09 (Ontario)	77.1%	42.0%	5.4%	$51,259
22.04 (Unincorporated San Bernardino County/Fontana)	87.5%	80.4%	19.2%	$50,716
25.01 (Unincorporated San Bernardino County/Fontana)	91.4%	85.8%	9.2%	$50,086
26.01 (Unincorporated San Bernardino County/Fontana)	83.9%	64.3%	11.2%	$75,230

Table 3.1.4-6 Environmental Justice

Census Tract	Non-White	Hispanic or Latino	Persons below Poverty Level	Median Household Income
33.01 (Fontana)	84.9%	79.2%	16.9%	$37,500
33.02 (Fontana/Bloomington)	81.6%	70.4%	22.7%	$39,094
36.06 (Bloomington / Rialto)	91.7%	85.0%	15.4%	$43,478
36.09 (Rialto)	91.3%	84.6%	13.1%	$45,890
36.12 (Rialto/Colton)	85.2%	59.6%	9.2%	$50,340
40.01 (Fontana / Bloomington)	79.6%	74.4%	15.8%	$49,926
40.04 (Rialto/Colton)	77.8%	62.9%	12.9%	$50,755
66.01 (Unincorporated San Bernardino County/Colton)	91.1%	88.7%	23.5%	$45,987
70 (Colton)	91.7%	85.7%	22.1%	$37,857
71.08 (Colton)	75.4%	46.7%	13.3%	$32,949
71.10 (Colton/San Bernardino)	77.8%	40.4%	6.1%	$79,158
72 (San Bernardino/Loma Linda)	81.3%	49.7%	24.8%	$41,012
73.03 (San Bernardino / Loma Linda)	54.2%	26.8%	24.5%	$38,052
73.05 (Loma Linda)	72.0%	49.0%	22.5%	$43,833
78 (Redlands/Unincorporated San Bernardino County)	52.8%	25.6%	10.1%	$51,380
80.02 (Redlands)	82.2%	65.6%	27.0%	$41,351
81 (Redlands)	45.2%	27.8%	15.2%	$39,018
84.01 (Redlands)	47.0%	33.9%	5.0%	$70,104
84.03 (Redlands)	28.0%	13.6%	4.0%	$88,085
84.04 (Redlands)	51.7%	40.3%	17.4%	$36,723
85 (Redlands)	27.8%	12.1%	4.8%	$113,413

Table 3.1.4-6 Environmental Justice

Census Tract	Non-White	Hispanic or Latino	Persons below Poverty Level	Median Household Income
87.04 (Yucaipa)	35.7%	27.6%	8.3%	$47,572
87.05 (Yucaipa)	38.6%	29.9%	9.0%	$50,492
87.06 (Redlands/Unincorporated San Bernardino County/Yucaipa)	32.9%	19.7%	9.1%	$75,919
124 (Colton/San Bernardino)	94.3%	75.5%	13.0%	$43,328
125 (Colton)	95.4%	91.5%	33.8%	$32,618
127 (Ontario)	66.3%	57.3%	8.4%	$78,295
4020.01 (Claremont)	65.1%	38.1%	18.6%	$35,927
4020.02 (Claremont)	55.3%	33.7%	7.7%	$70,938
4021.01 (Pomona)	92.0%	67.9%	15.1%	$61,509
4021.02 (Pomona)	86.9%	56.1%	14.7%	$47,944
4022 (Pomona)	74.3%	47.0%	6.3%	$61,649
4023.01 (Pomona)	90.8%	80.3%	17.8%	$51,781
4023.03 (Pomona)	86.6%	76.6%	37.3%	$46,058
4026 (Pomona)	83.4%	73.8%	18.4%	$45,941
4027.03 (Pomona)	88.8%	74.0%	13.2%	$56,014
Alternative 2 Study Area	75.2%	58.9%	15.6%	$52,051
Alternative 3 Study Area	73.7%	57.8%	15.1%	$52,839
Los Angeles County	71.6%	44.6%	15.7%	$55,476
San Bernardino County	65.3%	39.2%	14.8%	$55,845

*Alternative 2 study area includes all shaded census tracts. Alternative 3 study area includes all census tracts included in the table.

Source: U.S. Census, American Community Survey, 5-year estimates, 2010.

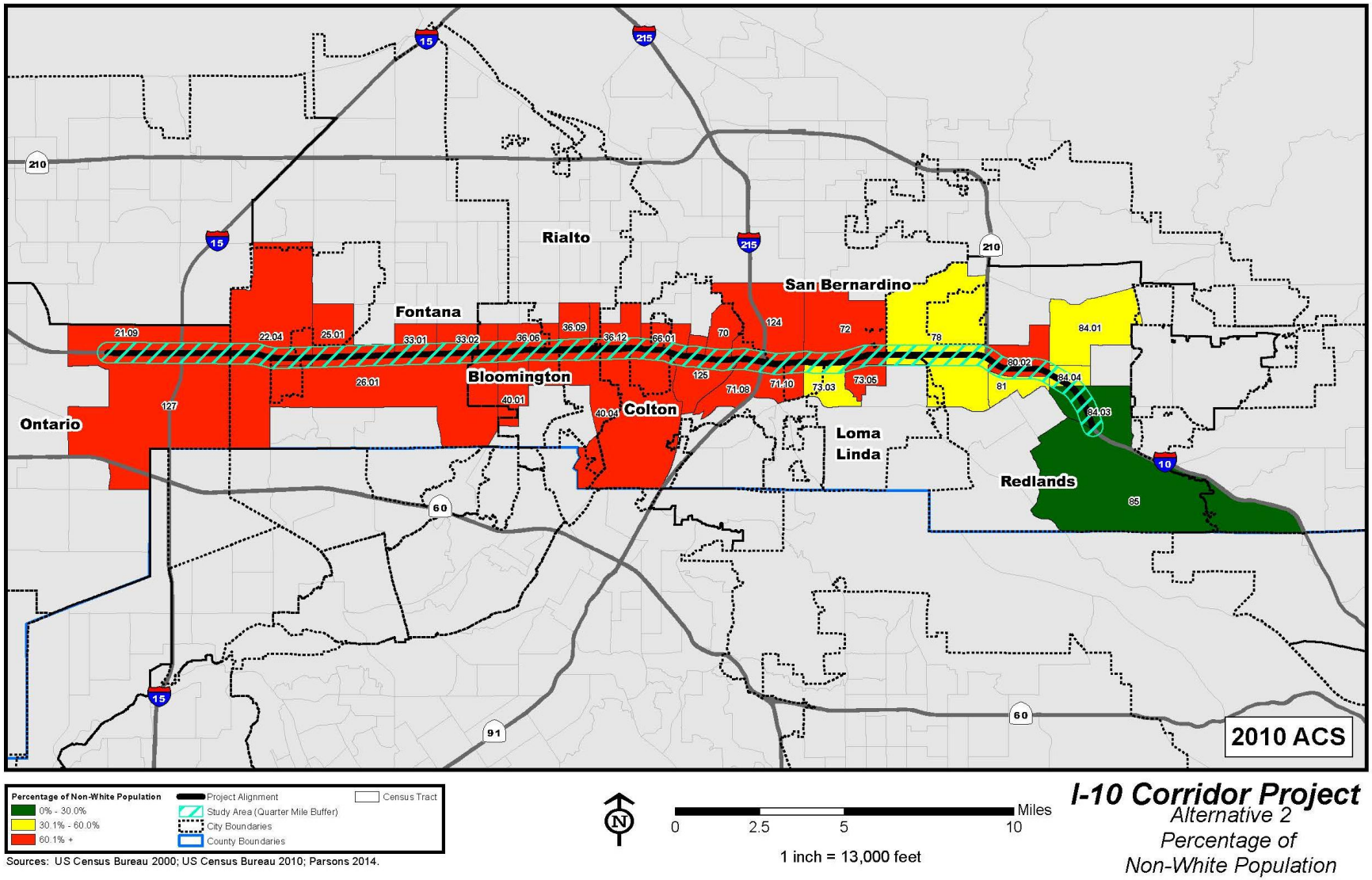


Figure 3.1.4-5 Percentage of Non-White Population (Alternative 2)

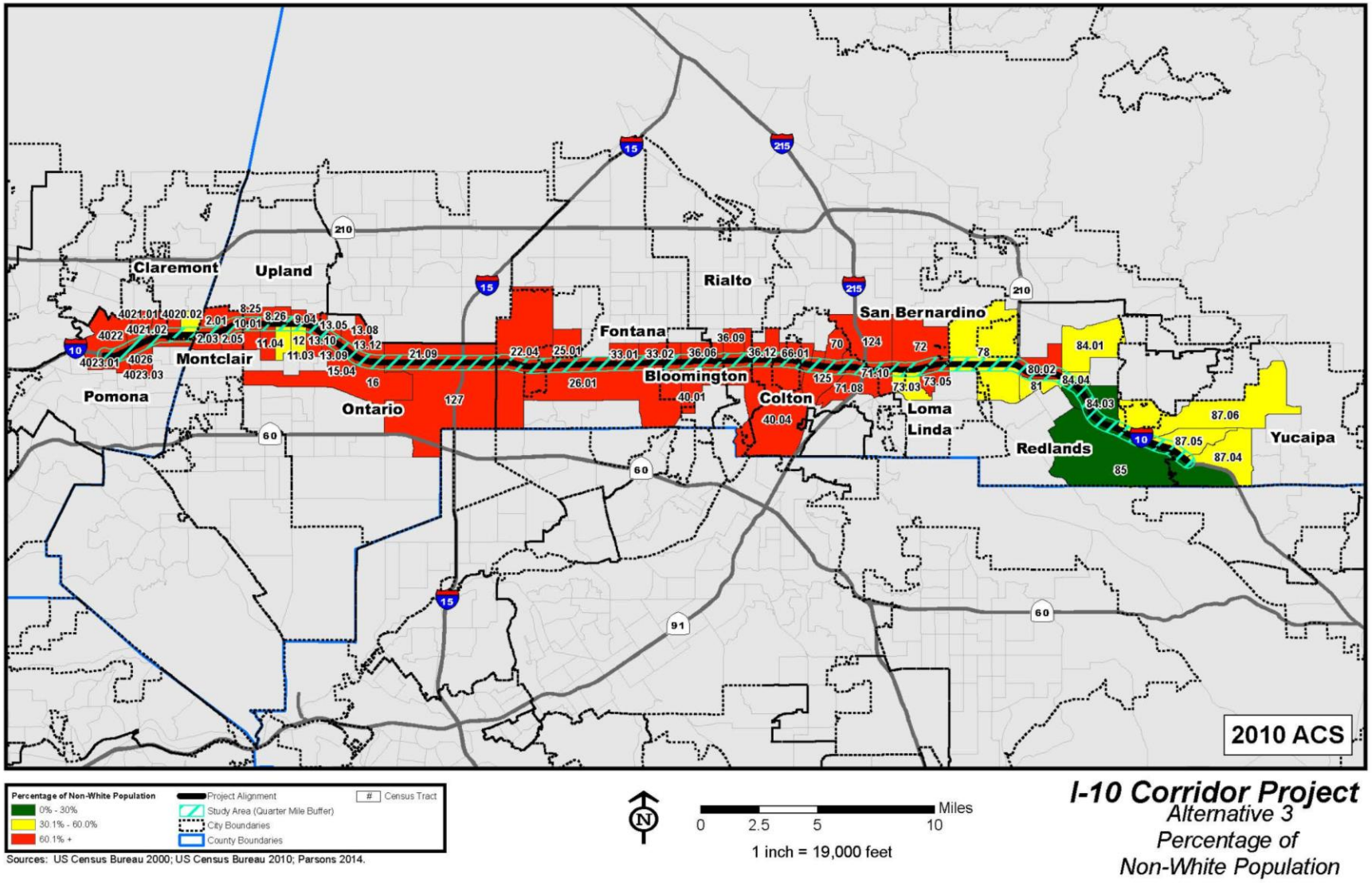


Figure 3.1.4-6 Percentage of Non-White Population (Alternative 3)

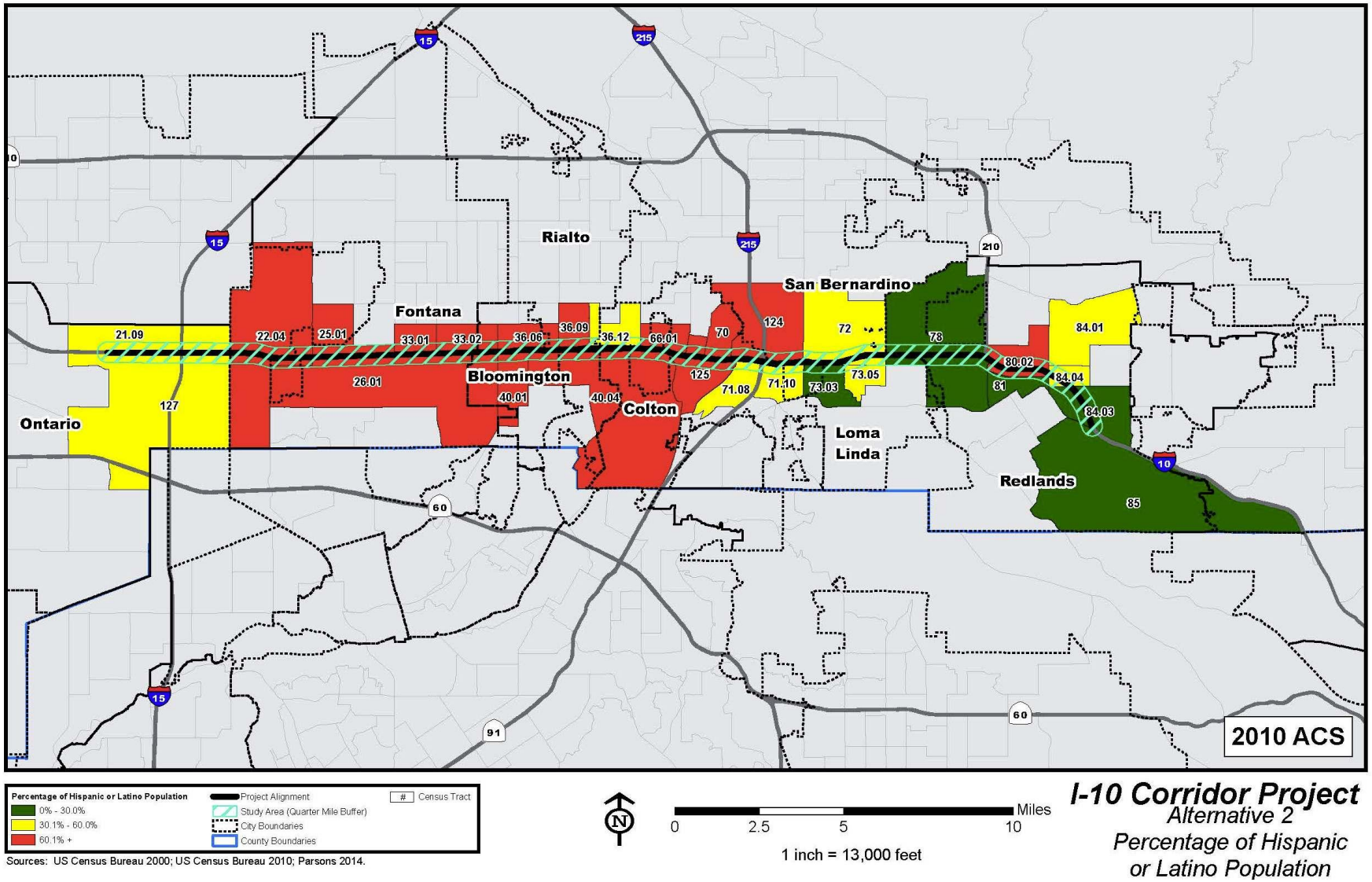


Figure 3.1.4-7 Percentage of Hispanic or Latino Population (Alternative 2)

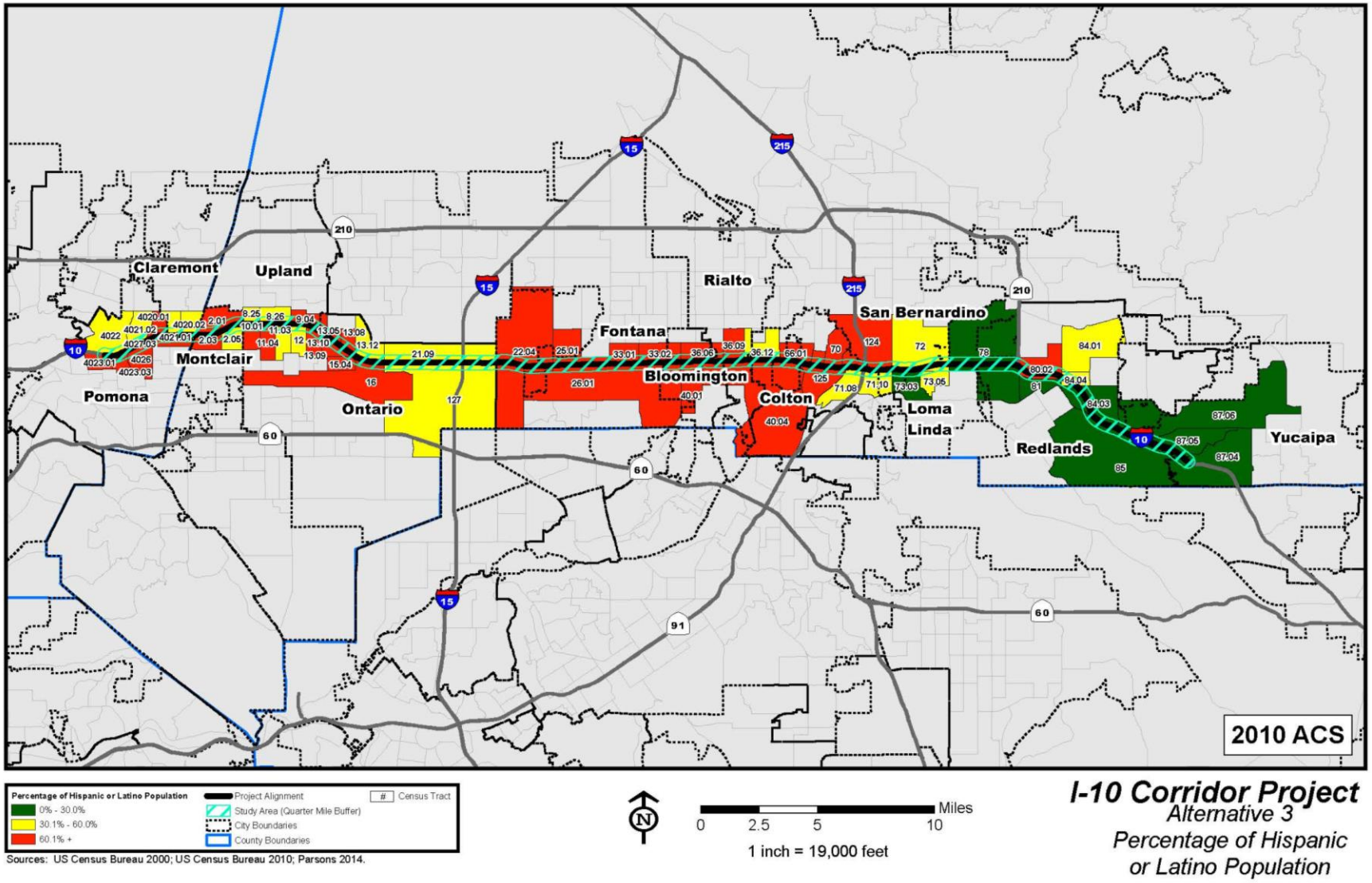


Figure 3.1.4-8 Percentage of Hispanic or Latino Population (Alternative 3)

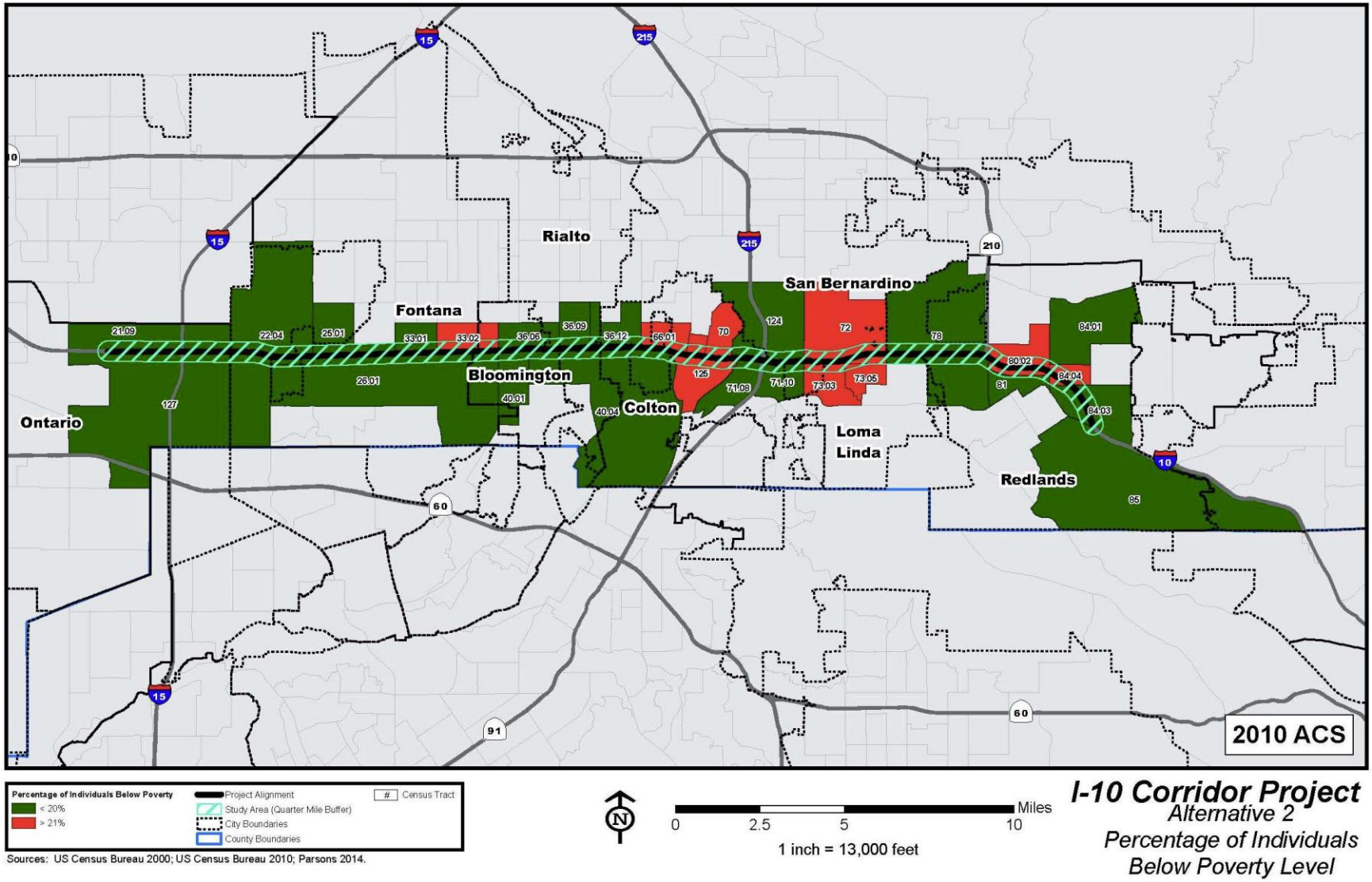


Figure 3.1.4-9 Percentage of Individuals below Poverty Level (Alternative 2)

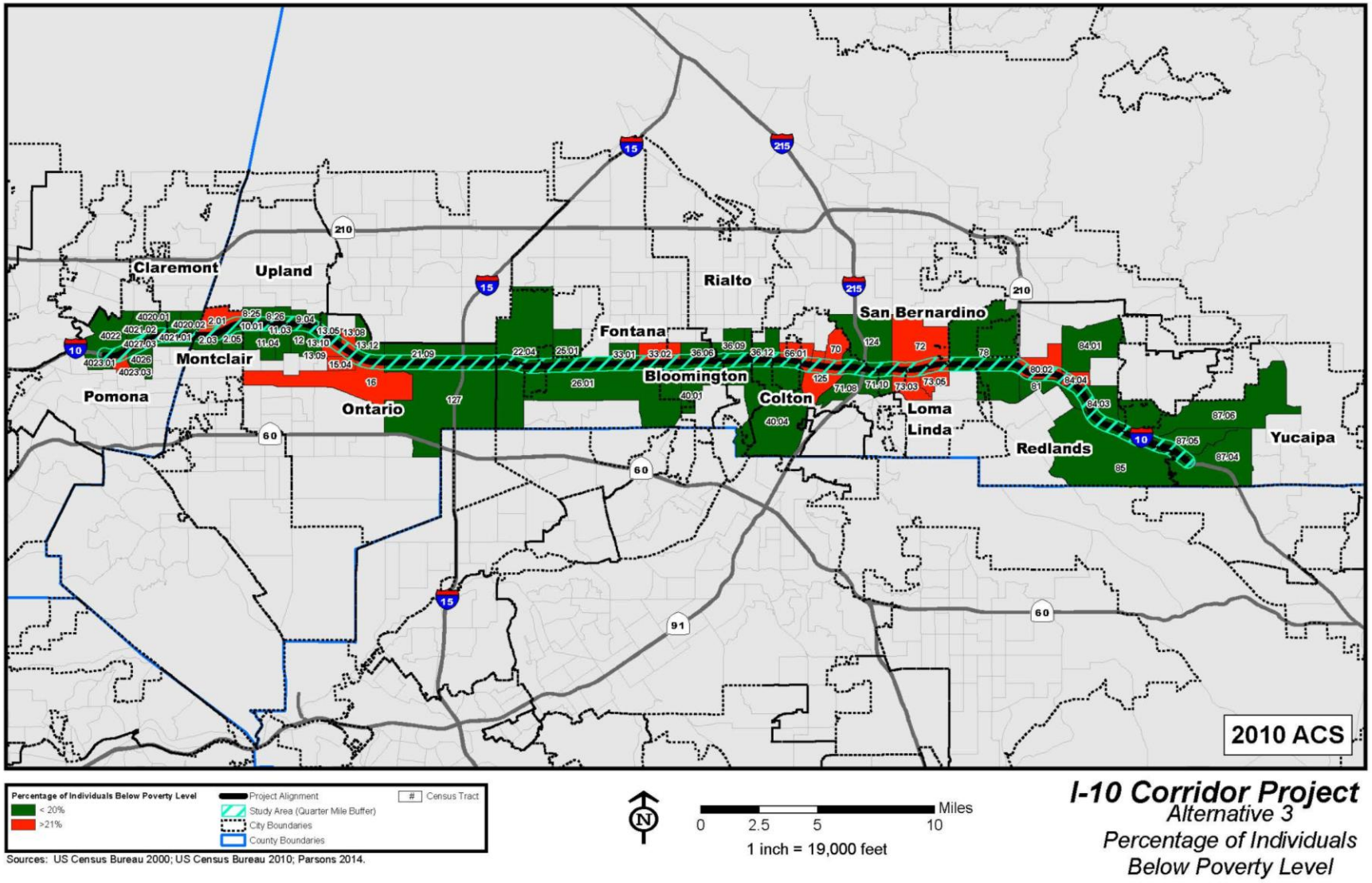


Figure 3.1.4-10 Percentage of Individuals below Poverty Level (Alternative 3)

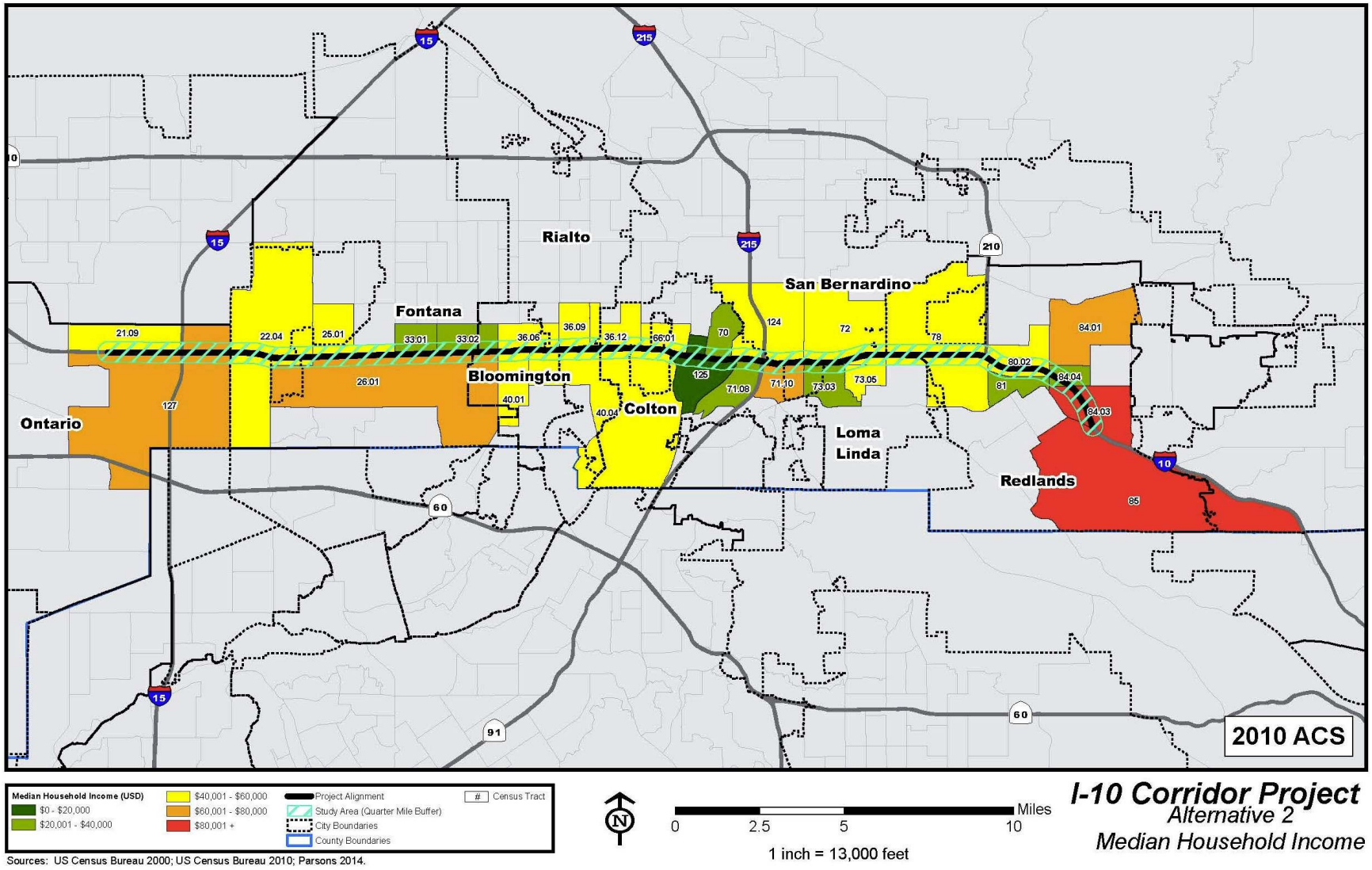


Figure 3.1.4-11 Median Household Income (Alternative 2)

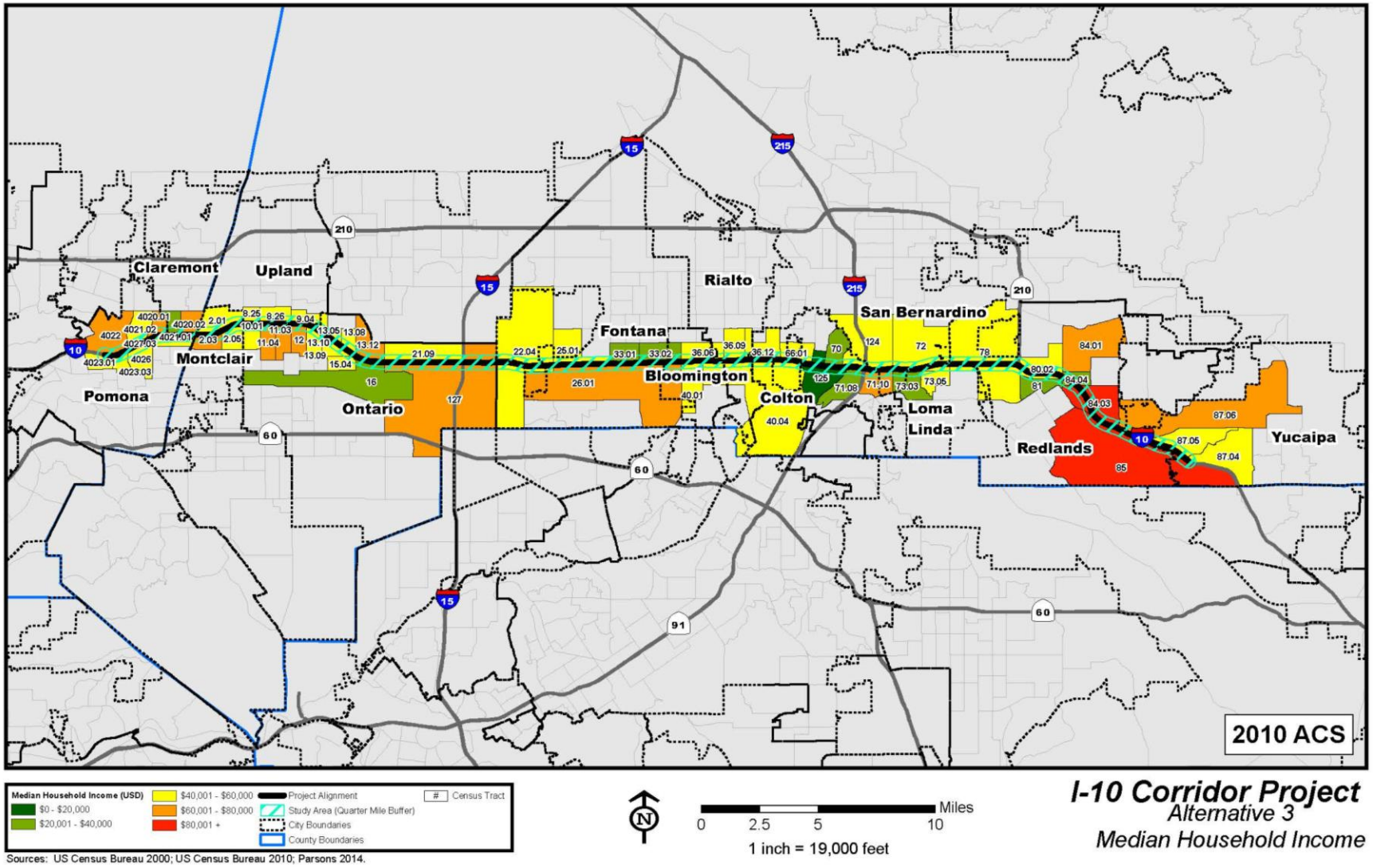


Figure 3.1.4-12 Median Household Income (Alternative 3)

Environmental Consequences

No Build Alternative

The No Build Alternative would maintain the current configuration of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and congestion would continue to worsen for environmental justice populations and non-environmental justice populations without the proposed improvements.

Common to Both Build Alternatives

Title VI requires that no person, because of race, color, religion, national origin, sex, age, or handicap, be excluded from participation in, be denied benefits of, or be subjected to discrimination by any federal aid activity. EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, issued in February 1994, requires that disproportionately high and adverse health or environmental impacts to minority and low-income populations be avoided or minimized to the extent feasible.

Minority and low-income populations could potentially be affected in several ways. The most obvious potential effect of the proposed project is that residents' homes and businesses could be directly displaced or portions of property affected that would require relocation. Other potential effects include dividing an ethnic or low-income neighborhood with a new transportation project. However, the project could also provide benefits to minority and low-income populations if transportation efficiency improves or if transit services are made more accessible or convenient. The Express Lanes would be discounted or free for vehicles carrying three or more passengers, motorcycles, vehicles with disabled license plates, and disabled veterans. The Express Lanes would also be free to public transit vehicles (this includes individuals without licenses or access to automobiles and the elderly), CHP vehicles, Caltrans vehicles, and emergency vehicles responding to an emergency.

In the Caltrans Desk Guide, *Environmental Justice in Transportation Planning and Investments* (January 2003), no definitive guidelines are given for determining what impacts should be considered disproportionately high or adverse; however, two general issues are weighed for environmental justice analysis for transportation projects:

- Whether the adverse impact(s) of the proposed project will be predominantly borne by a minority or low-income population group; or

- Whether the adverse impact(s) of the proposed project will be appreciably more severe or greater in magnitude than the adverse impacts to nonminority and/or non-low-income population groups even after mitigation measures and offsetting project benefits are considered.

"Low-income" and "minority populations" are defined as any readily identifiable group of low-income or minority persons who live in geographically adjacent areas, or groups of geographically dispersed or transient persons who would be similarly affected by a proposed FHWA program, policy, or activity. Transportation agencies such as Caltrans and SANBAG must collect and evaluate data on minority and income characteristics, increase public participation in decision making, and provide mitigation measures to avoid or minimize the adverse effects of the federal action.

The following four measures are used as the basis to evaluate environmental justice:

- Percentage of Non-White residents
- Percentage of Hispanic or Latino residents
- Percentage of population below poverty level
- Median household income

As shown in Table 3.1.4-6, Tract 125 in Colton has the highest percentage of Non-White residents (95.4 percent), while Tract 85 in Redlands has the lowest (27.8 percent). Tract 16 in Ontario has the highest percentage of Hispanic or Latino residents (almost 95 percent). The tracts with the least amount of Non-White and Hispanic or Latino residents are all located at the east end of the project corridor, with the lowest concentration of Hispanic or Latino residents in Tract 85 in Redlands (12.1 percent). The lowest percentage of residents living below poverty is Tract 11.03 in Ontario (3.4 percent), and the highest percentage is in Pomona at 37.3 percent (Tract 4023.03). Tract 125 in Colton has the lowest median household income ($32,618), and Tract 85 in Redlands has the highest ($113,413). Overall, environmental justice populations exist within the study area, particularly in the western portion of the proposed project area, including the cities of Pomona, Montclair, Ontario, Fontana, Bloomington, Rialto, Colton, and San Bernardino, while the eastern portion consists of fewer minorities.

Both build alternatives would benefit most study area residents, including minority and low-income populations, by improving mobility and circulation throughout the study area; however, the build alternatives would affect communities that have a higher number of Non-White persons, a larger Hispanic or Latino population, a

higher number of persons below the poverty line, and lower median incomes than the counties and cities within the study area. Because the proposed project serves both intraregional and interregional traffic, the transportation benefits would be available to all residents of the county. For example, all users (including transit users, pedestrians, and bicyclists) would benefit from less congested streets. Private vehicles and public transportation would benefit from the continuous east-west route.

Community outreach and participation have been integrated into the project development process from the outset, including public scoping, alternatives development, and extensive public and agency stakeholder involvement. Special outreach efforts have included ongoing Community Advisory Group (CAG) meetings, public briefings, town hall meetings, educational forums, workshops, mailers, and flier distribution, as well as through electronic and social media. Future public involvement includes the circulation of the draft and final environmental document and a public hearing.

Based on the above analysis, both build alternatives would affect minority and low-income populations, as well as non-minority and higher-income populations, resulting primarily from residential acquisitions and temporary impacts.

The build alternatives would not have disproportionately high or adverse impacts per EO 12898 to Non-White, Hispanic or Latino, or low-income populations within the referenced populations because they would not result in adverse impacts being predominantly borne by a minority or low-income population, nor would adverse impacts be appreciably more severe to these populations.

Alternative 2

Based on the above discussion and analysis, Alternative 2 would not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice. No minority or low-income populations that would be adversely affected by Alternative 2 have been identified as determined above; therefore, this project is not subject to the provisions of EO 12898.

Alternative 3

The proposed project would result in a large number of residential acquisitions in Fontana, and although there are a higher percentage of environmental justice residents, the highest percentage within the study area does not reside in Fontana. No minority or low-income populations that would be adversely affected by Alternative 3

have been identified as determined above; therefore, this project is not subject to the provisions of EO 12898.

Equity Assessment

In addition to the standard environmental justice analysis that is performed for Caltrans projects, SANBAG prepared an Equity Assessment for I-10 and Interstate 15 (I-15) in San Bernardino County (Network Public Affairs, 2013). The Equity Assessment was produced to address concerns that Express Lanes would create an access barrier and be unfair for individuals with lower incomes. The proposed project would allow for Express Lanes that would be price-managed lanes such that vehicles not meeting the minimum occupancy requirement would pay a toll. West of Haven Avenue, a single new lane would be constructed and combined with the existing HOV lane to provide two Express Lanes in each direction; east of Haven Avenue, all Express Lanes would be constructed by the project. Literature reviews, as well as poverty and income data analysis, were used to evaluate these effects in the Equity Assessment.

The assessment found that the Express Lanes are projected to have several benefits for low-income drivers. Notably, the traffic study models indicated that travel times in the general purpose (GP) lanes would improve on both I-10 and I-15 if Express Lanes are implemented compared with other project alternatives, which would also benefit those not utilizing the Express Lanes by improving the overall traffic flow. Like the high-occupancy vehicle (HOV) option, the Express Lanes provide a new travel option for drivers, which they do not enjoy today. Analysis of potential toll prices indicated that there could be times when a low-income driver would find the Express Lanes time savings attractive. For example, a low-income driver may find time-savings beneficial when running late for work, or for other reasons, such as a toll might be less expensive than per-minute late fees at a day care center.

At the same time, low-income drivers might find toll account requirements burdensome, particularly account maintenance fees. In addition, the Express Lanes may not improve mobility for low-income drivers, who may have limitations on mobility, because there are limited transit alternatives to the Express Lane corridors. However, transit benefits would include improved community connectivity to the Metrolink stations along the corridor, providing trip reliability and improved access to and from stations. For Omnitrans, the Express Lanes would increase capacity for bus service and would improve trip reliability and allow potential for new express bus lines to be added for greater service connecting primary transit hubs. Alternative 3

would also benefit vanpools by providing additional capacity and sustainable trip reliability in the Express Lanes for the long term. The Express Lanes would be free for transit vehicles. These public transit enhancements would provide direct benefits to lower income individuals.

Equity concerns also relate to who pays for the facility compared with who benefits and how toll revenues would be used. The Express Lanes would be equitable because the user would pay for the benefit to use those lanes. Research identified in the Equity Study found that tolls, which are paid by users for the direct benefit of an uncongested trip, are even more equitable than sales taxes, which have found broad support in San Bernardino County. The I-10 and I-15 projects would be funded by a combination of toll revenues, sales tax revenues, and gas tax revenues.

Temporary/Construction Impacts

The proposed project would have a prolonged period of construction for all of the build alternatives. Area residents would endure greater impacts resulting from construction activities compared to the surrounding population. Once construction is complete, traffic circulation would soon return to normal.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the build alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice. Implementation of minimization measures outlined elsewhere in this and other sections would help minimize impacts on all of the local communities, including low-income and minority neighborhoods. In particular, avoidance, minimization, and/or mitigation measures identified in Section 3.1.1, Land Use; Section 3.1.7, Visual/Aesthetics; Section 3.2.5, Hazardous Waste/Materials; Section 3.2.6, Air Quality; and Section 3.2.7, Noise, would help minimize impacts on all community members, including those identified in this section as low-income or minority.

In addition, based on the Equity Assessment findings discussed above, the following measures would make Express Lanes for Alternative 3 more equitable:

COM-15: Create a Low-Income Equity Program, which will include policies to enable low-income households to utilize the proposed project improvements, such as waiving account maintenance fees or allowing the use of cash to open and replenish toll accounts and/or

implementing video license plate recognition as an alternative to toll-collection technology.

Account maintenance fees often apply to toll road or Express Lane transponders that do not incur a minimum amount in tolls in a stated period of time. Waiving these fees would allow low-income and minority communities to utilize the Express Lanes without being required to spend a minimum amount per month. This, in addition to allowing the use of cash to open and replenish toll accounts and/or implementing video license plate recognition, would make the Express Lanes more accessible for these communities.

COM-16: To minimize impacts to surrounding low-income or minority communities, continue to conduct outreach activities targeted to low-income residents during the planning, design, and implementation process for these corridors, regardless of which alternative is chosen. Community outreach will include providing timely information about anticipated construction activities to affected citizens and adjacent property owners. Notification methods could include, but are not limited to, Web site, fliers, mailers, e-mail notifications, and electronic messaging on the freeway.

3.1.5 Utilities/Emergency Services

Many public utilities are located within the project area (i.e., the area disturbed during construction or within the proposed right-of-way [ROW] of each build alternative). These include communication, electrical, natural gas/petroleum, water, and solid waste/sewer lines. Most of the existing utility lines are located within public ROW. Local jurisdictions along the project corridor provide public services. Additionally, there are also private service providers. Descriptions of utilities, emergency service providers, and the project's potential operational effects are described below.

3.1.5.1 Affected Environment

This section is based on a review of the existing utility and emergency service providers and facilities in the study area, the Draft Project Report (February 2016), and the Community Impact Assessment (CIA) (October 2015).

Utilities

This subsection summarizes major utilities found within the project area. There are approximately 716 utilities within the project area, including overhead and underground electrical, natural gas, oil and gasoline pipelines, liquid oxygen line, hydrogen gas line, nitrogen gas line, telephone and communication, cable television, water, and sewer. Most of the utilities run perpendicular to Interstate 10 (I-10) or along the local streets, while approximately 17 facilities run parallel to I-10. The following service providers have utility facilities within or adjacent to the project limits:

Power

- Atchison, Topeka and Santa Fe Railway
- Colton Electric Utility
- Southern California Edison (SCE)

Gas

- Southern California Gas Company (SCG)
- Union Carbide

Communication/Telephone/Cable Television

- American Cablevision
- Comcast
- SUNESYS
- Level 3 Communications/Wiltel

- Sprint Telecom Corp
- Time Warner Cable
- Time Warner Telecom
- Western Union Telegraph
- Verizon (including MCI/GTE)
- AT&T (including Pacific Bell)

Water

- Chino Basin Municipal Water District
- City of Chino Hills
- City of Ontario
- City of Montclair
- City of Riverside
- City of San Bernardino
- City of Upland
- Cucamonga Valley Water District (CVWD)
- Fontana Public Works Department
- Fontana Water Company
- Marygold Mutual Water Company
- Monte Vista Water District
- Metropolitan Water District
- Riverside Highland Water Company
- San Gabriel Valley Water
- San Antonio Water Company
- Southern California Water
- Water Facilities Authority
- West Valley Water
- West San Bernardino Water District
- Water Facilities Authority

Sewer

- Chino Basin Municipal Water District
- City of Colton
- Fontana Public Works Department
- City of Fontana
- City of Ontario
- City of Loma Linda

- City of Montclair
- City of Ontario
- City of San Bernardino
- City of Upland
- City of Rialto Sewer
- Fontana Public Works
- Western Pacific Sanitation Company

Oil Pipelines

- California-Nevada Pipeline

Gasoline Pipeline

- California-Nevada Pipeline
- Kinder Morgan
- Union Carbide Company
- Southern California Gas
- Southern Pacific Railroad/UPRR

Waste Water Line

- Santa Ana Watershed Project Authority

The following discussion highlights the major utilities within the I-10 Corridor Project (I-10 CP) study area.

Electrical Power

SCE provides most of the distribution power supply to the project area. Most of the arterials, along with some local streets in the project area, accommodate either aerial overhead or underground electrical lines.

SCE Towers

Two bulk transmission lines, owned by SCE, currently cross I-10 east of Etiwanda Avenue, with lattice steel towers situated in the I-10 median area.

Westerly Line (No. 1 Etiwanda-Highgrove). The No. 1 Etiwanda-Highgrove transmission line crosses I-10 approximately 285 feet east of Etiwanda Avenue. This facility is a single-circuit 220-kilovolt (kV) transmission line with three conductors. The support structures in the immediate vicinity of I-10 consist of a lattice steel tower (M13-T4) in the I-10 median, a lattice steel tower approximately 470 feet north of the

State ROW, and two lattice steel towers south of I-10 (one just outside the State ROW and another approximately 300 feet south of the State ROW).

The tower (M13-T4) was installed in the I-10 median (previously Route 26) in 1952 under a Caltrans Encroachment Permit B88131 dated December 31, 1951. The facility was installed after the freeway resolution in 1948 but prior to the freeway route adoption in 1958. During the I-10 freeway construction in 1966, Tower M13-T4 was relocated at SCE's cost approximately 40 feet north from its original location to line up with the center of I-10 under Utilities Agreement 11748.

Easterly Line (North Boulder-Chino & No. 2 Etiwanda-Highgrove). The North Boulder-Chino & No. 2 Etiwanda-Highgrove transmission line crosses I-10 approximately 470 feet east of Etiwanda Avenue. This facility is a double-circuit 220-kV transmission line with six conductors. The support structures in the immediate vicinity of I-10 consist of a lattice steel tower (M222-T1N or M1-T4) in the I-10 median, a lattice steel tower approximately 550 feet north of the State ROW, and another lattice steel tower approximately 75 feet south of the State ROW.

The tower (M1-T4) was installed in 1940 by an easement prior to the freeway resolution in 1948 and route adoption in 1958. This facility has prior rights under the Consent to Common Use Agreement (CCUA) 11748(1).

Natural Gas/Petroleum

Natural gas and petroleum within the project area is provided by SCG, Union Carbide, California-Nevada Pipeline, and Southern Pacific Railroad.

Water Distribution

Water pipelines owned by the entities listed above provide water to many businesses and residences within the study area. Most cities in the study area provide water services via the water resources division of each jurisdiction's public works department. Water lines are located within most of the streets crossing I-10 and other freeways within the project area.

MWD Waterline

MWD's precast concrete Upper Feeder 140-inch-diameter pipeline exists at three locations of the I-10 corridor. The pipeline was installed circa 1940s before I-10 became a freeway.

MWD Crossing West of Monte Vista Avenue in Montclair. At this location, the MWD Upper Feeder is a 140-inch-diameter precast concrete pipe that runs diagonally

across I-10 in a northwest to southeast trend at approximately 28 degrees from normal before it turns and runs easterly between Palo Verde Street and the Monte Vista Avenue eastbound (EB) off-ramp. The facility is approximately 6 feet deep under I-10 inside a protection structure, approximately 5 feet deep where it crosses under the San Antonio Channel, and 6 to 35 feet deep between Palo Verde Street and the Monte Vista Avenue EB off-ramp. There is one service connection to Chino Basin MWD @ STA 1011+15 and one service connection to Pomona Valley MWD @ STA 1018+41, which are accessible from Palo Verde Street.

MWD Crossing East of Sixth Street in Ontario. At this location, the MWD Upper Feeder is a 140-inch-diameter precast concrete pipe that runs diagonally across I-10 in a southwest to northeast trend at approximately 57 degrees from normal. The facility is approximately 7 feet deep under I-10. The portion of the pipe under the existing freeway pavement is encased with concrete.

MWD Crossing East of Cherry Avenue in Fontana. At this location, the MWD Upper Feeder is a 140-inch-diameter precast concrete pipe that runs diagonally across I-10 in a northwest to southeast trend at approximately 44 degrees from normal. The facility is approximately 8 feet deep under I-10. The MWD facility is not encased under I-10, but it is protected by a structure under the Union Pacific Railroad (UPRR) main tracks and a structure under a spur track, which are outside the State ROW.

Wastewater and Stormwater

For most cities within the project area, the utilities division of their respective public works department maintains sewer utilities. In addition to wastewater, some sewerage systems also handle stormwater runoff. These facilities are also managed and maintained by the cities where they are located.

Solid Waste Disposal and Recycling

Solid waste collection, recycling, and yard waste disposal within the project area is either provided by the city or company, as follows:

- Pomona – City
- Claremont – City
- Montclair – City
- Upland – City/Burrtec
- Ontario – City/Municipal Utilities Company
- Fontana – Burrtec
- Bloomington – EDCO Disposal Services

- Rialto – City/Burrtec
- Colton – Republic Services
- San Bernardino – City
- Loma Linda – City
- Redlands – City
- Yucaipa – City/Burrtec

In Los Angeles County, the nearest landfill is almost 20 miles from the project area. The County of San Bernardino Solid Waste Management Department owns and operates two landfills in the Valley Region of San Bernardino County: The San Timoteo Landfill and the Mid-Valley Landfill. The San Timoteo Landfill is located at 31 Refuse Road in Redlands. This Class III landfill has a permitted capacity of 2,000 tons per day and has a remaining capacity of 13,605,488 cubic yards. The estimated closure year is 2043. Mid-Valley Landfill is located at 2390 N. Alder Avenue in Rialto. This Class III landfill has a permitted capacity of 7,500 tons per day and has a remaining capacity of 67,520,000 cubic yards. The estimated closure year is 2033.

Telephone, Cable, and Fiber Optics

American Cablevision, Comcast, IC, Level 3 Communications/Wiltel, Sprint Telecom Corp, Time Warner Cable, Time Warner Telecom, Western Union Telegraph, AT&T (including Pacific Bell), and Verizon (including MCI/GTE) provide telecommunication services within the project area. Most of these facilities are located within street ROW, with some facilities located in easements along the ROW line and behind single-family residences and businesses.

Law Enforcement Services

Law enforcement services in the project study area are provided by the Cities of Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, Redlands, and Yucaipa Police Departments. The San Bernardino County Sheriff's Department (SBCSD) provides law enforcement services for unincorporated areas in San Bernardino County. The police and sheriff's stations near the project study area are listed in Table 3.1.5-1.

Table 3.1.5-1 Police and Sheriff's Stations in the Study Area

Police Department	Service Area	Station and Address
Upland Police Department	City of Upland	1499 West 13th Street
Ontario Police Department	City of Ontario	2500 South Archibald Avenue
Colton Police Department	City of Colton	650 North La Cadena Drive
San Bernardino Police Department	City of San Bernardino	710 North D Street
Redlands Police Department	City of Redlands	1270 West Park Avenue
Redlands Police Department East	City of Redlands	East Citrus Avenue/North Grove Street

Source: Community Impact Assessment (October 2015).

California Highway Patrol (CHP)

The project segments of the I-10 CP are in the jurisdictions of the CHP Inland and Los Angeles Divisions. The study area is served by the CHP San Bernardino and Los Angeles offices.

CHP enforcement refuge areas are located in the median and within the ROW of the I-10 CP in the study area in Los Angeles and San Bernardino counties. A refuge area is a space within the roadway ROW where vehicles can safely stop outside travel lanes in response to law enforcement directions or if a vehicle must leave the travel lanes. The following discussion provides information on the existing CHP enforcement areas.

Mainline

Currently, there are two bidirectional CHP enforcement areas along I-10 within the project limits. These CHP enforcement areas are located in the median of I-10 at the following general locations:

- Between Mountain Avenue and Euclid Avenue in Ontario (approximate Sta 1126+72 and 1142+72)
- Between Grove Avenue and Fourth Street in Ontario (approximate Sta 1263+56 and 1290+12)

Interchange areas

CHP enforcement areas are at most of the existing interchange on-ramps throughout the project area.

Fire Protection and Emergency Medical Services

Fire protection and emergency medical services in the project study area are provided by the Cities of Pomona, Claremont, Montclair, Upland, Ontario, Fontana, Rialto, Colton, San Bernardino, Loma Linda, and Redlands Fire Departments. San Bernardino County provides fire and emergency medical services for the City of

Bloomington. The City of Yucaipa Fire Department and the California Department of Forestry and Fire Protection (CAL FIRE) provide fire services to the City of Yucaipa. The fire stations in the study area are listed in Table 3.1.5-2.

Table 3.1.5-2 Local Fire Stations in the Study Area

Fire Department and Service Area	Station Number and Address
Fontana Fire Department, City of Fontana	Station No. 77, 17459 Slover Avenue, Fontana, CA 92337
San Bernardino County Fire Department, City of Bloomington	Station No. 76, 10174 Magnolia Street, Bloomington, CA 92316
Colton Fire Department, City of Colton	Station No. 211 303 E. E Street, Colton, CA 92324
Redlands Fire Department, City of Redlands	Station No. 261, 525 E. Citrus Avenue, Redlands, CA 92373 Station No. 264, 1270 W. Park Avenue, Redlands, CA 92373

Sources: Community Impact Assessment (October 2015) and www.fire.ca.gov*, accessed January, 2015.*

CAL FIRE is an emergency response and resource protection department. CAL FIRE protects people, property, and natural resources from fire, responds to emergencies of all types, and protects and preserves timberlands, wildlands, and urban forests. The CAL FIRE Inyo-Mono-San Bernardino Unit provides services in the study area from local fire stations. CAL FIRE has a Cooperative Fire Protection Agreement with San Bernardino County and a Wildland Fire Protection Agreement with the Cities of Loma Linda and Redlands.

Emergency Medical Facilities

Table 3.1.5-3 summarizes the hospital and medical centers in the study area.

Table 3.1.5-3 Hospitals and Medical Facilities in the Study Area

Hospitals and Medical Facilities	Address
Pomona Valley Podiatry Group	1900 Royalty Drive, Pomona, CA 91767
R&B Lewis Cancer Care Center	1910 Royalty Drive, Pomona, CA 91767
Doctors Hospital Medical Center of Montclair	5000 San Bernardino Street, Montclair, CA
Community Extended Care Hospital	9620 Fremont Avenue, Montclair, CA 91763
Nations Surgery Center	W. 6th Street/N. Elderberry Avenue, Ontario, CA
Kaiser Hospital	9961 Sierra Avenue, Fontana, CA
Crestview Convalescent Hospital	1471 S. Riverside Avenue, Rialto, CA
Arrowhead Regional Medical Center	400 N. Pepper Avenue, Colton, CA
Planned Parenthood San Bernardino Health Center	1873 S. Commercenter Drive, San Bernardino, CA
Totally Kids Specialty Health Care	1720 Sterling Avenue, Loma Linda, CA
Advanced Ambulatory Surgery Center	1901 W. Lugonia Avenue, Redlands, CA
Redlands Family Clinic	802 W. Colton Avenue, Redlands, CA

Source: Community Impact Assessment (October 2015).

3.1.5.2 Environmental Consequences

Summary of Impacts

Utilities

There will be no adverse impacts to utilities under the No Build Alternative; however, the proposed improvements under Alternatives 2 and 3 would result in the relocation of some major electrical and water utilities, but they would not adversely affect the long-term operations of these utilities.

Up to 159 of the 716 utilities within the project area, including 5 cable television, 6 fiber-optic lines, 16 gas lines, 3 gasoline lines, 1 petroleum line, 30 power/electrical lines, 1 power transformer, 21 sewer lines, 13 telephone lines, 2 wastewater lines, 59 water lines, and 2 unknown utility lines, have the potential to be impacted by the proposed improvements. Up to 86 of these potentially impacted utilities would require minor to moderate work, such as extending the utility, constructing a structure or encasement around the utility, pouring a slurry mixture over the utility, or requiring a hand digging method when performing excavation around the utility. The remaining 73 utilities are anticipated to require removal or relocation due to conflict with the proposed project improvements.

The No Build Alternative would not require any land for the use of temporary construction easements (TCEs). Alternatives 2 and 3 may require the use of TCEs for relocations of utilities.

Law Enforcement, Fire, and Emergency Medical Services

None of the proposed alternatives would result in adverse impacts to emergency service providers; however, Alternatives 2 and 3 may temporarily impact response times from service providers due to the proposed construction, road closures, and lane closures.

During construction of Alternatives 2 and 3, the ability of emergency service providers to meet response times could be impaired as a result of temporary traffic delays; road, lane, and/or ramp closures; or detours. Project construction activities along the project area could potentially delay or affect the response time for CHP and emergency services providers.

The build alternatives do not include construction of any residential or nonresidential uses and were determined not to influence growth; therefore, Alternatives 2 and 3 would not increase the population or increase the demand for public services or utilities in the study area in the long term.

Permanent Impacts

Utilities

Utilities are allowed in the Caltrans ROW with an encroachment permit. Utility facilities (e.g., water lines, sewer laterals, electrical connections/lines/poles, natural gas service lines, streetlights, fire hydrants, and cable television lines and utility boxes) in the ROW would be subject to abandonment, removal, and relocation or replacement as a result of project construction. Utility companies would be given enough notice to relocate their facilities before construction or at a later stage of construction, as appropriate.

Such coordination is standard during the design phase of the project. Utility relocations would be done using standard engineering practices, so substantial service disruption is not expected and impacts are minimized.

No Build Alternative

The No Build Alternative would maintain the current configurations of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and no impacts to utilities would occur.

Alternative 2

In general, no adverse impacts are anticipated with Alternative 2, as the project will protect in place or relocate any utilities that are in conflict with this alternative. All utility work will be completed within the project footprint. Utilities are allowed in the Caltrans ROW with an encroachment permit. Utility facilities (e.g., water lines, sewer laterals, electrical connections/lines/poles, natural gas service lines, streetlights, fire hydrants, and cable television lines and utility boxes) in the ROW would be subject to abandonment, removal, and relocation or replacement as a result of project construction.

While the relocations described above are not anticipated to result in significant adverse impacts, a Utility Relocation Plan will be developed to avoid and minimize potential impacts to the identified utilities. The Utility Relocation Plan would be prepared during the design phase. As part of that effort, the design team would work with the utility provider to identify the relocation area that would minimize impacts to various resources. Generally, utilities would be relocated within the existing ROW. These areas are already disturbed, so adverse impacts are not expected and implementation of standard engineering practices would ensure that no substantial interruptions would occur. Should relocation of the utilities result in impacts to

resources not analyzed in this environmental document, additional environmental documentation would be required.

The following provides a discussion of the major utilities that would be affected as part of Alternative 2.

SCE Transmission Tower Relocation – Westerly Line (No. 1 Etiwanda-Highgrove). The project proposes to relocate this facility to remove the towers outside of the I-10 median. Removal of Tower M13-T4 requires rearrangement of three lattice steel towers and wire reinstallation of approximately 1,950 feet across I-10 and 790 feet along the UPRR on the south side of I-10. The existing tower in the I-10 median would be removed and replaced with a new structure just north of the State ROW. Both towers on the south side would also be removed and replaced with new structures in the same proximity. The existing tower at 470 feet north of the State ROW would remain in place. It is anticipated that tubular steel poles will be used as new support structures for the westerly line; however, it may be determined during the plans, specifications, and estimate (PS&E) phase that lattice steel towers are preferred to accommodate reinstallation of the conductors in a horizontal configuration. The maximum span over I-10 is approximately 1,200 feet.

SCE Transmission Tower Relocation – Easterly Line (North Boulder-Chino & No. 2 Etiwanda-Highgrove). The project proposes to relocate this facility to remove the towers outside of the I-10 median. Removal of Tower M1-14 requires rearrangement of two towers and approximately 1,465 feet of wire reinstallation across I-10. The existing tower in the I-10 median would be removed and replaced with a new structure just north of the State ROW. The tower south of the State ROW would also be removed and replaced with a new structure in the same proximity. The existing tower at 550 feet of the State ROW would remain in place. Tubular steel poles are anticipated to replace the two lattice towers on the easterly line. Reinstallation of the conductors in a vertical configuration is not foreseen as an issue at this location. The maximum span over I-10 is approximately 930 feet.

Construction of Both Transmission Lines. No new ROW or easement is anticipated to be required for the new structures. SCE owns parcels or has easement along the entire path of the subject transmission lines; therefore, it does not foresee constraints for pole placement location.

There are three wireless communication facilities (e.g., dishes, antenna) on three towers south of I-10 that would be impacted. These existing cellular facilities cannot

be attached to the tubular steel poles; therefore, they will need to be removed if tubular steel poles are used as the new support structures. SCE has an agreement with each of the three cellular facility owners requiring the cellular facility owners to relocate at their cost. A lead time of 18 months is required for the cellular site owners to remove their facilities before relocation of the towers.

Transference of the conductors from existing towers to new support structures is not anticipated to result in any outage/service disruption because there is some redundancy in the power grid; however, the work should be staged for cooler weather to avoid potential impact to the power grid. If the relocation takes place during the summer months or during hot weather, line outages will be at the discretion of the SCE Grid Control Center (GCC). During hot weather, line outages can be granted and subsequently cancelled with short notice.

A lead time of 18 to 24 months from the date of SCE's approved relocation design is required for fabrication of tubular steel poles.

MWD Waterline – MWD Crossing West of Monte Vista Avenue in Montclair. This facility is outside the limits of Alternative 2; therefore, it would not be impacted.

MWD Waterline – MWD Crossing East of Sixth Street in Ontario. This facility is outside the limits of Alternative 2; therefore, it would not be impacted.

MWD Waterline – MWD Crossing East of Cherry Avenue in Fontana. Alternative 2 would widen the north side of I-10 at this location. Because the existing MWD facility is not protected by encasement under I-10, concrete encasement would not be proposed under the widened pavement.

Alternative 3

In general, no adverse impacts are anticipated with Alternative 3, as the project will protect in place or relocate any utilities that are in conflict with this alternative. All utility work will be completed within the project footprint. All relocations would be relocated in compliance with applicable California Public Utilities Commission (CPUC) regulations. Utilities are allowed in the Caltrans ROW with an encroachment permit. Utility facilities (e.g., water lines, sewer laterals, electrical connections/ lines/poles, natural gas service lines, streetlights, fire hydrants, and cable television lines and utility boxes) in the ROW would be subject to abandonment, removal, and relocation or replacement as a result of project construction.

While the relocations described above are not anticipated to result in significant adverse impacts, a Utility Relocation Plan will be developed to avoid and minimize potential impacts to the identified utilities. The Utility Relocation Plan would be prepared during the design phase. As part of that effort, the design team would work with the utility provider to identify the relocation area that would minimize impacts to various resources. Generally, utilities would be relocated within the existing ROW. These areas are already disturbed, so adverse impacts are not expected and implementation of standard engineering practices would ensure that no substantial interruptions would occur. Should relocation of the utilities result in impacts to resources, additional environmental documentation would be required.

Impacts to major utilities would be similar to those described for Alternative 2, with the exception of the following:

MWD Crossing West of Monte Vista Avenue in Montclair. Under Alternative 3, I-10 is proposed to be widened on both sides with a retaining wall along the EB freeway edge of shoulder. The proposed retaining wall would be on top of the MWD facility and present a conflict between wall footing and the MWD facility for standard retaining wall design. In addition, MWD requested unobstructed access to existing service connection structures to Chino Basin MWD and Pomona Valley MWD from Palo Verde Street. As such, the design has been proposed to extend the existing MWD Upper Feeder protection structure and build a modified retaining wall, whose footing would sit on top of the protection structure and connect to the protection structure with dowels in the same way as the existing wall footing connecting to the existing protection structure.

Law Enforcement, Fire, and Emergency Medical Services

No Build Alternative

The No Build Alternative does not propose any project improvements; therefore, it would not provide benefits to police, fire, and emergency services. Continued congestion on the project segments of I-10 under the No Build Alternative would potentially result in increased delays and increased response times for emergency service providers in the future.

Alternative 2

Alternative 2 would improve traffic throughput and travel times, and reduce delays for travelers on the project segments of I-10. These improvements would have beneficial effects for law enforcement, fire protection, and emergency service providers. In addition, emergency service providers would be able to use the high-

occupancy vehicle (HOV) lanes in Alternative 2 when the other travel lanes are experiencing heavy traffic volumes and slow travel speeds.

The new HOV lane configuration under Alternative 2 would include a continuous shoulder that would provide emergency refuge.

Within the limits of the proposed I-10 improvements, a CHP enforcement area is proposed at entrance ramps where there is available space within the existing or proposed ROW to accommodate the enforcement area pavement. The additional CHP enforcement areas would provide a safe and secure location for CHP to stop and manage traffic along the I-10 corridor.

Alternative 3

The beneficial effects on emergency services under Alternative 3 would be greater than Alternative 2; emergency service providers would be able to use the Express Lanes in Alternative 3 when the other travel lanes are experiencing heavy traffic volumes and slow travel speeds. There would be long-term sustainable free-flow conditions in the Express Lanes for emergency vehicles to better serve the communities. The existing median refuge areas for CHP enforcement would be reconfigured under Alternative 3.

The new Express Lane configuration under Alternative 3 would include a continuous shoulder that would provide emergency refuge.

Within the limits of the proposed I-10 improvements, a CHP enforcement area is proposed at entrance ramps where there is available space within the existing or proposed ROW to accommodate the enforcement area pavement. The reconfigured and additional CHP enforcement areas would provide a safe and secure location for CHP to stop and manage traffic activities along the I-10 corridor.

Temporary/Construction Impacts

Utilities

No Build Alternative

The No Build Alternative would maintain the current configurations of I-10 in the study area. Under the No Build Alternative, the project would not be constructed, and no impacts to utilities would occur.

Build Alternatives

Impacts to utility facilities would occur within or adjacent to the State ROW for I-10. Utility facility relocations, removals, and/or protection in-place would be necessary in

areas where project construction would occur. As a result, utility services could be temporarily interrupted or facilities damaged. The decision on relocation, removal, and/or protection in-place would be made during PS&E in consultation with the owner of each affected utility.

Caltrans has mandatory standards and procedures for the placement and protection of underground utility facilities within the State ROW. Several of the utilities along the project area have been identified as "high risk" under the Policy on High and Low Risk Underground Facilities within the Highway Right-of-Way (Caltrans Right-of-Way Manual, January 1997). This policy provides for a safe environment for Caltrans employees, construction contractors and workers, and traveling public. The Policy states that facilities transporting the following, whether encased or not, are considered high-risk facilities:

- Petroleum
- Oxygen
- Chlorine
- Toxic or flammable gases

The proposed project would have a prolonged period of construction for all of the build alternatives, and effects to utilities would require some disruption to traffic circulation. Once construction is complete, traffic circulation would soon return to normal. A Transportation Management Plan (TMP) would be implemented to ensure any potential temporary effects to utilities are minimized during construction of the proposed project.

Digging, potholing, or other acceptable methods would be used to locate existing utility facilities that cross the freeway segments or that are in the freeway and local street ROWs under the build alternatives. The only acceptable method of locating high-risk utilities is hand excavation, and it would only be allowed once permission to access those high-risk facilities has been received from the utility owners.

Law Enforcement, Fire, and Emergency Medical Services

No Build Alternative

The No Build Alternative would not result in the construction of project improvements on I-10; therefore, it would not result in temporary impacts to law enforcement, CHP, fire protection, or emergency service providers. No delays to emergency service providers due to detours or closures would occur under the No Build Alternative.

Build Alternatives

Construction of the build alternatives could result in temporary traffic delays, road closures, lane closures, or detours that may impair the ability of law enforcement, fire, and other emergency service providers to meet response time goals.

Non-fire-related medical emergencies could temporarily increase with the presence of construction workers and heavy machinery in the construction area during construction of the build alternatives.

Construction of the build alternatives is anticipated to require temporary weekend, nighttime, and extended daily closures of the I-10 EB and westbound (WB) auxiliary lanes, connectors, and on- and off-ramps. Improvements to these features would be scheduled in phases to minimize temporary impacts to freeway users, which would include emergency service providers.

During construction of the build alternatives, motorists and emergency service providers can expect to experience typical construction-related temporary changes in access, with intermittent delays on I-10 and adjacent local roadways; however, as stated in Measure COM-8 in Section 3.1.4, Community Impacts, implementation of a TMP will be required. During PS&E, a TMP will be developed for implementation during project construction. The Final TMP will be prepared for the project as required by Caltrans and Measure T-1 (see Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities of the Community Impact Assessment). Known temporary and long-term closures for each alternative are discussed in detail in Section 3.1.4, and preliminary detour routes are provided in Appendix I.

As described in the Draft TMP, alternate emergency service routes and traffic handling plans must be coordinated with local jurisdictions and emergency service providers (e.g., CHP, local police, fire, paramedics) during PS&E. The TMP will include emergency service routes that serve hospitals, fire/police stations, emergency shelters, emergency command centers, and other facilities that provide essential services in times of emergencies within the study area. These emergency service routes would be maintained during construction or alternate routes would be provided. Construction contract documents would require that emergency service providers be notified in advance prior to any lane closures, interruptions on emergency service routes, or changes in traffic control. In addition, no two consecutive/adjacent off-ramps or two consecutive/adjacent on-ramps in the same direction will be closed concurrently, per Measure COM-1, Section 3.1.4.

Although construction-related delays and detours may temporarily affect the response times of emergency service providers, measures identified in Section 3.1.4, Community Impacts, and Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, would minimize project effects on emergency service providers. The build alternatives would not result in any substantial effects on emergency service providers and/or response times.

3.1.5.3 Avoidance, Minimization, and/or Mitigation Measures

No measures are required for operation of the proposed project. The following measures were identified for impacts to emergency services and utilities during construction of the proposed project. Additional avoidance, minimization, and/or mitigation measures for impacts to utilities and emergency services will be considered upon completion of coordination with utility companies and emergency service providers following selection of a Preferred Alternative and development of the plans, specifications, and estimate (PS&E) package.

UT-1: During PS&E, the Project Engineer will prepare utility relocation plans in consultation with the affected utility providers/owners for those utility facilities that will need to be relocated, removed, or protected in-place. If relocation is necessary, the final design will focus on relocating utilities within the State ROW or other existing public ROWs and/or easements. If relocation outside of existing or the additional public ROWs and/or easements required for the project is necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities.

UT-2: **Protection of MWD Upper Feeder Pipeline.** To protect the integrity of the MWD pipeline, geotechnical exploration and analysis may be required during the PS&E phase, including:

- Stress analysis to determine the increased load imposed on the affected reach of the pipeline.
- Settlement/rebound analysis to determine potential settlement and lateral displacement.
- Slope stability analysis to determine potential induced instability of the affected reach of the pipeline.

UT-3: To minimize risk of fire prior to and during any construction activities, Caltrans will require implementation of the following to minimize the risk of fires during construction:

- Coordinate with the applicable local fire department to identify and maintain defensible spaces around active construction areas.
- Coordinate with the applicable local fire department to identify and maintain firefighting equipment (e.g., extinguishers, shovels, water tankers) in active construction areas.
- Post emergency services phone numbers (i.e., fire, emergency medical, police) in visible locations in all active construction areas.

3.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

This section addresses the potential effects to traffic and circulation associated with construction of the proposed project and compares the relative benefits of each alternative. The traffic circulation analysis is based on the results of the *I-10 Corridor Project Traffic Study* (August 2014) (Traffic Study). The Traffic Study evaluates the existing and future traffic flow conditions within the traffic study area within San Bernardino County and Los Angeles County (defined below in Section 3.1.6.2, Affected Environment).

The Traffic Study evaluations include demand, capacity, and level of service (LOS) for the mainline freeway segments and ramp-freeway junctions, weaving areas, ramp/arterial street intersections, and arterial/arterial street intersections affecting interchange operations. LOS analysis was conducted for the morning (AM) and evening (PM) peak hours based on the Highway Capacity Manual (HCM) 2000, which states:

> Level of service (LOS) is a quality of measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions. (HCM, page 2-2)

The methodologies from the most recent version, HCM 2010, are not used due to unreliable results discovered through conducting intersection analysis. Detailed discussion of the problems that were discovered is provided in the Traffic Study in Chapter 3.0.

The HCM does not provide a method to measure LOS for intersections without a stop sign or traffic signal, such as where a freeway entrance ramp merges into or diverges from an arterial street. A volume-to-capacity (v/c) ratio analysis is provided for such locations. A v/c ratio is a comparison of an amount of traffic on a road with the capacity of the road. A v/c ratio is expressed as a decimal, with less than 1.00 indicating that volume is less than capacity and values more than 1.00 indicating that volume exceeds capacity. As values approach 1.00, congestion becomes more severe, with values more than 1.00 indicating severe congestion. Because much of Interstate 10 (I-10) within the project area operates and is expected in the future to operate at LOS F conditions, v/c

ratios are provided as an indicator of the severity of congestion. For future conditions, the v/c ratio is the demand-to-capacity (d/c) ratio, where the demand volume is used.

Analysis of vehicle queues (i.e., lines of stopped vehicles waiting to proceed) was conducted for AM and PM peak hours at four types of locations for the reasons described below:

1. Left- and right-turn pockets were analyzed to determine if the pockets were of adequate length to contain the anticipated queues.
2. Queuing analysis was conducted for all lanes between closely spaced intersections to determine if traffic would back up from one intersection across an upstream intersection.
3. Anticipated vehicle queuing for AM and PM peak hours at every freeway off-ramp was analyzed to determine if queues might back up onto the freeway mainline.
4. Vehicle storage at freeway on-ramp meters was evaluated to determine if there is adequate storage on the ramp. The evaluation utilized the Caltrans Ramp Meter Design Manual method with a range of potential metering rates.

The analyses were conducted for the following traffic conditions:

- Existing (California Environmental Quality Act [CEQA] Baseline) – Year 2012
- Opening Year Alternative 1 (No Build) – Year 2025
- Opening Year Alternative 2 (High-Occupancy Vehicle [HOV] Lanes) – Year 2025
- Opening Year Alternative 3 (Express Lanes) – Year 2025
- Design Year Alternative 1 (No Build) – Year 2045
- Design Year Alternative 2 (HOV Lanes) – Year 2045
- Design Year Alternative 3 (Express Lanes) – Year 2045

To simplify the comparison of future conditions and alternatives, the entire study area has been divided into three segments (referred to as “study segments” hereafter): Los Angeles/San Bernardino (LA/SB) county line to Haven Avenue, Haven Avenue to California Street, and California Street to Ford Street. This segmentation is generally based on the similarity of cross-sectional features by segment in both the existing condition and the proposed alternatives. For each segment, the worst (highest) link’s v/c ratios (d/c ratio for future conditions) within a segment represent the v/c ratio for the entire segment.

3.1.6.1 Regulatory Setting

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

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [U.S.C.] 794). FHWA has enacted regulations for implementing the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

3.1.6.2 Affected Environment

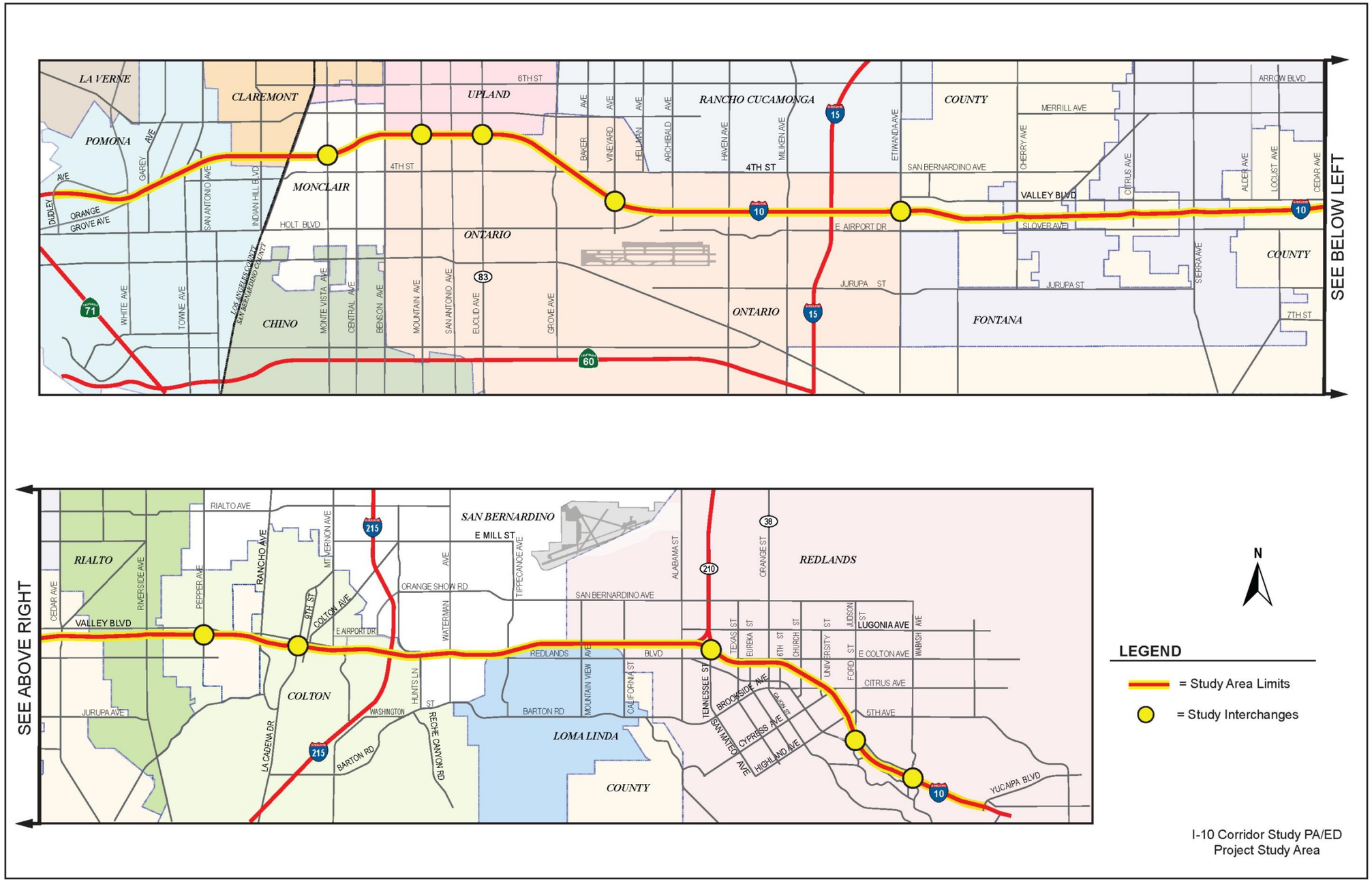
The existing lane configuration, traffic volumes, LOS, and other operational characteristics within the traffic study area are presented in this subsection.

Traffic Study Area

The traffic study area, shown in Figure 3.1.6-1, focuses on traffic operations of the I-10 corridor between White Avenue and Yucaipa Boulevard and at some interchanges, including freeway ramps at their intersections with arterials and other arterial intersections that are in the immediate vicinity. The proposed project covers a distance of approximately 40 miles along I-10 from White Avenue in Pomona to Live Oak Canyon Road in Yucaipa. The Traffic Study does not include analysis of areas near the project limits that do not include permanent physical improvements, such as the area between Yucaipa Boulevard and Live Oak Canyon Road, where only temporary signing and striping for stage construction would occur. Within the traffic study area, 39 freeway segments have been analyzed. These are shown in Figure 3.1.6-1 and include:

1. Dudley Street to White Avenue

2. White Avenue to Garey Avenue
3. Garey Avenue to Orange Grove Avenue
4. Orange Grove Avenue to Towne Avenue
5. Towne Avenue to Indian Hill Boulevard
6. Indian Hill Boulevard to Monte Vista Avenue
7. Monte Vista Avenue to Central Avenue
8. Central Avenue to Mountain Avenue
9. Mountain Avenue to State Route (SR) 83 (Euclid Avenue)
10. SR-83 (Euclid Avenue) to 4th Street
11. 4th Street to Vineyard Avenue
12. Vineyard Avenue to Archibald Avenue
13. Archibald Avenue to Haven Avenue
14. Haven Avenue to Milliken Avenue
15. Milliken Avenue to I-15
16. I-15 to Etiwanda Avenue
17. Etiwanda Avenue to Cherry Avenue
18. Cherry Avenue to Citrus Avenue
19. Citrus Avenue to Sierra Avenue
20. Sierra Avenue to Cedar Avenue
21. Cedar Avenue to Riverside Avenue
22. Riverside Avenue to Pepper Avenue
23. Pepper Avenue to Rancho Avenue
24. Rancho Avenue to La Cadena Drive/9th Street
25. La Cadena Drive/9th Street to Mt. Vernon Avenue
26. Mt. Vernon Avenue to I-215
27. I-215 to Redlands Boulevard
28. Redlands Boulevard to Waterman Avenue
29. Waterman Avenue to Tippecanoe Avenue
30. Tippecanoe Avenue to Mountain View Avenue
31. Mountain View Avenue to California Street
32. California Street to Alabama Street
33. Alabama Street to SR-210
34. Tennessee Street to SR-210
35. SR-210 to Eureka Street/Orange Avenue/6th Street
36. Eureka Street/Orange Avenue/6th Street to University Street/Cypress Avenue
37. University Street/Cypress Avenue to Ford Street
38. Ford Street to Wabash Avenue
39. Wabash Avenue to Yucaipa Boulevard



Source: Traffic Study, 2014.

Figure 3.1.6-1 Project Traffic Study Area

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Mainline segments within interchanges are also analyzed when single-lane off-ramps are accompanied by a lane drop and the segment upstream of the lane drop is not a weaving section or when single-lane on-ramps are accompanied by a lane add and the segment of the lane add is not a weaving section.

There are 33 local interchanges within the limits of the I-10 Corridor Project (I-10 CP). However, the project does not require local interchange improvements to meet the project purpose and need; therefore, it does not include traffic operations analysis for all of the interchanges. Within the traffic study area, the following local interchange areas have been analyzed:

- Monte Vista Avenue interchange
- Mountain Avenue interchange
- SR-83 (Euclid Avenue) interchange
- Vineyard Avenue interchange
- Etiwanda Avenue interchange
- Pepper Avenue interchange
- La Cadena Drive/9th Street interchange
- Tennessee Street interchange
- Ford Street interchange
- Wabash Avenue interchange

Additionally, traffic operations at the I-10/Interstate 15 (I-15), I-10/Interstate 215 (I-215), and I-10/SR-210 system interchanges were also evaluated. A list of study intersections, grouped by freeway interchange area, is shown in Table 3.1.6-1. Intersections identified for evaluation include those controlled with traffic signals, as well as stop-controlled intersections within the study area.

Existing (Year 2012) Lane Configuration

Existing (year 2012) lane configurations for the I-10 mainline and all interchange ramps within the project limits are illustrated in the Traffic Study (Figure 2.3.1). Existing lane configurations for the study intersections are illustrated in the Traffic Study (Figure 3.3.2).

I-10 Mainline

Within the project limits, I-10 is an eight-lane divided controlled-access freeway generally oriented in an east-west direction. There are two HOV lanes between the LA/SB county line and Haven Avenue and auxiliary lanes along selected portions of

the route. The HOV lanes are generally separated from the general purpose (GP) lanes via a striped buffer. The existing lane width varies between 11 and 12 feet. The outside shoulder generally has the standard width of 10 feet, while the inside shoulder varies from 8 feet west of I-15 and 17 feet east of I-15.

Monte Vista Avenue Interchange

The Monte Vista Avenue interchange is a diamond interchange with one tangent ramp location on Palo Verde Street. The three ramp intersections are signalized, and Monte Vista Avenue between the eastbound (EB) on-/off-ramp and westbound (WB) off-ramp has four through lanes.

Mountain Avenue Interchange

The Mountain Avenue interchange is a diamond interchange. The ramp intersections and adjacent intersections are signalized. Between the two signalized ramp intersections, Mountain Avenue is an eight-lane roadway.

SR-83 (Euclid Avenue) Interchange

SR-83 (also known as Euclid Avenue) is a north-south highway with all of its 11 miles in San Bernardino County, extending from SR-71 to 7th Street just north of I-10. In the vicinity of I-10, SR-83 is a six-lane divided arterial roadway. SR-83 is listed as a historic property in the National Register of Historic Places (NRHP) for its wide landscaped median, landscaped parkways along both sides of the street, and cobblestone curbs and gutters.

Vineyard Avenue Interchange

The Vineyard Avenue interchange is a partial-cloverleaf interchange with one loop on-ramp in the northeast quadrant. The ramp intersections and adjacent intersections are signalized. The WB loop on-ramp is not signalized and provides a continuous right turn. Between the two signalized ramp intersections, Vineyard Avenue has four through lanes with a continuous right-turn lane onto the WB loop on-ramp.

Etiwanda Avenue Interchange

The Etiwanda Avenue interchange is a partial-cloverleaf interchange with loop on-ramps located in the northeast and southwest quadrant. The interchange also consists of a WB on-ramp and EB off-ramp on Valley Boulevard. The WB and EB off-ramp intersections along Etiwanda Avenue and the intersection of Etiwanda Avenue and Valley View Boulevard are signalized. Both the WB and EB loop on-ramps are not signalized and provide continuous right turns. Between the two signalized ramp intersections, Etiwanda Avenue has four through lanes.

Table 3.1.6-1 Years 2025 and 2045 Alternative 2 (HOV) – Peak-Hour Intersection LOS Adverse Effect Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025															Year 2045												
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Adverse Effect	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Adverse Effect
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
		East/ West Street	North/ South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	
Monte Vista Avenue	71	I-10 WB Ramp	Monte Vista Ave	Sig	0.83	25.3	C	0.77	22.3	C	0.90	28.6	C	1.02	38.2	D	0.93	31.2	C	0.92	34.7	C	N	0.99	39.6	D	1.19	57.7	E	1.00	46.4	D	1.09	49.8	D	N
	72	I-10 EB Off-Ramp/ Palo Verde St	Monte Vista Ave	Sig	0.83	31.7	C	1.00	45.8	D	0.93	36.1	D	1.18	57.4	E	0.94	33.8	C	1.01	50.5	D	N	1.01	46.1	D	1.29	74.6	E	1.07	49.5	D	1.19	69.9	E	N
	73	Palo Verde St	I-10 EB On-Ramp	Sig	0.36	10.7	B	0.37	13.0	B	0.38	9.8	A	0.41	11.6	B	0.38	10.2	B	0.40	14.5	B	N	0.43	10.3	B	0.46	13.1	B	0.42	10.6	B	0.46	13.5	B	N
Mountain Avenue	241	7th St/ Shopping Center	Mountain Ave	Sig	0.56	16.5	B	0.79	26.4	C	0.67	17.2	B	0.96	35.1	D	0.71	17.0	B	1.02	38.7	D	N	0.84	19.6	B	1.01	40.3	D	0.78	21.3	C	1.03	46.1	D	N
	242	I-10 WB On-/ Off-Ramp	Mountain Ave	Sig	0.70	20.0	C	0.79	25.3	C	0.85	32.2	C	0.99	35.2	D	0.88	35.1	D	1.04	43.1	D	N	0.98	40.9	D	1.11	52.0	D	0.99	45.7	D	1.14	59.4	E	N
	243	I-10 EB On-/ Off-Ramp	Mountain Ave	Sig	0.57	16.2	B	0.78	29.1	C	0.59	16.7	B	0.85	32.8	C	0.60	17.5	B	0.83	32.8	C	N	0.68	25.7	C	0.87	34.6	C	0.67	21.5	C	0.82	35.9	D	N
	244	6th St	Mountain Ave	Sig	0.65	18.7	B	0.71	21.7	C	0.48	16.7	B	0.74	22.8	C	0.48	16.7	B	0.73	23.2	C	N	0.57	18.5	B	0.77	23.3	C	0.54	18.2	B	0.72	24.0	C	N
SR-83 (Euclid Avenue)	351	7th St	SB Euclid Ave	Sig	0.74	18.1	B	0.73	20.6	C	0.79	22.8	C	0.78	21.8	C	0.79	21.3	C	0.77	21.1	C	N	0.95	32.8	C	0.89	29.6	C	0.94	32.0	C	0.88	28.1	C	N
	352	7th St	NB Euclid Ave	Sig	0.52	10.3	B	0.66	13.8	B	0.60	12.9	B	0.83	17.8	B	0.62	12.9	B	0.85	18.5	B	N	0.69	13.6	B	0.95	20.4	C	0.71	14.9	B	0.97	21.5	C	N
	354	I-10 WB On-Ramp	SB Euclid Ave	UC	0.43	--	--	0.37	--	--	0.45	--	--	0.39	--	--	0.45	--	--	0.39	--	--	N	0.50	--	--	0.43	--	--	0.50	--	--	0.42	--	--	--
	355	I-10 WB On-Ramp	NB Euclid Ave	UC	0.27	--	--	0.31	--	--	0.29	--	--	0.32	--	--	0.29	--	--	0.32	--	--	N	0.31	--	--	0.35	--	--	0.31	--	--	0.35	--	--	--
	356	I-10 EB Ramp	Euclid Ave	Sig	0.97	45.3	D	1.00	52.0	D	1.00	53.6	D	**1.14**	**92.1**	**F**	1.01	53.3	D	**1.15**	**95.9**	**F**	N	**1.23**	**92.5**	**F**	**1.39**	**156.7**	**F**	**1.24**	**93.9**	**F**	**1.42**	**166.5**	**F**	N
	353	7th St	I-10 WB Off-Ramp/ 2nd Ave	AWS	0.43	13.7	B	0.57	20.9	C	0.55	21.1	C	**0.70**	**50.1**	**F**	0.58	25.3	D	**0.71**	**55.2**	**F**	N	0.63	35.2	E	**0.78**	**98.1**	**F**	0.66	46.2	E	**0.79**	**105.7**	**F**	N
Vineyard Avenue	611	Inland Empire Blvd	Vineyard Ave	Sig	0.52	8.3	A	0.55	9.2	A	0.63	8.9	A	0.82	12.0	B	0.64	9.1	A	0.82	12.5	B	N	0.57	8.2	A	0.67	10.8	B	0.72	8.4	A	0.62	8.8	A	N
	612	I-10 WB Ramp	Vineyard Ave	Sig	0.59	10.0	A	0.64	11.9	B	0.83	14.5	B	1.05	36.8	D	0.90	18.1	B	1.08	45.2	D	N	0.87	20.8	C	1.10	44.3	D	0.96	28.2	C	1.07	41.5	D	N
	613	I-10 EB Ramp	Vineyard Ave	Sig	0.71	16.6	B	0.65	12.1	B	0.95	29.7	C	0.89	18.7	B	0.94	26.7	C	0.89	21.8	C	N	1.12	61.9	E	1.09	41.5	D	1.11	58.7	E	1.10	49.8	D	N
	614	E G St	Vineyard Ave	Sig	0.44	9.8	A	0.43	8.9	A	0.65	12.2	B	0.54	9.8	A	0.65	12.0	B	0.51	11.4	B	N	0.81	18.2	B	0.66	12.2	B	0.83	16.8	B	0.72	10.4	B	N
	615	E D St	Vineyard Ave	Sig	0.40	15.0	B	0.55	18.3	B	0.63	16.1	B	0.71	23.7	C	0.63	16.1	B	0.70	27.3	C	N	0.74	20.0	C	0.90	31.5	C	0.75	19.5	B	0.92	35.8	D	N
Etiwanda Avenue/ Commerce Drive	1112	Valley Blvd	Commerce Dr	Sig	0.36	31.6	C	0.44	32.5	C	0.30	34.0	C	0.39	31.7	C	0.32	33.2	C	0.36	33.1	C	N	0.36	33.6	C	0.48	36.2	D	0.39	32.7	C	0.45	32.8	C	N
	1111	Valley Blvd/ Ontario Mills Pkwy	Etiwanda Ave	Sig	0.38	16.5	B	0.47	20.3	C	0.44	18.7	B	0.56	22.6	C	0.40	19.4	B	0.68	23.7	C	N	0.45	18.6	B	0.63	26.2	C	0.48	18.0	B	0.67	21.9	C	N
	1113	I-10 WB On-Ramp	SB Etiwanda Ave	UC	0.12	--	--	0.19	--	--	0.24	--	--	0.41	--	--	0.29	--	--	0.53	--	--	N	0.29	--	--	0.39	--	--	0.32	--	--	0.53	--	--	--
Etiwanda Avenue/ Commerce Drive	1114	I-10 WB Off-Ramp	Etiwanda Ave	Sig	0.55	17.8	B	0.42	12.9	B	0.50	15.2	B	0.52	12.7	B	0.54	15.5	B	0.59	15.0	B	N	0.53	16.0	B	0.58	15.3	B	0.57	17.0	B	0.67	18.9	B	N
	1115	I-10 WB On-Ramp	NB Etiwanda Ave	UC	0.23	--	--	0.38	--	--	0.23	--	--	0.40	--	--	0.25	--	--	0.42	--	--	N	0.26	--	--	0.44	--	--	0.26	--	--	0.44	--	--	--
	1116	I-10 EB On-Ramp	SB Etiwanda Ave	UC	0.06	--	--	0.19	--	--	0.06	--	--	0.17	--	--	0.06	--	--	0.18	--	--	N	0.06	--	--	0.18	--	--	0.06	--	--	0.19	--	--	--
	1117	I-10 EB Off-Ramp	Etiwanda Ave	Sig	0.77	24.5	C	0.44	13.3	B	0.62	17.4	B	0.46	10.4	B	0.63	17.6	B	0.47	10.0	B	N	0.68	18.6	B	0.51	12.1	B	0.72	20.1	C	0.51	12.1	B	N
	1118	I-10 EB On-Ramp	NB Etiwanda Ave	UC	0.14	--	--	0.41	--	--	0.15	--	--	0.45	--	--	0.15	--	--	0.45	--	--	N	0.18	--	--	0.52	--	--	0.19	--	--	0.57	--	--	--
Pepper Avenue	2101	Valley Blvd	Pepper Ave	Sig	0.64	30.9	C	0.62	31.3	C	0.62	38.6	D	0.60	28.1	C	0.60	30.7	C	0.57	28.0	C	N	0.60	31.0	C	0.58	30.6	C	0.71	32.8	C	0.75	32.2	C	N
	2102	I-10 WB Ramp	Pepper Ave	Sig	0.65	24.3	C	0.52	14.9	B	0.50	24.9	C	0.42	21.3	C	0.50	19.2	B	0.39	18.8	B	N	0.64	28.8	C	0.61	23.2	C	0.71	30.1	C	0.61	20.8	C	N
	2103	I-10 EB Ramp	Pepper Ave	Sig	0.98	53.1	D	0.89	49.6	D	0.59	28.6	C	0.52	34.1	C	0.56	26.9	C	0.50	34.1	C	N	0.64	25.0	C	0.65	30.2	C	0.71	27.9	C	0.68	34.0	C	N
La Cadena Drive/ 9th Street	2261	I-10 WB On-Ramp	La Cadena Dr	UC	0.09	4.0	A	0.17	5.3	A	0.11	4.5	A	0.20	5.7	A	0.12	4.6	A	0.21	5.9	A	N	0.14	4.8	A	0.24	6.4	A	0.16	5.7	A	0.26	7.2	A	N
	2262	I-10 WB Off-Ramp	9th St	SC	0.49	12.9	B	0.46	12.9	B	0.43	12.5	B	0.65	16.9	C	0.40	11.6	B	0.51	13.7	B	N	0.49	13.3	B	0.80	24.8	C	0.51	14.0	B	0.64	18.3	C	N
	2263	I-10 EB Ramp	9th St	AWS	0.38	11.3	B	0.44	11.9	B	0.23	10.0	B	0.35	11.1	B	0.20	9.5	A	0.34	10.9	B	N	0.26	10.9	B	0.38	11.7	B	0.27	10.7	B	0.41	12.2	B	N

Table 3.1.6-1 Years 2025 and 2045 Alternative 2 (HOV) – Peak-Hour Intersection LOS Adverse Effect Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025															Year 2045																	
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Adverse Effect	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Adverse Effect
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
		East/ West Street	North/ South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	
Tennessee Street	2981	I-10 WB Ramp	Tennessee St	Sig	0.74	20.5	C	0.57	16.9	B	0.61	18.0	B	0.51	19.8	B	0.47	15.7	B	0.52	11.3	B	N	0.62	15.9	B	0.70	18.0	B	0.48	14.9	B	0.57	13.9	B	N
	2982	I-10 EB Ramp	Tennessee St	Sig	0.52	14.7	B	0.90	37.2	D	0.55	15.8	B	0.98	52.9	D	0.44	13.5	B	0.80	23.8	C	N	0.68	23.8	C	**1.07**	**81.0**	**F**	0.52	15.1	B	0.86	28.5	C	N
Ford Street	3311	Reservoir Rd/ I-10 WB On-Ramp	Ford St	SC	**1.25**	**253.2**	**F**	0.60	45.6	E	0.89	32.9	C	0.75	20.6	C	0.88	37.2	D	0.73	20.0	C	N	0.55	20.9	C	0.50	22.0	C	0.59	19.1	B	0.66	17.8	B	N
	3312	I-10 EB Off-Ramp	Ford St	SC	0.50	13.9	B	0.86	29.5	D	0.71	19.1	C	**1.09**	**85.3**	**F**	0.67	22.5	C	0.87	29.2	D	N	0.72	17.4	C	**1.07**	**76.3**	**F**	0.67	17.1	C	0.81	27.3	D	N
	3313	Parkford Dr	Ford St	SC	0.40	21.9	C	0.65	31.8	D	0.47	27.9	D	0.79	48.8	E	0.53	33.3	D	**0.83**	**57.0**	**F**	N	0.45	24.9	C	**1.18**	**162.3**	**F**	0.51	30.0	D	**0.97**	**89.6**	**F**	N
	3314	Redlands Blvd/I-10 EB On-Ramp/ WB Off-Ramp	Ford St	Sig	0.62	19.8	B	0.52	32.8	C	0.62	23.3	C	0.48	18.1	B	0.66	23.2	C	0.55	18.8	B	N	0.84	35.1	D	1.01	44.0	D	0.87	31.7	C	0.89	28.6	C	N
	3315	Oak St	Ford St	SC	0.27	19.2	C	0.10	12.5	B	0.25	19.1	C	0.12	14.0	B	0.25	19.2	C	0.12	14.1	B	N	0.27	20.6	C	0.12	14.6	B	0.26	20.1	C	0.12	14.2	B	N
Wabash Avenue	3431	I-10 WB Off-Ramp/ Reservoir Rd	Wabash Ave	SC	0.12	12.7	B	0.08	10.7	B	0.19	12.4	B	0.18	11.1	B	0.19	12.2	B	0.17	10.9	B	N	--	--	--	--	--	--	--	--	--	--	--	--	--
	3432	I-10 EB On-Ramp	Wabash Ave	None	0.02	1.4	A	0.01	1.2	A	0.03	2.4	A	0.05	2.7	A	0.03	2.2	A	0.04	2.5	A	N	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
Sig – Signalized; SC – Stop-Control; AWS – All Way Stop; None – No Traffic Control.
LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio; Bold indicates an intersection forecast to operate at LOS E or F.
Source: Traffic Study, 2014.

Pepper Avenue Interchange

The Pepper Avenue interchange is a diamond interchange. The ramp intersections and the intersection of Pepper Avenue and Valley Boulevard are signalized. Between the two signalized ramp intersections, Pepper Avenue has two through lanes.

La Cadena Drive/9th Street Interchange

The La Cadena Drive/9th Street interchange is a partial diamond interchange at 9th Street with a WB on-ramp on La Cadena Drive. The ramp intersections are not signalized. In the vicinity of I-10, La Cadena Drive is a four-lane roadway, and 9th Street is a two-lane roadway.

Tennessee Street Interchange

The Tennessee Street interchange is a modified split diamond interchange with Alabama Street. The interchange also consists of an EB off-ramp on the collector-distributor road to access Tennessee Street. The two ramp intersections are signalized. Between the two signalized ramp intersections, Tennessee Street has four through lanes.

Ford Street Interchange

The Ford Street interchange is a partial diamond interchange with the WB off-ramp and EB on-ramp located along Ford Street aligned with Redlands Boulevard south of I-10. The intersection of Ford Street and Redlands Boulevard/I-10 WB off-ramp/I-10 EB on-ramp is signalized. All other ramps/arterial intersections are not signalized. In the vicinity of I-10, Ford Street is a four-lane roadway.

Wabash Avenue Interchange

The Wabash Avenue interchange is a partial interchange, and both ramp intersections are not signalized. Between the two ramp intersections, Wabash Avenue is a two-lane roadway.

Existing Traffic Conditions

Existing traffic data for the traffic study area are for the year 2012. Existing condition traffic data and the results of operational analysis are presented below for both the freeway mainline and the interchange areas.

Freeway Mainline

An existing traffic profile has been developed to represent year 2012 traffic volume conditions along I-10 between the White Avenue interchange in Los Angeles County and Yucaipa Boulevard in San Bernardino County. Ramp and intersection turning count volumes were collected in year 2010 (Tuesday through Thursday, November 16 through 18, 2010). Mainline and interchange connector volumes were collected in February and March 2012, and peak-hour and daily traffic volume information was

extracted from the Caltrans Performance Monitoring System (PeMS). System interchange counts were performed over a 7-day period in February and March 2013. Existing traffic volumes for the mainline and interchange connector were extracted from the Caltrans PeMS. Ramp volumes were collected in year 2010. Based on PeMS data extracted from October of each year between 2008 and 2012 for several count locations, there was no discernible trend. Consequently, the 2010 ramp counts were assumed to represent 2012 traffic condition. Existing AM and PM peak-hour traffic volumes for the I-10 mainline and all interchange ramps within the project limits are illustrated in the Traffic Study (Figure 2.3.1).

The existing average daily traffic (ADT) along the I-10 mainline freeway ranges from 151,000 in the eastern portion of the corridor to 230,000 vehicles per day (vpd) in the western portion of the corridor. Existing ADT volumes in the three study segments are included in Table 3.1.6-2. Existing weekday vehicle miles of travel (VMT) on I-10 within the study area is 7.1 million vehicle miles, as shown in Table 3.1.6-3.

Table 3.1.6-2 I-10 Mainline Average Daily Traffic

Segment	2012	2025			2045		
		Alt 1	Alt 2	Alt 3	Alt 1	Alt 2	Alt 3
LA/SB County Line and Haven Avenue	230,000	288,000	302,000	336,000	313,000	322,000	369,000
Haven Avenue and California Street	181,000	221,000	247,000	265,000	257,000	283,000	300,000
California Street and Ford Street	151,000	191,000	214,000	223,000	241,000	254,000	260,000

Source: Traffic Study, 2014.

Table 3.1.6-3 I-10 Mainline Estimated Daily Vehicle Miles of Travel

Segment	2012	2025			2045		
		Alt 1	Alt 2	Alt 3	Alt 1	Alt 2	Alt 3
LA/SB County Line and Haven Avenue	2,258,000	2,736,000	2,858,000	3,056,000	3,067,000	3,163,000	3,402,000
Haven Avenue and California Street	3,875,000	4,313,000	4,442,000	4,693,000	5,303,000	5,424,000	5,793,000
California Street and Ford Street	988,000	1,146,000	1,151,000	1,188,000	1,376,000	1,426,000	1,541,000
Total	**7,121,000**	**8,195,000**	**8,451,000**	**8,937,000**	**9,746,000**	**10,013,000**	**10,736,000**

Source: Traffic Study, 2014.

V/C Ratio and LOS. Table 3.1.6-4 presents the LOS and v/c ratios for peak hours of the existing year (2012) in the GP lanes of the EB and WB I-10. Under existing conditions, the freeway mainline operates at LOS B to F in the AM peak hour in the EB direction and LOS F in the WB direction. In the PM peak hour, the freeway mainline is LOS F in the EB direction and C to F in the WB direction. The range of v/c ratios in the freeway's GP lanes during the AM peak hour is 0.52 to 1.17 and 0.64 to 1.16 during the PM peak hour. The LOS and v/c data reported in Table 3.1.6-4 is for the interchange-to-interchange link within each study segment with the highest v/c ratio. A more-detailed link-by-link presentation of the existing freeway mainline LOS under 2012 traffic conditions for GP lanes is included in the Traffic Study (Table 2.3.2).

Table 3.1.6-5 presents the LOS and v/c ratios for peak hours of the existing year (2012) in the HOV (carpool) lanes. Under existing conditions, the HOV lane terminates at Haven Avenue, and HOV traffic is served by the existing GP lanes east of Haven Avenue. The HOV lanes operate at LOS B in the EB direction and LOS D in the WB direction during the AM peak hour; they operate at LOS F in the EB direction and LOS C in the WB direction during the PM peak hour. The v/c ratios in the HOV lanes during the AM peak hour are 0.36 in the EB direction and 0.81 in the WB direction. During the PM peak hour, the v/c ratio is 0.73 EB and 0.63 WB. A more-detailed link-by-link presentation of the existing freeway mainline LOS under 2012 traffic conditions for HOV lanes is included in the Traffic Study (Table 2.3.2).

Peak-Period Performance. Table 3.1.6-6 shows speed data for years 2012 (existing condition) and 2015 along I-10 between the LA/SB county line and Ford Street during the peak hours in each direction by lane type (GP and HOV). A speed survey on the GP lanes along I-10 within the project limits was conducted as part of the *I-10 and I-15 Express Lanes Traffic and Revenue Study* developed by CDM Smith in October 2015. Year 2015 HOV lane speeds along I-10 were extracted from the Caltrans Freeway Performance Management System (PeMS). Year 2015 speeds are provided as supplemental data to year 2012 existing conditions speeds. The year 2015 speeds do not replace the year 2012 speeds. The speed data provide supplemental and more current information than the year 2012 existing condition data.

In year 2012, segment speeds in the GP lanes in the EB direction on I-10 range from 57 to 65 miles-per-hour (mph) during the AM peak hour and 42 to 56 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 32 to 59 mph during the AM peak hour and 46 to 65 mph during the PM peak hour. Speeds in the HOV lanes west of Haven Avenue during the peak hours are in excess of 60 mph. For an entire corridor trip between the LA/SB county line and the Ford Street interchange

(a distance of approximately 33 miles), speeds range from 48 to 60 mph in the GP lanes during the peak hours. Because HOV lanes only exist west of Haven Avenue, HOV speeds for a trip between the LA/SB county line and Ford Street is a combination of HOV lane speeds west of Haven Avenue and GP lane speeds east of Haven Avenue. Speeds of HOVs for an entire corridor trip range from 52 to 61 mph during the peak hours.

In year 2015, the segment speeds in the GP lanes in the EB direction on I-10 range from 54 to 63 mph during the AM peak hour and 28 to 45 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 30 to 56 mph during the AM peak hour and 38 to 64 mph during the PM peak hour. Speeds in the HOV lanes west of Haven Avenue during the peak hours range from 41 to 56 mph. For an entire corridor trip between the LA/SB county line and the Ford Street interchange speeds range from 48 to 60 mph in the GP lanes during the peak hours. HOV speeds for a trip between the LA/SB county line and Ford Street is a combination of HOV lane speeds west of Haven Avenue and GP lane speeds east of Haven Avenue. Speeds of the HOVs for an entire corridor trip range from 37 to 58 mph during the peak hours.

Corridor Travel Time. Table 3.1.6-7 shows years 2012 (existing condition) and 2015 corridor travel time along I-10 between the LA/SB county line and Ford Street during the peak hours in each direction by lane type (GP and HOV).

In year 2012, segment travel times in the GP lanes in the EB direction on I-10 range from 2 to 13 minutes during the AM peak hour and 3 to 14 minutes during the PM peak hour. In the WB direction, the GP segment travel times range from 4 to 14 minutes during the AM peak hour and 2 to 14 minutes during the PM peak hour. Travel times in the HOV lanes west of Haven Avenue during the peak hours range from 7 to 8 minutes. For an entire corridor trip between the LA/SB county line and the Ford Street interchange (a distance of approximately 33 miles) travel time ranges from 29 to 37 minutes in the GP lanes during the peak hours. Because HOV lanes only exist west of Haven Avenue, HOV travel times for HOVs for a trip between the LA/SB county line and Ford Street are a combination of HOV lane travel times west of Haven Avenue and GP lane travel times east of Haven Avenue. Travel time of HOVs for an entire corridor trip range from 28 to 34 minutes during the peak hours.

Table 3.1.6-4 I-10 Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio for Existing and Year 2025

Segment	EB or WB	Existing 2012						Alternative 1 – 2025						Alternative 2 – 2025						Alternative 3 - 2025					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Den	LOS	V/C	Den	LOS	V/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C
Los Angeles/San Bernardino County Line to Haven Avenue	EB	29.4	D	1.00	*	F	0.99	28.6	D	0.94	*	F	1.03	*	F	1.08	*	F	1.08	*	F	1.01	*	F	1.13
	WB	*	F	1.05	*	F	1.01	*	F	1.18	*	F	1.32	*	F	1.19	*	F	1.37	*	F	1.13	*	F	1.32
Haven Avenue to California Street	EB	*	F	1.06	*	F	1.16	*	F	1.27	*	F	1.39	*	F	1.17	*	F	1.23	*	F	1.10	*	F	1.21
	WB	*	F	1.17	35.4	E	0.99	*	F	1.29	*	F	1.25	*	F	1.22	*	F	1.14	*	F	1.18	*	F	1.14
California Street to Ford Street	EB	19.4	B	0.52	*	F	1.02	21.7	C	0.58	*	F	1.23	23.0	C	0.62	*	F	1.11	26.4	C	0.72	*	F	1.18
	WB	*	F	1.08	19.9	C	0.64	*	F	1.31	23.0	C	0.73	*	F	1.22	20.8	C	0.65	*	F	1.16	23.1	C	0.74

EB – Eastbound; WB – Westbound; Den – Density; LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio

* Density not calculated under HCM because volume exceeds the range of the density algorithm or there is no related methodology.

Source: Traffic Study, 2014.

Table 3.1.6-5 I-10 Mainline HOV Lane Density, LOS, and Volume-to-Capacity Ratio for Existing and Year 2025

Segment	EB or WB	Existing 2012						Alternative 1 – 2025						Alternative 2 – 2025						Alternative 3 - 2025					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Den	LOS	V/C	Den	LOS	V/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C
Los Angeles/San Bernardino County Line to Haven Avenue	EB	**	B	0.36	**	F	0.73	**	C	0.68	**	F	1.02	**	C	0.71	**	F	1.05	22.30	C	0.65	24.40	C	0.71
	WB	**	D	0.81	**	C	0.63	**	E	0.92	**	F	1.31	**	F	1.23	**	F	1.42	28.20	D	0.82	29.40	D	0.85
Haven Avenue to California Street	EB	--	--	--	--	--	--	--	--	--	--	--	--	**	B	0.42	**	D	0.82	19.60	C	0.59	20.60	C	0.74
	WB	--	--	--	--	--	--	--	--	--	--	--	--	**	F	1.38	**	F	1.39	25.80	D	0.82	27.20	D	0.85
California Street to Ford Street	EB	--	--	--	--	--	--	--	--	--	--	--	--	**	C	0.62	**	F	1.01	--	A	0.22	--	D	0.84
	WB	--	--	--	--	--	--	--	--	--	--	--	--	**	C	0.71	**	D	0.83	--	D	0.85	--	A	0.30

EB – Eastbound; WB – Westbound; Den – Density; LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio

-- HOV lanes exist only west of Haven Avenue.

** Since HCM 2000 does not have an explicit methodology to evaluate single-lane HOV operations, v/c ratios (or d/c ratios) are calculated for HOV lanes to determine LOS.

Source: Traffic Study, 2014.

Table 3.1.6-6: Corridor Speed in the Area of Proposed Improvements[1]

Location	Year 2012				Year 2015[2]				Year 2025												Year 2045											
									Alternative 1				Alternative 2				Alternative 3				Alternative 1				Alternative 2				Alternative 3			
	GP		HOV[3]		GP		HOV[3]		GP		HOV[3]		GP		HOV		GP		Express		GP		HOV[3]		GP		HOV		GP		Express	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EASTBOUND																																
Segment 1 (County Line to I-15)	57	54	65	63	54	34	56	41	52	41	65	52	42	41	65	43	51	36	65	64	28	33	57	44	21	30	44	28	32	26	61	60
Segment 2 (I-15 to I-215)	60	56			58	36			46	31			44	42	65	65	52	44	65	65	14	16			19	28	65	62	38	27	62	62
Segment 3 (I-215 to SR-210)	63	42			63	28			58	16			55	22	65	59	56	22	65	63	40	10			46	18	62	21	49	10	65	62
Segment 4 (SR-210 to Ford)	65	42			60	45			65	21			65	36	65	36	64	27	65	60	63	10			64	18	60	10	61	10	65	58
Entire Corridor	**60**	**53**	**61**	**56**	**59**	**36**	**58**	**37**	**52**	**33**	**55**	**38**	**48**	**40**	**65**	**54**	**54**	**38**	**65**	**63**	**29**	**21**	**36**	**27**	**30**	**29**	**57**	**38**	**42**	**25**	**62**	**61**
WESTBOUND																																
Segment 1 (County Line to I-15)	48	46	62	65	30	38	49	51	20	13	53	13	20	12	37	10	29	18	60	55	15	10	43	10	15	10	16	10	22	10	57	54
Segment 2 (I-15 to I-215)	59	59			56	60			46	39			51	45	65	63	61	55	64	64	29	15			33	22	60	49	48	31	60	59
Segment 3 (I-215 to SR-210)	32	62			49	62			20	55			28	61	64	53	32	54	65	65	10	42			15	50	12	27	16	44	61	65
Segment 4 (SR-210 to Ford)	34	65			38	64			13	64			22	65	64	64	29	64	65	65	10	56			10	63	10	54	10	55	54	65
Entire Corridor	**48**	**57**	**52**	**59**	**43**	**56**	**45**	**55**	**32**	**38**	**37**	**32**	**36**	**41**	**56**	**43**	**44**	**46**	**63**	**62**	**21**	**24**	**27**	**21**	**24**	**30**	**32**	**29**	**31**	**31**	**58**	**60**

1 The average peak hour travel speed is calculated based on the demand-to-capacity (d/c) ratios and Modified Bureau of Public Roads (Modified BPR) Curve. This curve calculates the speed relative to the d/c ratios. The data used for the calculation is based on the SBTAM post-processed forecast data. Speeds are shown in miles-per-hour.

2 Year 2015 travel speeds are provided as supplemental data to year 2012 travel speeds and do not replace the year 2012 travel speeds. The 2015 travel speeds provide supplemental and more current information than the year 2012 travel speeds. Year 2015 GP travel speeds are based on a speed survey conducted in October 2015 on the I-10 corridor for the *I-10 and I-15 Express Lanes Traffic Revenue Study* developed by CDM Smith. Year 2015 HOV travel speeds are based on speed data from the Caltrans Freeway Performance Management System (PeMS).

3 The entire corridor HOV travel speeds for year 2012, year 2015 and Alternative 1 (years 2025 and 2045) are a combination of HOV lane speeds west of Haven Avenue and GP lane speeds east of Haven Avenue, weighted for the distance of each.

Source: I-10 Traffic Study Addendum, 2016.

Table 3.1.6-7: Corridor Travel Time in the Area of Proposed Improvements[1]

Location	Year 2012				Year 2015[2]				Year 2025												Year 2045											
									Alternative 1				Alternative 2				Alternative 3				Alternative 1				Alternative 2				Alternative 3			
	GP		HOV[3]		GP		HOV[3]		GP		HOV[3]		GP		HOV		GP		Express		GP		HOV[3]		GP		HOV		GP		Express	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EASTBOUND																																
Segment 1 (County Line to I-15)	8	9	7	8	9	14	8	12	9	12	7	9	11	12	7	11	9	13	7	7	17	14	8	11	23	16	11	17	15	18	8	8
Segment 2 (I-15 to I-215)	13	14			14	22			17	26			18	19	12	12	15	18	12	12	57	50			42	29	12	13	21	30	13	13
Segment 3 (I-215 to SR-210)	5	7			5	11			5	19			6	14	5	5	6	14	5	5	8	31			7	17	5	15	6	31	5	5
Segment 4 (SR-210 to Ford)	2	3			2	3			2	6			2	3	2	3	2	5	2	2	2	12			2	7	2	12	2	12	2	2
Entire Corridor	**29**	**33**	**28**	**31**	**29**	**48**	**29**	**46**	**33**	**52**	**31**	**46**	**36**	**43**	**26**	**31**	**31**	**45**	**26**	**27**	**59**	**80**	**47**	**63**	**56**	**59**	**30**	**45**	**41**	**70**	**27**	**28**
WESTBOUND																																
Segment 1 (County Line to I-15)	10	11	8	7	16	13	10	10	24	37	9	37	24	41	13	49	17	27	8	9	32	49	11	49	32	49	30	49	22	49	9	9
Segment 2 (I-15 to I-215)	14	14			15	14			18	21			16	19	13	13	14	15	13	13	29	56			25	38	14	17	17	27	14	14
Segment 3 (I-215 to SR-210)	9	5			6	5			14	5			10	5	4	5	9	5	4	4	28	7			19	6	24	10	18	6	5	4
Segment 4 (SR-210 to Ford)	4	2			4	2			12	2			7	2	2	2	5	2	2	2	15	3			15	2	15	3	15	3	3	2
Entire Corridor	**37**	**31**	**34**	**30**	**41**	**31**	**39**	**32**	**56**	**46**	**47**	**55**	**49**	**42**	**26**	**33**	**40**	**38**	**28**	**29**	**85**	**72**	**66**	**84**	**72**	**59**	**55**	**60**	**57**	**57**	**30**	**29**

1 Corridor travel time is calculated using speeds shown in Table 3.1.6-6 and the length of the corridor within the project limits. Travel times are shown in minutes.
2 Year 2015 travel times are provided as supplemental data to year 2012 travel times and do not replace the year 2012 travel times.
3 The entire corridor HOV travel times for year 2012, year 2015 and Alternative 1 (years 2025 and 2045) are a combination of travel times for the HOV lane west of Haven Avenue and GP lanes east of Haven Avenue, weighted for the distance of each.
Source: I-10 Traffic Study Addendum, February 2016

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Based on the year 2015 speed data (provided as supplemental and more current information), segment travel times in the GP lanes in the EB direction on I-10 range from 2 to 14 minutes during the AM peak hour and 3 to 22 minutes during the PM peak hour. In the WB direction, the GP segment travel times range from 4 to 16 minutes during the AM peak hour and 2 to 14 minutes during the PM peak hour. Travel times in the HOV lanes west of Haven Avenue during the peak hours range from 8 to 12 minutes. For an entire corridor trip between the LA/SB county line and the Ford Street interchange travel times range from 29 to 48 minutes in the GP lanes during the peak hours. HOV travel times for a trip between the LA/SB county line and Ford Street are a combination of HOV lane travel times west of Haven Avenue and GP lane travel times east of Haven Avenue. Travel times of the HOVs for an entire corridor trip range from 29 to 46 mph during the peak hours.

Vehicle Hours of Delay. Table 3.1.6-8 presents the daily and annual vehicle hours of delay (VHD) occurring on I-10 on weekdays. VHD is based on the number of additional hours of vehicle travel required within the corridor due to speeds lower than 65 mph on weekdays and during the peak periods when congestion reduces speeds and increases corridor travel times. Under the existing condition (2012), there are approximately 19,295 daily and 4.8 million annual VHD on I-10.

Traffic Accident Data. Traffic accident data for I-10 within the project limits were obtained from Caltrans Traffic Accident Surveillance and Analysis Systems (TASAS) Table B for a 3-year period between October 1, 2009, and September 30, 2012. During this 3-year period between Towne Avenue and the LA/SB county line within Los Angeles County, there were 133 accidents on EB I-10 and 121 accidents on WB I-10, including 78 injury accidents, and none are reported to involve fatalities. Between the LA/SB county line and Wabash Avenue within San Bernardino County, there were 2,901 accidents on EB I-10 and 2,406 accidents on WB I-10, including 1,836 injury accidents and 36 accidents involving fatalities.

The actual accident rates in both directions of the entire length of I-10 between Towne Avenue and Wabash Avenue are lower than the statewide average for similar facilities. The total accident rate for the I-10 study area within Los Angeles County was 0.54 accidents per million vehicle miles (a/mvm) in the EB direction and 0.50 a/mvm in the WB direction, while the statewide average is 1.08 a/mvm. The total accident rate for the I-10 study area within San Bernardino County was 0.75 a/mvm in the EB direction and 0.62 a/mvm in the WB direction, while the statewide average is 0.94 a/mvm.

Freeway Connector Volumes. Table 3.1.6-9 provides the existing branch connector volumes on ramps between freeways within the study area. Branch connectors are the ramps connecting one freeway to another. Branch connectors are located at I-15, I-215, and SR-210. Branch connectors operate with v/c ratios ranging from 0.25 to 1.81 under existing conditions.

Arterials, Intersections and Interchanges

To establish existing traffic conditions for arterial and interchange study locations, AM and PM peak-hour turning movement counts were collected. Existing AM and PM peak-hour intersection traffic volumes are illustrated in the Traffic Study (Figure 3.3.1). Existing ADT volumes for arterial roadways between ramp intersections are summarized in Table 3.1.6-10.

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for existing conditions is provided in Table 3.1.6-1 for all study intersections. The study intersections are currently operating at LOS D or better, except for one intersection that is operating at LOS F and E during the AM and PM peak hours, respectively.

Table 3.1.6-1 shows that the study intersections are currently operating under capacity (v/c equal to or less than 1.00) during the peak hours, except for one intersection that is currently operating over-capacity during the AM peak hour.

A comparison of existing vehicle queuing (higher of AM or PM peak-hour 95th percentile queues) with available storage (in feet) was conducted at all arterial interchange study intersections and is summarized in Table 3.1.6-11. The table shows that 84 percent of off-ramps with traffic control at their arterial intersections have adequate turning lane storage under existing conditions. Table 3.1.6-11 also shows that 43 percent of arterials have adequate turning lane storage at ramp intersections and 67 percent of turning lanes at arterial/arterial intersections have adequate storage. No ramp metering analysis was conducted under existing conditions.

Pedestrian and Bicycle Facilities

The primary components of the pedestrian circulation system are sidewalks and crosswalks. Under existing conditions, most of the developed properties adjacent to the study area are improved with sidewalks.

The SANBAG Non-Motorized Transportation Plan (2014) identifies bikeways that run above, below, or adjacent to the proposed project area, as shown in Figure 3.1.6-2.

Table 3.1.6-8 Vehicle Hours of Delay – Existing and Years 2025 and 2045 on Weekdays in the Area of Proposed Improvements

Year	Alternative	Daily	Annual
2012	Existing	19,295	4,823,646
2025	Alternative 1	21,705	5,426,194
	Alternative 2	20,349	5,087,245
	Alternative 3	19,766	4,941,483
2045	Alternative 1	31,871	7,967,850
	Alternative 2	27,281	6,820,185
	Alternative 3	24,165	6,041,366

Source: Traffic Study, 2014.

Table 3.1.6-9 2025 Branch Connector Volumes and Volume-to-Capacity Ratios

Branch Connector	Existing 2012				Alternative 1 – 2025				Alternative 2 – 2025				Alternative 3 - 2025			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Volume	V/C	Volume	V/C	Volume	D/C	Volume	D/C	Volume	D/C	Volume	D/C	Volume	D/C	Volume	D/C
EB Off Direct (NB I-15)	1,350	0.45	2,420	0.81	1,410	0.47	2,520	0.84	1,410	0.47	2,520	0.84	1,430	0.48	2,560	0.85
EB Off Direct (SB I-15)	1,810	1.21	1,780	1.19	2,060	1.37	1,850	1.23	2,020	1.35	1,850	1.23	2,090	1.39	1,880	1.25
EB On Direct (NB I-15)	1,790	1.19	1,770	1.18	2,050	1.37	2,060	1.37	2,030	1.35	2,130	1.42	2,040	1.36	2,080	1.39
EB On Direct (SB I-15)	1,110	0.74	970	0.65	1,150	0.77	1,010	0.67	1,150	0.77	1,010	0.67	1,150	0.77	1,040	0.69
WB Off Direct (NB/SB I-15)	2,800	0.93	2,590	0.86	2,750	0.92	2,430	0.81	2,600	0.87	2,380	0.79	2,720	0.91	2,490	0.83
WB On Direct (SB I-15)	2,710	1.81	1,840	1.23	2,970	1.98	2,300	1.53	2,950	1.97	2,360	1.57	3,010	2.01	2,480	1.65
WB On Direct (NB I-15)	2,570	0.86	2,030	0.68	2,670	0.89	2,110	0.70	2,670	0.89	2,110	0.70	2,670	0.89	2,110	0.70
EB Off Direct (NB/SB I-215)	2,370	0.53	2,420	0.54	2,700	0.60	2,930	0.65	2,600	0.58	2,840	0.63	2,820	0.63	3,090	0.69
EB On Direct (NB I-215)	2,420	1.61	2,590	1.73	2,640	1.76	2,880	1.92	2,610	1.74	2,910	1.94	2,810	1.87	3,040	2.03
EB On Direct (SB I-215)	1,200	0.80	1,760	1.17	1,640	1.09	1,840	1.23	1,610	1.07	2,010	1.34	1,240	0.83	1,830	1.22
WB Off Direct (NB/SB I-215)	3,860	1.29	3,470	1.16	4,380	1.46	4,330	1.44	4,550	1.52	4,400	1.47	4,920	1.64	4,730	1.58
WB On Loop (NB I-215)	790	0.53	1,270	0.85	820	0.55	1,320	0.88	820	0.55	1,320	0.88	820	0.55	1,320	0.88
WB On Direct (SB I-215)	1,280	0.85	1,550	1.03	1,850	1.23	2,240	1.49	1,850	1.23	2,220	1.48	1,590	1.06	2,050	1.37
EB Off Direct (NB SR-210)	760	0.25	1,540	0.51	970	0.32	1,970	0.66	860	0.29	2,050	0.68	1,080	0.36	2,230	0.74
EB On Direct (SB SR-210)	1,620	1.08	2,130	1.42	1,740	1.16	2,250	1.50	1,810	1.21	2,230	1.49	1,760	1.17	2,220	1.48
WB Off Direct (NB SR-210)	2,050	0.68	1,800	0.60	2,530	0.84	2,030	0.68	2,400	0.80	1,870	0.62	2,150	0.72	1,870	0.62
WB On Direct (SB SR-210)	1,610	1.07	930	0.62	1,670	1.11	970	0.65	1,720	1.15	1,020	0.68	1,990	1.33	1,250	0.83

EB – eastbound; NB – northbound; SB – southbound; WB – westbound

V/C – Volume-to-Capacity Ratio (D/C – Demand Volume-to-Capacity Ratio) is based on branch connector capacity of 1,500 per lane for each freeway ramp connector lanes.

Source: Traffic Study, 2014.

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Table 3.1.6-10 Arterial Average Daily Traffic Volumes

Arterial	2012 ADT	2025 Alternative 1 ADT	2025 Alternative 2 ADT	2025 Alternative 3 ADT	2045 Alternative 1 ADT	2045 Alternative 2 ADT	2045 Alternative 3 ADT
Monte Vista Avenue	21,931	27,682	27,245	27,265	31,119	29,888	29,702
Mountain Avenue	41,677	45,076	46,465	46,553	50,884	51,364	52,038
SR-83 (Euclid Avenue)	47,017	54,847	55,626	56,217	65,104	64,473	66,062
Vineyard Avenue	29,049	38,798	39,493	39,712	46,716	47,811	48,128
Etiwanda Avenue/ Commerce Drive	22,863	27,540	29,566	29,561	28,325	28,944	30,967
Pepper Avenue	12,776	16,365	13,609	13,925	21,910	23,388	24,838
La Cadena Drive/ 9th Street	15,422	21,319	21,633	22,127	24,599	24,226	24,884
Tennessee Street	14,546	16,832	16,646	16,590	19,758	19,854	20,250
Ford Street	6,706	8,695	9,496	9,209	9,138	10,354	9,305
Wabash Avenue	7,062	8,339	8,790	8,806	9,644	9,880	9,804

Source: SBTAM Raw Data.

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Table 3.1.6-11 Number of Locations with Adequate Vehicle Storage[1] in 2012 and 2045

Location	2012 Existing			2045 Alternative 1 (No Build)			2045 Alternative 2 (HOV)[2]			2045 Alternative 3 (Express)[3]		
	Number of Locations with Adequate Storage	Number of Locations	% with Adequate Storage	Number of Locations with Adequate Storage	Number of Locations	% with Adequate Storage	Number of Locations with Adequate Storage	Number of Locations	% with Adequate Storage	Number of Locations with Adequate Storage	Number of Locations	% with Adequate Storage
Off-Ramp at Arterials	16	19	84	8	18	44	10	18	56	16	19	79
Arterials at Ramps	9	21	43	5	19	26	6	19	32	10	20	50
Arterial/Arterial Intersections	8	12	67	4	12	33	4	12	33	4	12	33
On-Ramps at Ramp Meters[4]	--	--	--	--	--	--	8	11	73	15	21	71

1 Storage is considered adequate if it will contain the 95th percentile queue.

2 Under the year 2045 Alternative 2 (HOV) condition, there are eight locations where off-ramp queues are expected to exceed the available storage. Six of the eight locations are located west of Haven Avenue and two are located east of Haven Avenue. The six located west of Haven Avenue are beyond the physical improvement limits for Alternative 2 (HOV). The two located east of Haven Avenue are Pepper Avenue WB off-ramp and Alabama Street EB off-ramp. Both of these locations are expected to exceed the available storage but are not expected to back onto the I-10 mainline. These two locations are also expected to exceed the available storage under Alternative 1 (No Build), so neither is caused by the proposed project.

3 Under the year 2045 Alternative 3 (Express) condition, there are three locations where off-ramp queues are expected to exceed the available storage. The three locations are Mountain Avenue EB off-ramp, Vineyard Avenue WB off-ramp, and Alabama Street EB off-ramp. All three of these locations are expected to exceed the available storage but are not expected to back onto the I-10 mainline. These locations are also expected to exceed the available storage under Alternative 1 (No Build), so neither is caused by the proposed project.

4 Under Alternative 2 (HOV) conditions, the EB on-ramp from Etiwanda Avenue, WB on-ramp from Pepper Avenue, and EB on-ramp from Tennessee Street do not provide sufficient storage for the maximum queue expected in year 2045. Under Alternative 3 (Express) conditions, the EB on-ramp from Monte Vista Avenue, EB/WB on-ramps from Mountain Avenue, EB on-ramp from SR-83 (Euclid Avenue), EB on-ramp from Vineyard Avenue, and EB on-ramp from Tennessee Street do not provide sufficient storage for the maximum queue expected in year 2045. No ramp metering analysis was conducted under existing and Alternative 1 (No Build) conditions.

Source: Traffic Study, 2014.

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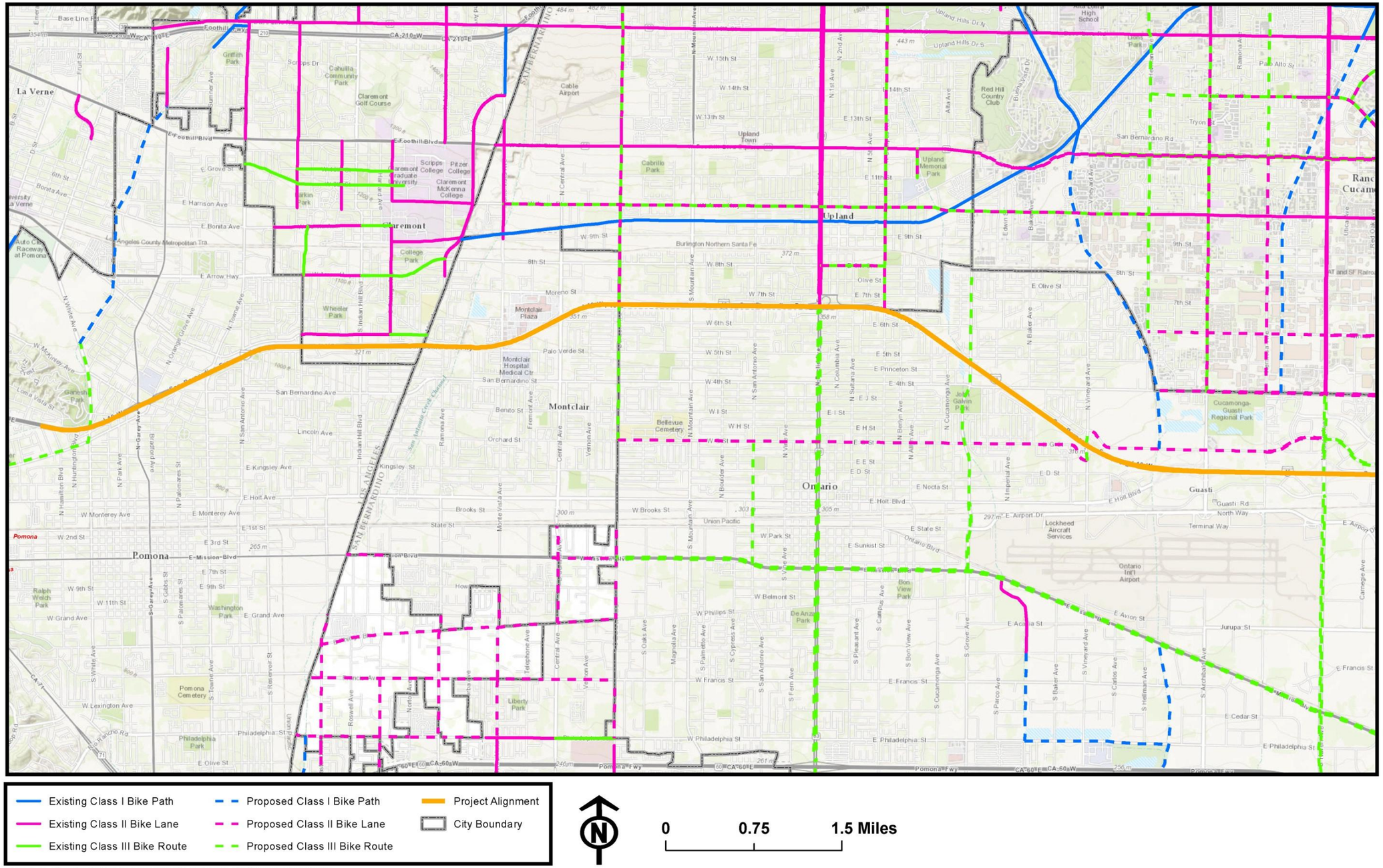

Sources: GeoEye Aerial Imagery (2012); Cal-Atlas (2011); Parsons (2015).

Figure 3.1.6-2 San Bernardino County Bikeways (Page 1 of 4)

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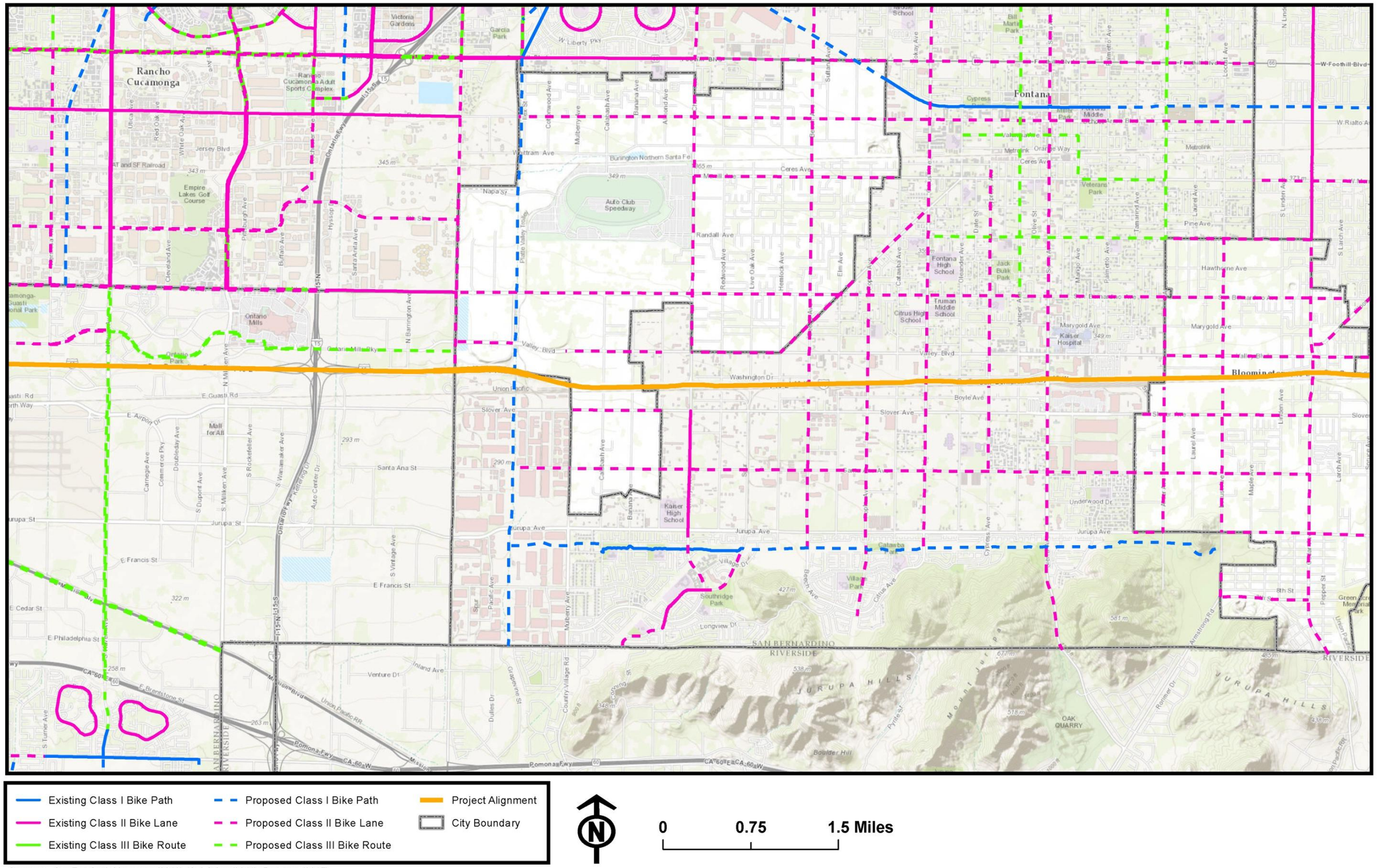

Sources: GeoEye Aerial Imagery (2012); Cal-Atlas (2011); Parsons (2015).

Figure 3.1.6-2 San Bernardino County Bikeways (Page 2 of 4)

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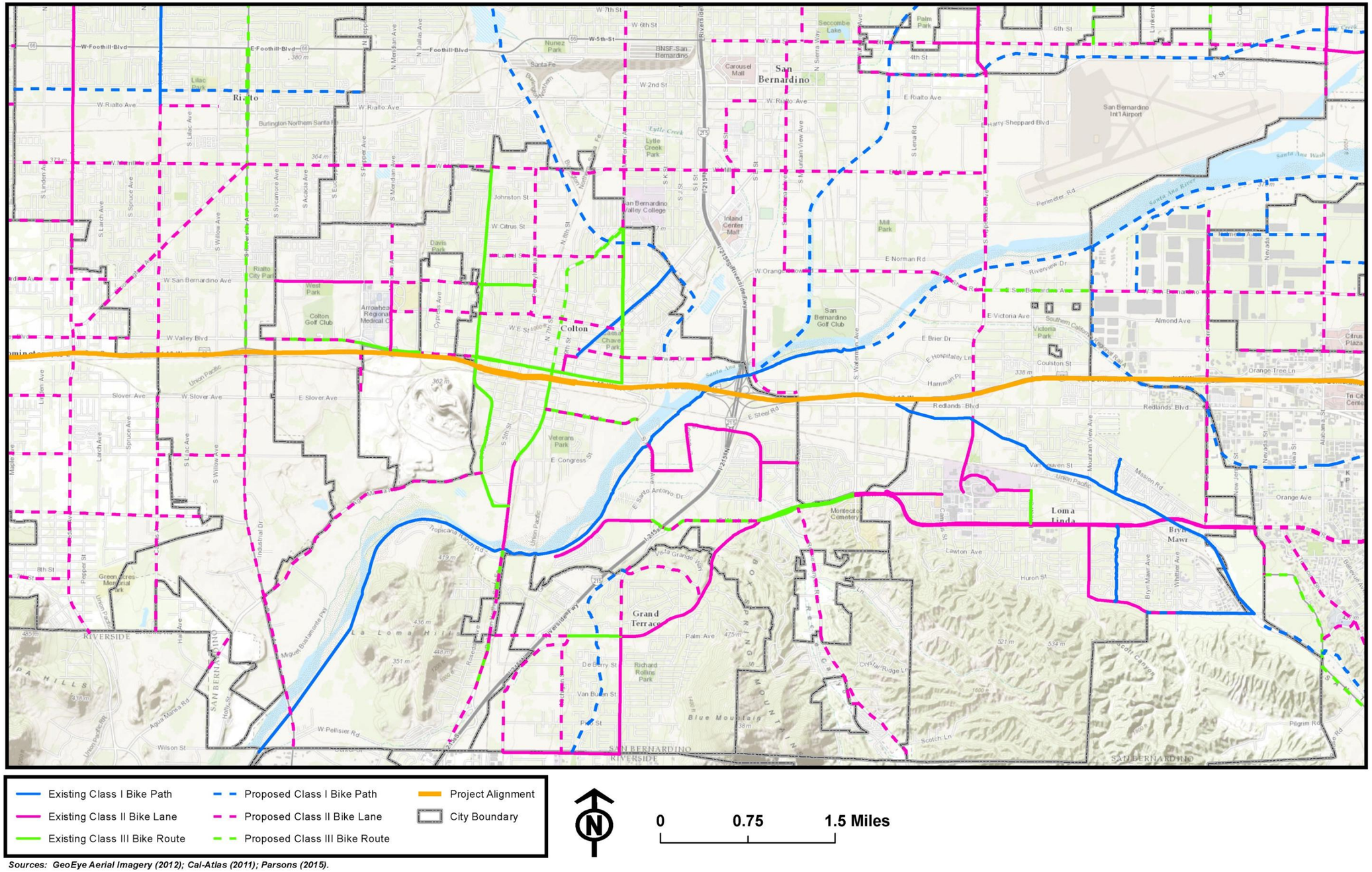

Sources: GeoEye Aerial Imagery (2012); Cal-Atlas (2011); Parsons (2015).

Figure 3.1.6-2 San Bernardino County Bikeways (Page 3 of 4)

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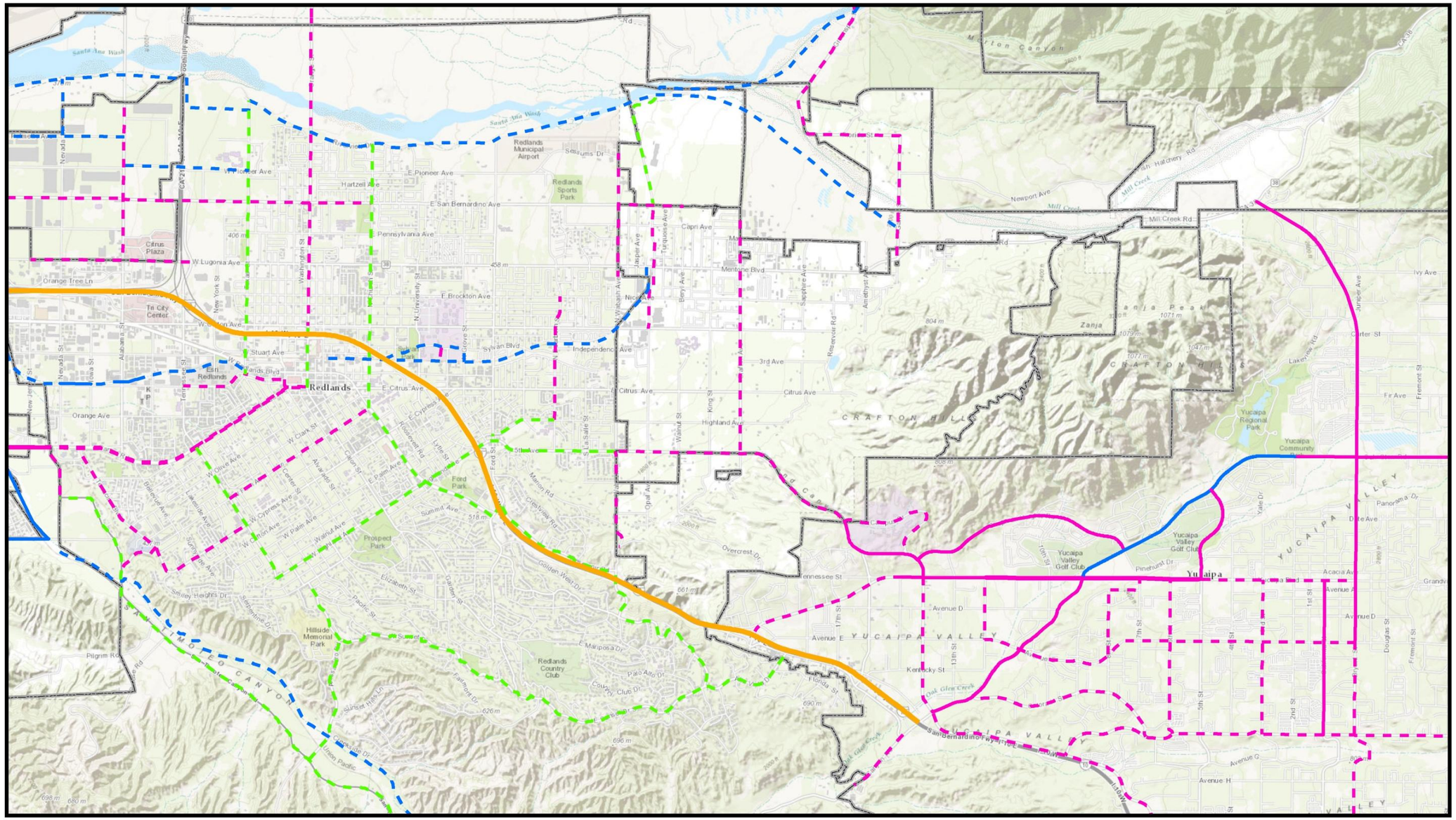

Sources: GeoEye Aerial Imagery (2012); Cal-Atlas (2011); Parsons (2015).

Figure 3.1.6-2 San Bernardino County Bikeways (Page 4 of 4)

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3.1.6.3 Environmental Consequences

Permanent Impacts

Year 2025 is the year in which the proposed project is scheduled to be open to traffic if one of the build alternatives is implemented. Year 2045 is the design horizon year for the proposed project build alternatives. Therefore, traffic analyses were conducted for the following six future conditions:

- Opening Year Alternative 1 (No Build) – Year 2025
- Opening Year Alternative 2 (One HOV Lane in Each Direction) – Year 2025
- Opening Year Alternative 3 (Two Express Lanes in Each Direction) – Year 2025
- Design Year Alternative 1 (No Build) – Year 2045
- Design Year Alternative 2 (One HOV Lane in Each Direction) – Year 2045
- Design Year Alternative 3 (Two Express Lanes in Each Direction) – Year 2045

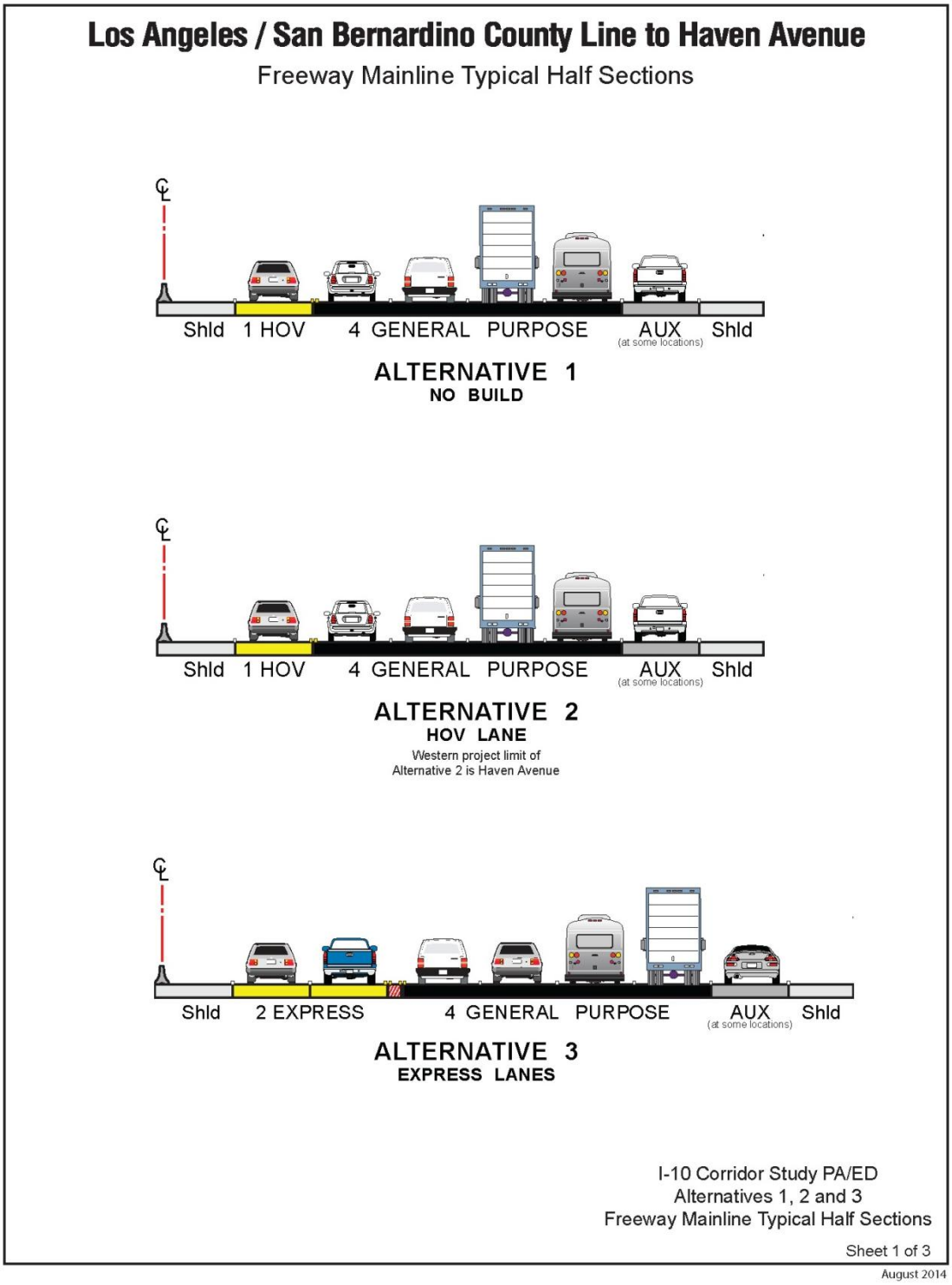
The three alternatives are generally described as follows:

Alternative 1 (No Build). This alternative is the No Build Alternative and would maintain the existing lane configuration of I-10 within the project limits with no additional mainline lanes or associated improvements to be provided. The freeway mainline typical half sections for Alternative 1 are illustrated in Figure 3.1.6-3.

Alternative 2 (One HOV Lane in Each Direction). This alternative would extend the existing HOV lane in each direction of I-10 from the current HOV terminus near Haven Avenue in Ontario to Ford Street in Redlands, a distance of approximately 25 miles. The freeway mainline typical half sections for Alternative 2 are illustrated in Figure 3.1.6-3.

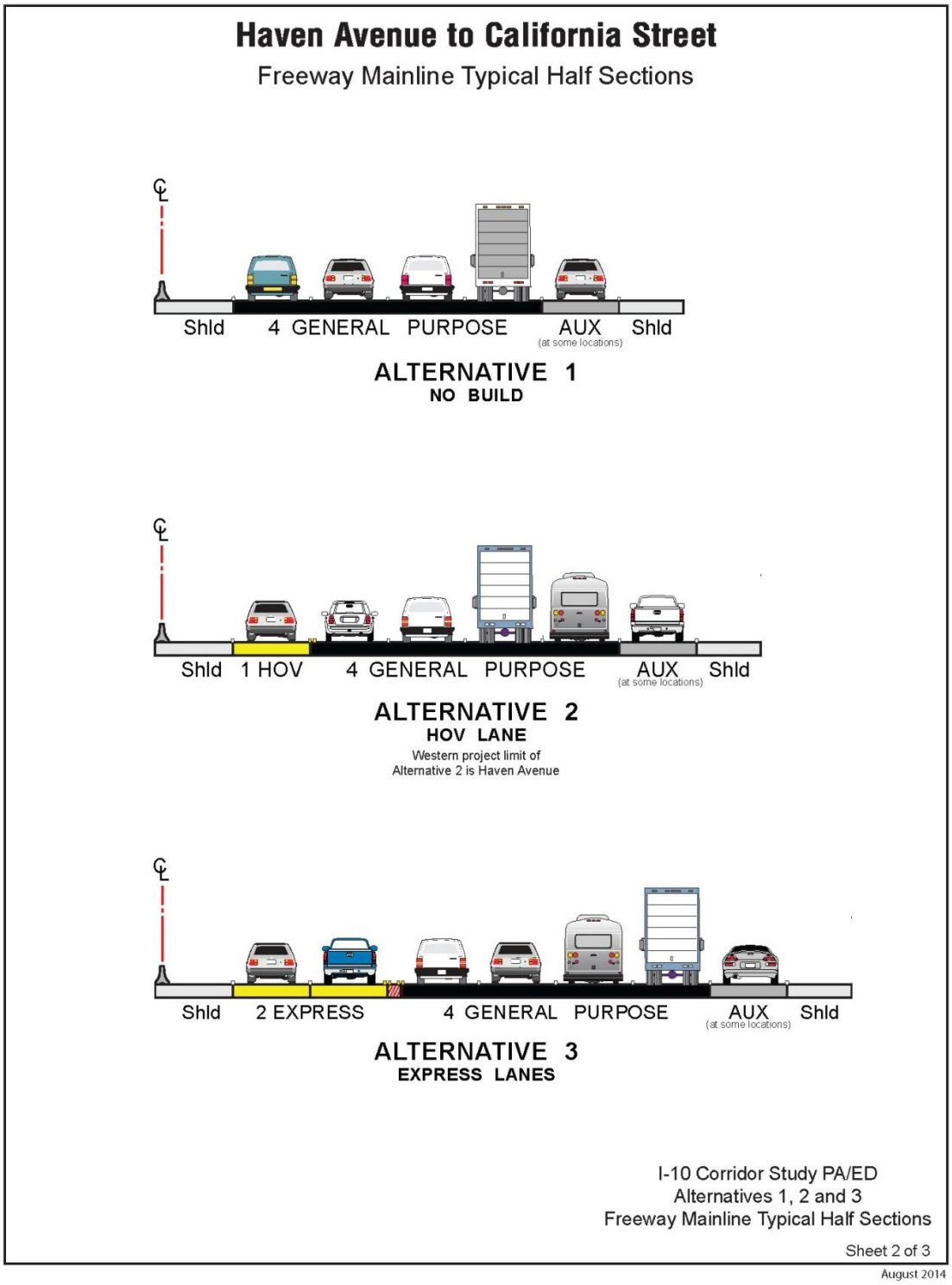
In addition to the extension of the current HOV lane, Alternative 2 would provide the following improvements:

- Construct WB auxiliary lane between Rancho Avenue and La Cadena Drive.
- Modify one-lane off-ramps to two-lane off-ramp at Waterman Avenue/Carnegie Drive WB off-ramp
- Improvements at the Tennessee Street Interchange



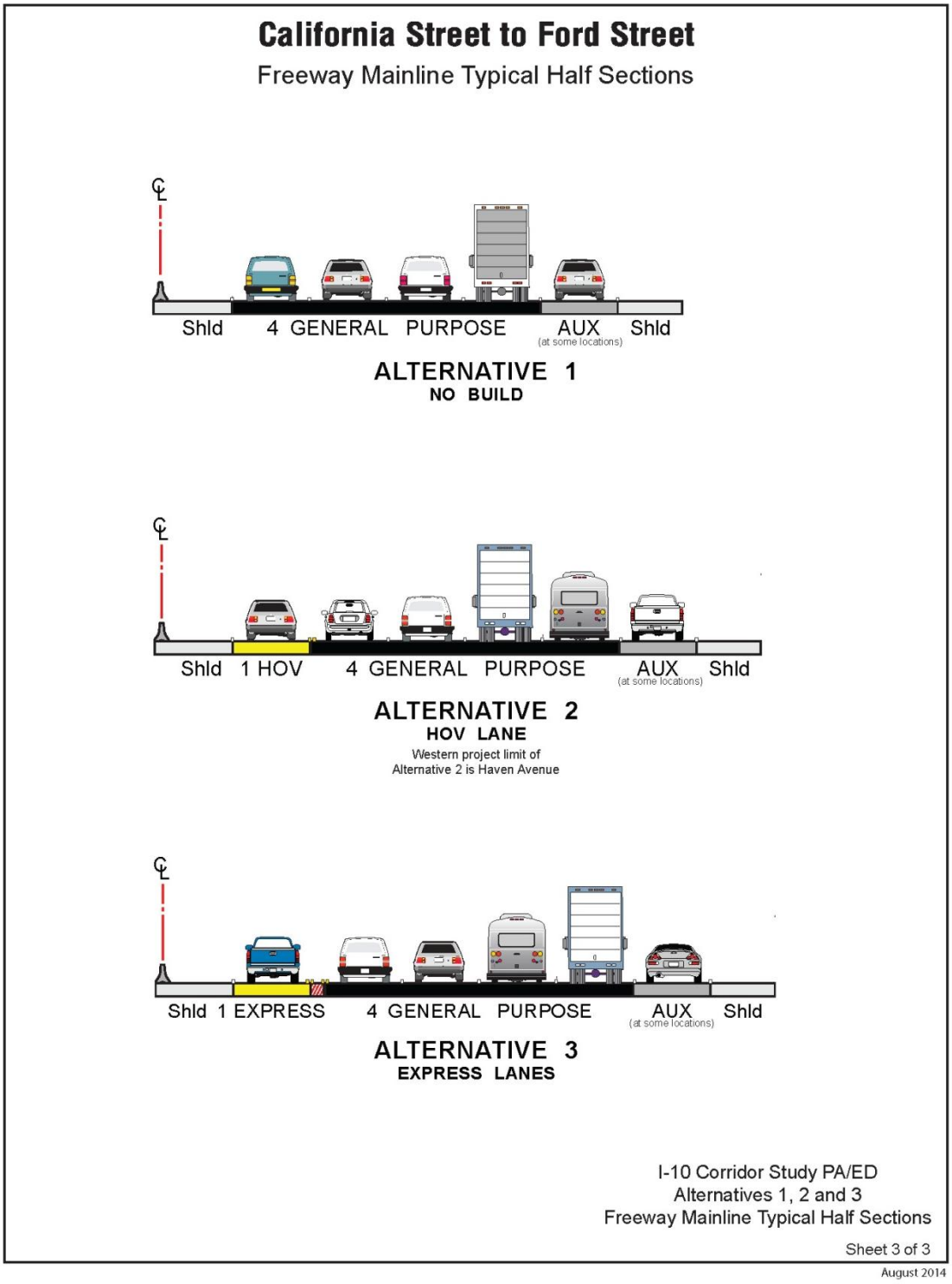
Source: Traffic Study, 2014.

Figure 3.1.6-3 Alternatives 1, 2, and 3 Typical Half Sections (Page 1 of 3)



Source: Traffic Study, 2014.

Figure 3.1.6-3 Alternatives 1, 2, and 3 Typical Half Sections (Page 2 of 3)



Source: Traffic Study, 2014.

Figure 3.1.6-3 Alternatives 1, 2, and 3 Typical Half Sections (Page 3 of 3)

Alternative 3 (Two Express Lanes in Each Direction). This alternative would provide two Express Lanes in each direction of I-10 from the LA/SB county line to California Street (near SR-210) in Redlands and one Express Lane in each direction from California Street to Ford Street in Redlands, a total of 33 miles. The Express Lanes would be price managed lanes in which vehicles not meeting the minimum occupancy requirement would pay a toll. West of Haven Avenue, a single new lane would be constructed and combined with the existing HOV lane to provide two Express Lanes in each direction; east of Haven Avenue, all Express Lanes would be constructed by the project. The freeway mainline typical half sections for Alternative 3 are illustrated in Figure 3.1.6-3.

Transition areas would be provided where the Express Lanes begin and end. Transition areas near the beginning of the Express Lanes would allow for traffic in HOV and GP lanes to change lanes to access the GP and Express Lanes within the project limits of Alternative 3. Transition areas at the end of the Express Lanes would allow traffic in the Express and GP lanes to change lanes to access the GP and HOV lanes downstream of the end of the Express Lanes facility. Transition areas may add new lanes and/or redesignate lanes from Express to HOV or GP.

Express Lanes would begin and end near the LA/SB county line and in the vicinity of the Ford Street interchange. Two transition areas (one in each direction) would be required for each location, for a total of four transition areas. In addition to the beginning and end near the LA/SB county line and Ford Street, access to the Express Lanes and from the GP Lanes or vice-versa would be provided in each direction at the following 10 locations:

1. Mountain Avenue interchange area
2. Between the SR-83 (Euclid Avenue) and Grove Avenue interchanges
3. Haven Avenue interchange area
4. Between the Etiwanda Avenue and Cherry Avenue interchanges
5. Citrus Avenue interchange area
6. Cedar Avenue interchange area
7. Pepper Avenue interchange area
8. Tippecanoe Avenue interchange area
9. California Street interchange area
10. Orange Avenue/6th Street interchange area

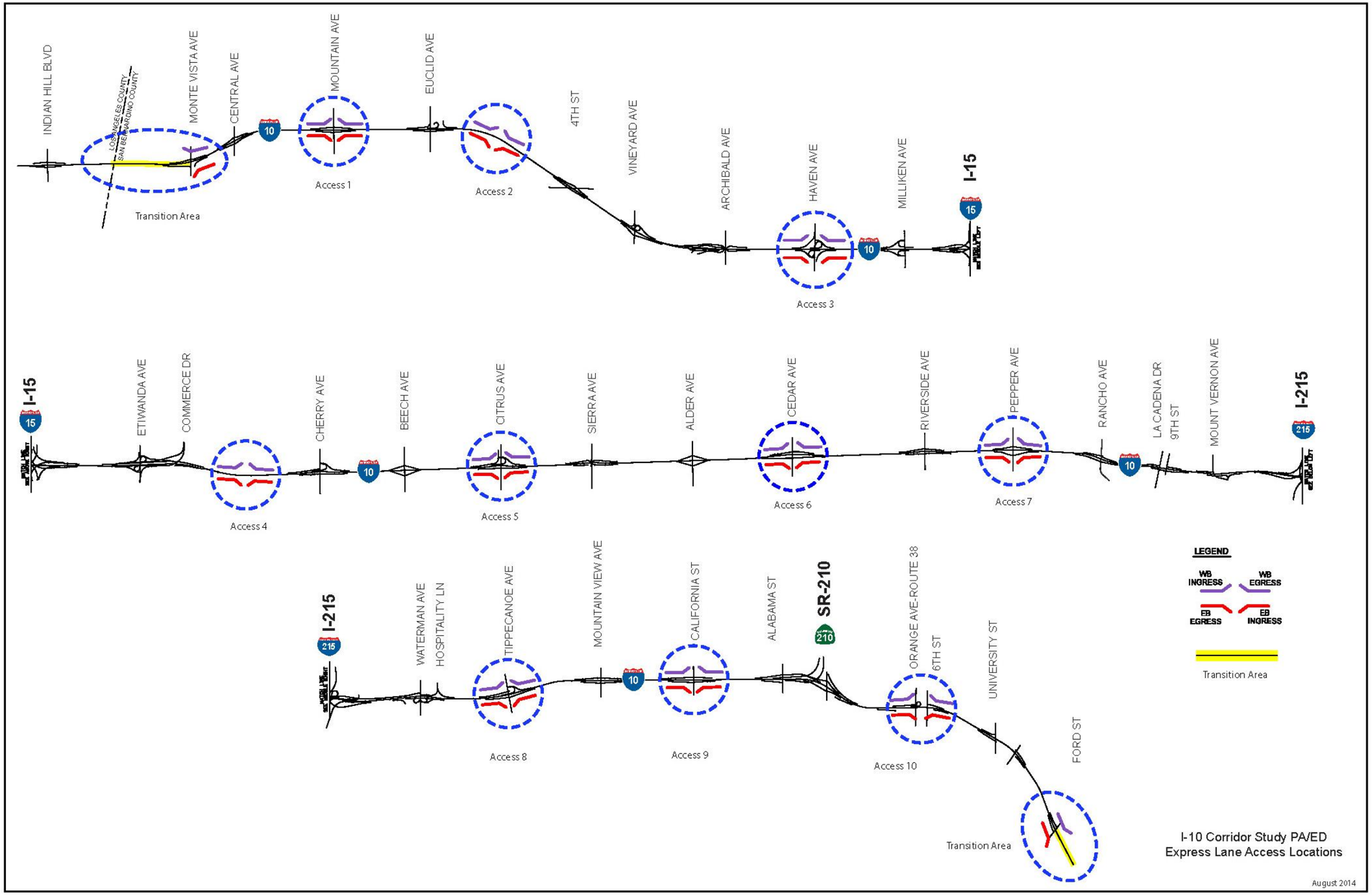
Figure 3.1.6-4 illustrates the proposed access points to the Express Lane.

In addition to the Express Lanes, Alternative 3 would provide the following improvements:

- Construct EB auxiliary lane between Mountain Avenue and SR-83 (Euclid Avenue)
- Construct WB auxiliary lane between Rancho Avenue and La Cadena Drive
- Extend WB auxiliary lane between Pepper Avenue and Riverside Avenue
- Modify one-lane off-ramps to two-lane off-ramps at the following locations:
  - Monte Vista Avenue WB off-ramp
  - Mountain Avenue WB off-ramp
  - SR-83 (Euclid Avenue) EB off-ramp
  - Holt Boulevard WB off-ramp
  - Waterman Avenue/Carnegie Drive WB off-ramp
- Improvements at the Monte Vista Avenue interchange
- Improvements at the SR-83 (Euclid Avenue) interchange
- Improvements at the Tennessee Street interchange

Traffic Forecasting Model

The traffic forecasts for the project were developed using the San Bernardino County Transportation Analysis Model (SBTAM), which is based on the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) model. SBTAM assigns traffic for six vehicle types: drive alone, HOV 2, HOV 3+, light truck, medium-duty truck, and heavy-duty truck. SBTAM considers passenger car equivalents (PCE) for the three truck classes when performing the highway assignment. Toll facility activity was forecast assuming tolling of single-occupant passenger vehicles only. The forecast volumes were then post-processed to reflect a smooth and logical balance between the mainline freeway and Express Lanes. SBTAM, consistent with traditional travel demand models, often produces forecasts for facilities that exceed available capacity; however, the toll policy for the Express Lane scenario will ensure an efficient LOS and minimum travel speed. It is anticipated that the maximum capacity of the I-10 Express Lanes to maintain a minimum speed of 60 mph would be approximately 1,700 vehicles per hour per lane (vphpl). As a result, the capacity of the Express Lanes has been capped at 1,700 vphpl, with vehicles forecast in excess of this capacity shifted into the GP lanes for analysis purposes.



Source: Traffic Study, 2014.

Figure 3.1.6-4 Express Lane Access Locations

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SBTAM has a horizon year of 2035, but forecasts beyond 2035 are required for the I-10 Project Approval/Environmental Document (PA/ED) study. A post-2035 scenario was not developed for SBTAM; rather, 2035 forecast volumes were post-processed as necessary to 2045 conditions. The methodology for post-processing I-10 corridor forecast volumes was to evaluate annual growth on the corridor between 2010 and 2035 and apply the forecast annual growth rate in daily forecast volumes to 2035 forecast volumes to generate 2045 forecasts. The annual growth factor for the I-10 corridor used to develop the 2045 forecast was calculated to be 0.95 percent or 9.7 percent for 10 years. This growth factor is the weighted average growth throughout the corridor for both EB and WB directions and was calculated by comparing the existing and 2035 model volumes on the I-10 corridor. Forecast AM and PM peak-hour traffic volumes on the freeway mainline and ramps are shown for each alternative for years 2025 and 2045 in the Traffic Study (Figures 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.6.1, and 2.6.2).

Peak-hour future forecast traffic volumes for the study intersections were developed using the output volumes from the SBTAM. The AM and PM peak-period forecast traffic volumes were converted to peak-hour volumes by applying peak-hour conversion factors (0.372 for 3 hours in the AM and 0.272 for 4 hours in the PM peak periods). After the peak-hour traffic volumes were calculated, intersection turning movements were developed using the "iterative" methodology as described in the "National Cooperative Highway Research Program (NCHRP) Report 255: Highway Traffic Data for Urbanized Area Project Planning and Design," Chapter 8. The method uses the base year turning volume percentages (from the traffic counts) and the projected growth (difference) in the intersection's approach/departure volumes between the existing and future models, then proceeds through an iterative computational technique to produce a balanced, final set of adjusted future year peak-hour turning volumes. Graphics showing the forecast 2025 and 2045 peak-hour intersection traffic volumes at each interchange are presented in the Traffic Study (Figures 3.4.1, 3.4.3, 3.5.1, 3.5.3, 3.6.1, and 3.6.3). Future ADT volumes for arterial roadways between ramp intersections are summarized in Table 3.1.6-10.

Alternative 1 (No Build)

Alternative 1 (No Build) lane configurations for the I-10 mainline and all interchange ramps within the project limits for Opening Year (2025) and Design Year (2045) are illustrated in the Traffic Study (Figures 2.4.1 and 2.4.2). Alternative 1 (No Build) lane configurations for the study intersections for Opening Year (2025) and Design Year (2045) are illustrated in the Traffic Study (Figures 3.4.2 and 3.4.4).

Freeway Mainline

The Opening Year (2025) and Design Year (2045) Alternative 1 (No Build) AM/PM peak-hour traffic volumes, along with lane configurations for the I-10 mainline and all interchange ramps within the project limits, are presented in the Traffic Study (Figures 2.4.1 and 2.4.2).

Alternative 1 (No Build) ADT along the I-10 mainline freeway in 2025 and 2045 is presented in Table 3.1.6-2. ADTs in 2025 range from 191,000 to 288,000 vpd and from 241,000 to 313,000 vpd in 2045, compared to the range of 151,000 to 230,000 vpd under the existing condition. As shown in Table 3.1.6-3, Alternative 1 (No Build) VMT in the study corridor is forecast to be 8.2 million vehicle miles in 2025 and 9.7 million vehicle miles in 2045, compared to 7.1 million vehicle miles under existing conditions.

V/C Ratio and LOS. Table 3.1.6-4 presents the LOS and v/c ratios for peak hours of Alternative 1 (No Build) in 2025 for the GP lanes of the EB and WB I-10. Under Alternative 1 conditions in year 2025, the freeway mainline is anticipated to operate at LOS C to F during the AM peak hour in the EB direction and LOS F in the WB direction. In the PM peak hour, the freeway mainline is anticipated to operate at LOS F in the EB direction and LOS C to F in the WB direction. The range of v/c ratios in the freeway's GP lanes during the AM peak hour in 2025 under Alternative 1 is 0.58 to 1.31 and 0.73 to 1.39 during the PM peak hour. Based on subtracting the existing conditions v/c ratio (as shown in Table 3.1.6-4) from the expected 2025 Alternative 1 (No Build) v/c ratio (as shown in Table 3.1.6-4), the 2025 Alternative 1 (No Build) v/c ratio decrease by 0.06 to 0.23 greater during the AM peak hour and 0.04 to 0.31 greater than during the PM peak hour compared to existing conditions. A more-detailed link-by-link presentation of the freeway mainline LOS under Alternative 1 traffic condition for GP lanes is included in the Traffic Study (Table 2.4.2).

Table 3.1.6-5 presents the LOS and v/c ratios for peak hours of Alternative 1 (No Build) in the HOV (carpool) lanes. Under Alternative 1 (No Build) the HOV lane terminates at Haven Avenue and HOV traffic would be served by the existing GP lanes east of Haven Avenue. The HOV lanes operate at LOS C in the EB direction and LOS E in the WB direction during the AM peak hour; they operate at LOS F in both directions during the PM peak hour.

The v/c ratios in the HOV lanes during the AM peak hour are 0.68 in the EB direction and 0.92 in the WB direction and during the PM peak hour are 1.02 in the EB

direction and 1.31 in the WB direction. Based on subtracting the existing conditions v/c ratio (as shown in Table 3.1.6-5) from the expected 2025 Alternative 1 (No Build) v/c ratio (as shown in Table 3.1.6-5), the 2025 Alternative 1 (No Build) v/c ratio is greater by 0.11 to 0.32 during the AM peak hour and 0.29 to 0.68 during the PM peak hour compared to existing conditions. A more-detailed link-by-link presentation of the existing freeway mainline LOS under 2012 traffic conditions for HOV lanes is included in the Traffic Study (Table 2.3.2).

Table 3.1.6-12 presents the LOS and v/c ratios for peak hours of Alternative 1 (No Build) in 2045 for the GP lanes of the EB and WB I-10. Under Alternative 1 (No Build) in year 2045, the freeway mainline is anticipated to operate at LOS F during both the AM and PM peak hours in both directions, except for LOS D in the EB direction between California Street and Ford Street during the AM peak hour. The range of v/c ratios in the freeway's GP lane during the AM peak hour in 2045 is 0.78 to 1.54 and 0.91 to 1.49 during the PM peak hour. Based on subtracting the existing conditions v/c ratio (as shown in Table 3.1.6-12) from the expected 2045 Alternative 1 (No Build) v/c ratio (as shown in Table 3.1.6-12), the 2045 Alternative 1 (No Build) v/c ratio increases from 0.17 to 0.46 for the AM peak hour and 0.10 to 0.48 for the PM peak hour compared to existing conditions.

Table 3.1.6-13 presents the LOS and v/c ratios for peak hours of Alternative 1 (No Build) in 2045 for the HOV lanes of the EB and WB I-10. Under Alternative 1 (No Build) conditions in year 2045, the HOV lanes are anticipated to operate at LOS F during both the AM and PM peak hours in both directions, except for LOS E in the EB direction during the AM peak hour. The range of v/c ratios in the freeway's HOV lanes during the AM peak hour in 2045 is 0.95 to 1.04 and 1.12 to 1.46 during the PM peak hour. Based on subtracting the existing conditions v/c ratio (as shown in Table 3.1.6-13) from the expected 2045 Alternative 1 (No Build) v/c ratio (as shown in Table 3.1.6-13), the 2045 Alternative 1 (No Build) v/c ratio increases by 0.23 to 0.59 in the AM peak hour and 0.39 to 0.83 in the PM peak hour compared to existing conditions.

Peak-Period Performance. Table 3.1.6-6 shows forecast Alternative 1 (No Build) speeds for 2025 and 2045 along I-10 between the LA/SB county line and Ford Street during peak hours in each direction by lane type (GP and HOV).

In 2025 under Alternative 1 (No Build), segment speeds in the GP lanes in the EB direction on I-10 range from 46 to 65 mph during the AM peak hour and 16 to 41

mph during the PM peak hour, compared to existing condition speeds of 57 to 65 mph during the AM peak hour and 42 to 54 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 13 to 46 mph during the AM peak hour and 13 to 64 mph during the PM peak hour, compared to existing conditions speeds of 32 to 59 mph during the AM peak hour and 46 to 65 mph during the PM peak hour. Speeds in the HOV lanes west of Haven Avenue during the peak hours range from 13 to 65 mph, compared to existing condition speeds of 62 to 65 mph during the peak hours. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, speeds range from 32 to 52 mph in the GP lanes during the peak hours, compared to existing condition speeds of 48 to 60 mph during the peak hours. HOV speeds for a trip between the LA/SB county line and Ford Street is a combination of HOV lane speeds west of Haven Avenue and GP lane speeds east of Haven Avenue. Speeds of HOVs for an entire corridor trip range from 32 to 55 mph during the peak hours, compared to existing condition speeds of 52 to 61 mph during the peak hours.

In 2045 under Alternative 1 (No Build), segment speeds in the GP lanes in the EB direction on I-10 range from 14 to 63 mph during the AM peak hour and 10 to 33 mph during the PM peak hour, compared to existing condition speeds of 57 to 65 mph during the AM peak hour and 42 to 54 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 10 to 29 mph during the AM peak hour and 10 to 56 mph during the PM peak hour, compared to existing conditions speeds of 32 to 59 mph during the AM peak hour and 46 to 65 mph during the PM peak hour. Speeds in the HOV lanes west of Haven Avenue during the peak hours range from 10 to 57 mph, compared to existing condition speeds of 62 to 65 mph during the peak hours. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, speeds range from 21 to 29 mph in the GP lanes during the peak hours, compared to existing condition speeds of 48 to 60 mph during the peak hours. HOV speeds for a trip between the LA/SB county line and Ford Street are a combination of HOV lane speeds west of Haven Avenue and GP lane speeds east of Haven Avenue. Speeds of HOVs for an entire corridor trip range from 21 to 36 mph during the peak hours, compared to existing condition speeds of 52 to 61 mph during the peak hours.

Corridor Travel Time. Table 3.1.6-7 shows forecast Alternative 1 (No Build) corridor travel time for 2025 and 2045 along I-10 between the LA/SB county line and Ford Street during peak hours in each direction by lane type (GP and HOV).

Table 3.1.6-12 I-10 Mainline GP Lane Density, LOS, and Volume-to-Capacity Ratio for Year 2045

Segment	EB or WB	Existing 2012						Alternative 1 – 2045						Alternative 2 – 2045						Alternative 3 - 2045					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Den	LOS	V/C	Den	LOS	V/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C
Los Angeles/San Bernardino County Line to Haven Avenue	EB	29.4	D	1.00	*	F	0.99	*	F	1.17	*	F	1.09	*	F	1.25	*	F	1.16	*	F	1.20	*	F	1.20
	WB	*	F	1.11	*	F	1.01	*	F	1.23	*	F	1.49	*	F	1.27	*	F	1.53	*	F	1.29	*	F	1.59
Haven Avenue to California Street	EB	*	F	1.06	*	F	1.16	*	F	1.37	*	F	1.41	*	F	1.27	*	F	1.28	*	F	1.21	*	F	1.33
	WB	*	F	1.17	35.4	E	0.99	*	F	1.44	*	F	1.39	*	F	1.31	*	F	1.28	*	F	1.27	*	F	1.27
California Street to Ford Street	EB	19.4	B	0.52	*	F	1.02	33.8	D	0.78	*	F	1.42	31.9	D	0.73	*	F	1.25	32.1	D	0.85	*	F	1.35
	WB	*	F	1.08	19.9	C	0.64	*	F	1.54	46.9	F	0.91	*	F	1.37	27.1	C	0.77	*	F	1.49	29.5	D	0.93

EB – Eastbound; WB – Westbound; Den – Density; LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio

* Density not calculated under HCM because volume exceeds the range of the density algorithm or there is no related methodology.

Source: Traffic Study, 2014.

Table 3.1.6-13 I-10 Mainline HOV Lane Density, LOS, and Volume-to-Capacity Ratio for Year 2045

Segment	EB or WB	Existing 2012						Alternative 1 – 2045						Alternative 2 – 2045						Alternative 3 - 2045					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		Den	LOS	V/C	Den	LOS	V/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C	Den	LOS	D/C
Los Angeles/San Bernardino County Line to Haven Avenue	EB	**	C	0.72	**	F	0.78	**	E	0.95	**	F	1.12	**	F	1.20	**	F	1.18	26.3	D	0.77	26.8	D	0.78
	WB	**	D	0.81	**	C	0.63	**	F	1.04	**	F	1.46	**	F	1.36	**	F	1.55	29.4	D	0.85	29.4	D	0.85
Haven Avenue to California Street	EB	--	--	--	--	--	--	--	--	--	--	--	--	**	D	0.87	**	F	1.21	27.0	D	0.80	27.5	D	0.82
	WB	--	--	--	--	--	--	--	--	--	--	--	--	**	F	1.54	**	F	1.54	29.3	D	0.85	29.4	D	0.85
California Street to Ford Street	EB	--	--	--	--	--	--	--	--	--	--	--	--	**	D	0.81	**	F	1.25	--	A	0.26	--	D	0.85
	WB	--	--	--	--	--	--	--	--	--	--	--	--	**	F	1.46	**	E	0.97	--	D	0.86	--	A	0.38

EB – Eastbound; WB – Westbound; Den – Density; LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio; * - Density not calculated under HCM because volume exceeds the range of the density algorithm or there is no related methodology.

-- HOV lanes exist only west of Haven Avenue.

** Since HCM 2000 does not have an explicit methodology to evaluate single-lane HOV operations, v/c ratios (or d/c ratios) are calculated for HOV lanes to determine LOS.

Source: Traffic Study, 2014.

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In 2025 under Alternative 1 (No Build), segment travel times in the GP lanes in the EB direction on I-10 range from 2 to 17 minutes during the AM peak hour and 6 to 26 minutes during the PM peak hour, compared to existing condition travel times of 2 to 13 minutes during the AM peak hour and 3 to 14 minutes during the PM peak hour. In the WB direction, the GP segment travel times range from 12 to 24 minutes during the AM peak hour and 2 to 37 minutes during the PM peak hour, compared to existing condition travel times of 4 to 14 minutes during the AM peak hour and 2 to 14 minutes during the PM peak hour. Travel times in the HOV lanes west of Haven Avenue during the peak hours range from 7 to 37 minutes, compared to existing condition travel times of 7 to 8 minutes during the peak hours. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, travel times range from 33 to 56 mph in the GP lanes during the peak hours, compared to existing condition travel times of 29 to 37 minutes during the peak hours. HOV travel times for a trip between the LA/SB county line and Ford Street are a combination of HOV lane travel times west of Haven Avenue and GP lane travel times east of Haven Avenue. Travel times of HOVs for an entire corridor trip range from 31 to 55 minutes during the peak hours, compared to existing condition travel times of 28 to 34 minutes during the peak hours.

In year 2045 under Alternative 1 (No Build), segment travel times in the GP lanes in the EB direction on I-10 range from 2 to 57 minutes during the AM peak hour and 12 to 50 minutes during the PM peak hour, compared to existing condition travel times of 2 to 13 minutes during the AM peak hour and 3 to 14 minutes during the PM peak hour. In the WB direction, the GP segment travel times range from 15 to 32 minutes during the AM peak hour and 3 to 56 minutes during the PM peak hour, compared to existing condition travel times of 4 to 14 minutes during the AM peak hour and 2 to 14 minutes during the PM peak hour. Travel times in the HOV lanes west of Haven Avenue during the peak hours range from 8 to 49 minutes, compared to 7 to 8 minutes during the peak hours. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, travel times range from 59 to 85 mph in the GP lanes during the peak hours, compared to existing condition travel times of 29 to 37 minutes during the peak hours. HOV travel times for a trip between the LA/SB county line and Ford Street are a combination of HOV lane travel times west of Haven Avenue and GP lane travel times east of Haven Avenue. Travel times of HOVs for an entire corridor trip range from 47 to 84 minutes during the peak hours, compared to existing condition travel times of 28 to 34 minutes.

Vehicle Hours of Delay. Table 3.1.6-8 presents the daily and annual VHD forecast to occur on I-10 on weekdays in 2025 and 2045. VHD is based on the number of

additional hours of vehicle travel required within the corridor due to speeds lower than 65 mph on weekdays during peak periods when congestion reduces speeds and increases corridor travel times. Under the Alternative 1 (No Build) condition in 2025, approximately 21,705 daily and 5.4 million annual VHD are anticipated on I-10; in 2045 under the Alternative 1 (No Build) condition, approximately 31,871 daily and 8.0 million annual VHD are anticipated, compared to 19,295 daily and 4.8 million annual VHD under the existing condition.

Freeway Connector Volumes. Tables 3.1.6-9 and 3.1.6-14 provide the 2025 and 2045 forecast, respectively, of branch connector volumes and v/c ratios on ramps between freeways within the project limits. The branch connectors are located at I-15, I-215, and SR-210. Branch connectors are forecast to operate with v/c ratios ranging from 0.32 to 1.98 in 2025 and 0.40 to 2.13 in 2045 under the Alternative 1 (No Build) condition, compared to 0.25 to 1.81 under existing conditions.

Arterials, Intersections, and Interchanges

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for 2025 Alternative 1 (No Build) conditions is provided in Table 3.1.6-1 for all study intersections. In 2025 under Alternative 1 (No Build) conditions, the study intersections are anticipated to operate at LOS D or better, except for five intersections that are anticipated to operate at LOS E or F during the PM peak hour, compared to one intersection in the existing condition.

Table 3.1.6-1 shows that the study intersections are anticipated to operate under capacity (v/c equal to or less than 1.00) in 2025 under the Alternative 1 (No Build) conditions during peak hours, except for six intersections that are anticipated to operate over capacity during the PM peak hour. This compares to one intersection that is anticipated to operate over capacity under existing conditions.

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for 2045 Alternative 1 (No Build) conditions is provided in Table 3.1.6-1 for all study intersections. In 2045 under Alternative 1 (No Build) conditions, the study intersections are anticipated to operate at LOS D or better, except for 10 intersections that are anticipated to operate at LOS E or F during either the AM or PM peak hour or both, compared to 1 intersection in the existing condition.

Table 3.1.6-14 2045 Branch Connector Volumes and Volume-to-Capacity Ratios

Branch Connector	Existing 2012				Alternative 1 – 2045				Alternative 2 – 2045				Alternative 3 - 2045			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Volume	V/C	Volume	V/C	Volume	D/C	Volume	D/C	Volume	D/C	Volume	D/C	Volume	D/C	Volume	D/C
EB Off Direct (NB I-15)	1,350	0.45	2,420	0.81	1,580	0.53	2,790	0.93	1,560	0.52	2,790	0.93	1,610	0.54	2,790	0.93
EB Off Direct (SB I-15)	1,810	1.21	1,780	1.19	2,350	1.57	2,050	1.37	2,340	1.56	2,050	1.37	2,390	1.59	2,060	1.37
EB On Direct (NB I-15)	1,790	1.19	1,770	1.18	2,620	1.75	2,580	1.72	2,590	1.73	2,600	1.73	2,620	1.75	2,640	1.76
EB On Direct (SB I-15)	1,110	0.74	970	0.65	1,270	0.85	1,120	0.75	1,270	0.85	1,120	0.75	1,270	0.85	1,120	0.75
WB Off Direct (NB/SB I-15)	2,800	0.93	2,590	0.86	3,020	1.01	2,820	0.94	3,090	1.03	2,880	0.96	3,230	1.08	2,900	0.97
WB On Direct (SB I-15)	2,710	1.81	1,840	1.23	3,200	2.13	2,410	1.61	3,180	2.12	2,470	1.65	3,200	2.13	2,550	1.70
WB On Direct (NB I-15)	2,570	0.86	2,030	0.68	2,960	0.99	2,340	0.78	2,960	0.99	2,340	0.78	2,960	0.99	2,340	0.78
EB Off Direct (NB/SB I-215)	2,370	0.53	2,420	0.54	3,120	0.69	3,210	0.71	3,080	0.68	3,260	0.72	3,220	0.72	3,530	0.78
EB On Direct (NB I-215)	2,420	1.61	2,590	1.73	3,080	2.05	3,190	2.13	3,040	2.03	3,270	2.18	3,080	2.05	3,380	2.25
EB On Direct (SB I-215)	1,200	0.80	1,760	1.17	1,990	1.33	2,030	1.35	2,040	1.36	2,380	1.59	2,000	1.33	2,610	1.74
WB Off Direct (NB/SB I-215)	3,860	1.29	3,470	1.16	5,000	1.67	4,940	1.65	5,420	1.81	5,280	1.76	5,460	1.82	5,070	1.69
WB On Loop (NB I-215)	790	0.53	1,270	0.85	910	0.61	1,460	0.97	910	0.61	1,460	0.97	910	0.61	1,460	0.97
WB On Direct (SB I-215)	1,280	0.85	1,550	1.03	2,140	1.43	2,520	1.68	2,170	1.45	2,600	1.73	2,280	1.52	2,760	1.84
EB Off Direct (NB SR-210)	760	0.25	1,540	0.51	1,210	0.40	2,250	0.75	1,130	0.38	2,400	0.80	1,290	0.43	2,710	0.90
EB On Direct (SB SR-210)	1,620	1.08	2,130	1.42	2,440	1.63	3,130	2.09	2,390	1.59	2,940	1.96	2,340	1.56	2,670	1.78
WB Off Direct (NB SR-210)	2,050	0.68	1,800	0.60	3,610	1.20	3,030	1.01	3,360	1.12	2,650	0.88	3,290	1.10	2,820	0.94
WB On Direct (SB SR-210)	1,610	1.07	930	0.62	2,050	1.37	1,380	0.92	2,110	1.41	1,390	0.93	2,270	1.51	1,570	1.05

V/C – Volume-to-Capacity Ratio (D/C – Demand Volume-to-Capacity Ratio) is based on branch connector capacity of 1,500 per lane for each freeway ramp connector lane.

Source: Traffic Study, 2014.

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Table 3.1.6-1 shows that the study intersections are anticipated to operate under capacity (v/c equal to or less than 1.00) in 2045 under Alternative 1 (No Build) conditions during peak hours, except for 13 intersections that are anticipated to operate over capacity during either the AM or PM peak hour or both. This compares to 1 intersection that is anticipated to operate over capacity under existing conditions.

A comparison of vehicle queuing (higher of AM or PM peak-hour 95th percentile queues) in year 2045 with available storage (in feet) was conducted at all arterial interchange study intersections and is summarized in Table 3.1.6-11. Table 3.1.6-11 shows that 44 percent of off-ramps with traffic control at their arterial intersections are anticipated to have adequate turning lane storage under Alternative 1 (No Build) conditions in 2045, compared to 84 percent under existing conditions.

Table 3.1.6-11 also shows that 26 percent of arterials are anticipated to have adequate turning lane storage at ramp intersections under Alternative 1 (No Build) conditions in 2045, compared to 43 percent under existing conditions. Additionally, Table 3.1.6-11 shows that 33 percent of turning lanes at arterial/arterial intersections are anticipated to have adequate storage under Alternative 1 (No Build) conditions in 2045, compared to 67 percent under existing conditions. No ramp metering analysis was conducted under Alternative 1 (No Build) conditions.

Alternative 2 (HOV Lanes)Alternative 2 (HOV) lane configurations for the I-10 mainline and all interchange ramps within the project limits for Opening Year (2025) and Design Year (2045) are illustrated in the Traffic Study (Figures 2.5.1 and 2.5.2). Alternative 2 (HOV) lane configurations for the study intersections for Opening Year (2025) and Design Year (2045) are illustrated in the Traffic Study (Figures 3.5.2 and 3.5.4).

Freeway Mainline

The Opening Year (2025) and Design Year (2045) Alternative 2 (HOV) AM/PM peak-hour traffic volumes, along with lane configurations for the I-10 mainline and all interchange ramps within the project limits, are presented in the Traffic Study (Figures 2.5.1 and 2.5.2).

The Alternative 1 ADT along the I-10 mainline freeway in 2025 and 2045 is presented in Table 3.1.6-2. ADT in 2025 for Alternative 2 ranges from 214,000 to 302,000 vpd, compared to the range of 191,000 to 288,000 vpd for Alternative 1 (No Build). ADT in 2045 for Alternative 2 ranges from 254,000 to 322,000 compared to the range of 241,000 to 313,000 vpd for Alternative 1 (No Build). As shown in Table 3.1.6-3, Alternative 2 daily VMT in the study corridor is forecast to be 8,451,000 in

2025 and 10,013,000 in 2045, compared to 8,195,000 in 2025 and 9,746,000 in 2045 under Alternative 1 (No Build). The increase in ADT and VMT anticipated along the I-10 mainline results from reductions in congestion diversion from I-10. Currently, motorists avoid I-10 and use local streets because I-10 is heavily congested. As traffic demand grows, this condition is expected to intensify under Alternative 1 (No Build). VMT can be expected to increase on I-10 under the build alternatives because freeway congestion would be reduced with a consequential reduction in diversion from I-10 to local streets.

V/C Ratio and LOS. Table 3.1.6-4 presents the LOS and v/c ratios for peak hours of Alternative 2 in 2025 for the GP lanes of the EB and WB I-10. Under Alternative 2 in year 2025, the freeway mainline is anticipated to operate at LOS F during both the AM and PM peak hours in both directions, except for LOS C between California Street and Ford Street in the EB direction during the AM peak hour and the WB direction during the PM peak hour. Under Alternative 1 (No Build), LOS F is also anticipated during both the AM and PM peak hour in both directions, except for LOS D during the AM peak hour in the EB direction between the LA/SB county line and Haven Avenue, LOS C between California Street and Ford Street in the EB direction during the AM peak hour, and LOS C between California Street and Ford Street in the WB direction during the PM peak hour.

The range of v/c ratios in the freeway's GP lanes during the AM peak hour in 2025 under Alternative 2 is 0.62 to 1.22 and 0.65 to 1.37 during the PM peak hour. Alternative 2 v/c ratios range from 0.16 less than to 0.14 greater than v/c ratios in the GP lanes under Alternative 1 (No Build). A more-detailed link-by-link presentation of the freeway mainline LOS under Alternative 2 Opening Year (2025) and Design Year (2045) traffic conditions for GP lanes is included in the Traffic Study (Tables 2.5.2 and 2.5.4).

Table 3.1.6-5 presents the LOS and v/c ratios for peak hours of Alternative 2 in 2025 for the HOV lanes of the EB and WB I-10. Under Alternative 2, the HOV lane extends from the current HOV terminus near Haven Avenue to Ford Street. In year 2025 Alternative 2, the HOV lanes between the LA/SB county line and Haven Avenue are anticipated to operate at LOS F during both the AM and PM peak hour, except for LOS C during the AM peak hour in the EB direction. Under Alternative 1 (No Build), LOS F is also anticipated during the PM peak hour in both directions and LOS C in the EB direction and LOS E in the WB direction during the AM peak hour. For the extended HOV lane between Haven Avenue and Ford Street under Alternative 2, the HOV lane is anticipated to operate at LOS B to F during the AM peak hour in both

directions and LOS D to F during the PM peak hour in both directions. Under Alternative 1 (No Build) between Haven Avenue and Ford Street, LOS F in the GP lane is anticipated during both the AM and PM peak hour in both directions, except for LOS C between California Street and Ford Street in the EB direction during the AM peak hour and LOS C between California Street and Ford Street in the WB direction during the PM peak hour.

The range of v/c ratios in the freeway's HOV lanes between the LA/SB county line and Haven Avenue during the AM peak hour in 2025 is 0.71 to 1.23 and 1.05 to 1.42 during the PM peak hour; Alternative 2 v/c ratios are higher than Alternative 1 (No Build) by 0.03 to 0.31 for the AM peak hour and 0.03 to 0.11 for the PM peak hour. For the extended HOV lanes between Haven Avenue and Ford Street, the range of v/c ratios during the AM peak hour in 2025 is 0.42 to 1.38 and 0.82 to 1.39 for the PM peak hour; Alternative 2 v/c ratios for the HOV lane are lower by 0.85 to higher by 0.09 during the AM peak hour and lower by 0.57 to higher by 0.14 during the PM peak hour than the v/c ratios for the GP lane in Alternative 1 (No Build).

Table 3.1.6-12 presents the LOS and v/c ratios for peak hours of Alternative 2 in 2045 for the GP lanes of the EB and WB I-10. Under Alternative 2 in year 2045, the freeway mainline is anticipated to operate at LOS F during both the AM and PM peak hours in both directions, except for LOS D during the AM peak hour in the EB direction and LOS C during the PM peak hour in the WB direction between California Street and Ford Street. Under Alternative 1 (No Build), LOS F is also anticipated during both the AM and PM peak hour in both directions, except for LOS D during the AM peak hour in the EB direction between California Street and Ford Street.

The range of v/c ratios in the freeway's GP lanes during the AM peak hour in 2045 under Alternative 2 is 0.73 to 1.37 and 0.77 to 1.53 during the PM peak hour. Alternative 2 v/c ratios range from 0.17 less than to 0.08 greater than v/c ratios in the HOV lanes under Alternative 1 (No Build).

Table 3.1.6-13 presents the LOS and v/c ratios for peak hours of Alternative 2 in 2045 for the HOV lanes of the EB and WB I-10. Under Alternative 2, the HOV lane extends from the current HOV terminus near Haven Avenue to Ford Street. In year 2045 Alternative 2, the HOV lanes between the LA/SB county line and Haven Avenue are anticipated to operate at LOS F during both the AM and PM peak hour in both directions. Under Alternative 1 (No Build), LOS F is also anticipated during both the AM and PM peak hour in both directions, except LOS E in the EB direction

during the AM peak hour. Under Alternative 2 for the extended HOV lane between Haven Avenue and Ford Street, the HOV lane is anticipated to operate at LOS F during both the AM and PM peak hour in both directions, except for LOS D in the EB direction between Haven Avenue and Ford Street during the AM peak hour and LOS E in the WB direction between California Street and Ford Street during the PM peak hour. Under Alternative 1 (No Build) as shown in Table 3.1.6-12, LOS F on the GP lane is anticipated during both the AM and PM peak hour in both directions, except for LOS D during the AM peak hour in the EB direction between California Street and Ford Street.

The range of v/c ratios in the freeway's HOV lanes between the LA/SB county line and Haven Avenue during the AM peak hour for Alternative 2 in 2045 is 1.20 to 1.36 and 1.18 to 1.55 during the PM peak hour; the Alternative 2 v/c ratios are higher than Alternative 1 (No Build) by 0.25 to 0.32 for the AM peak hour and 0.06 to 0.09 for the PM peak hour. For the extended HOV lanes between Haven Avenue and Ford Street, the range of v/c ratios for Alternative 2 during the AM peak hour in 2045 is 0.81 to 1.54 and 0.97 to 1.54 for the PM peak hour; the Alternative 2 v/c ratios for the HOV lane are lower than the v/c ratios for the GP lane in Alternative 1 (No Build) by 0.50 to higher by 0.10 during the AM peak hour and lower by 0.20 to higher by 0.15 during the PM peak hour.

The Transportation System Management (TSM) and Transportation Demand Management (TDM) measures included in Alternative 2 (identified in Section 2.2.1.1, Common Design Features of the Build Alternatives) are expected to reduce system demand by promoting carpooling and transit uses. Specifically, the project would support Omnitrans' current plan to add express bus lines along I-10 between Ontario and San Bernardino. With implementation of Alternative 2, the proposed Omnitrans express routes would be able to use approximately 24 miles of the HOV lanes on I-10. In addition, bus stops would be incorporated at the on-ramps at the Sierra Avenue interchanges along with associated intersection, pedestrian access, and traffic signal improvements to accommodate the Omnitrans express bus services.

In addition, several Intelligent Transportation Systems (ITS) elements are also anticipated to be incorporated into the project improvements, which may include fiber-optic and other communication systems, changeable message signs (CMS), closed-circuit television (CCTV), ramp metering, and vehicle detection systems. At locations of interchange improvements, upgraded traffic signals would be installed to be interconnected and/or coordinated with adjacent signals and ramp meters.

Peak-Period Performance. Table 3.1.6-6 shows forecast Alternative 2 speeds for 2025 and 2045 along I-10 between the LA/SB county line and I-10 during peak hours in each direction by lane type (GP and HOV).

In 2025 under Alternative 2, segment speeds in the GP lanes in the EB direction on I-10 range from 42 to 65 mph during the AM peak hour and 22 to 42 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 46 to 65 mph during the AM peak hour and 21 to 41 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 20 to 51 mph during the AM peak hour and 12 to 65 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 13 to 46 mph during the AM peak hour and 13 to 64 mph during the PM peak hour. Segment speeds in the HOV lanes during the peak hours range from 36 to 65 mph in the EB direction and 10 to 65 mph in the WB direction. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, speeds range from 36 to 48 mph in the GP lanes during the peak hours, compared to Alternative 1 (No Build) speeds of 32 to 52 mph during the peak hours. Speeds of HOVs for an entire corridor trip range from 43 to 65 mph during the peak hours, compared to Alternative 1 (No Build) speeds of 32 to 55 mph during the peak hours.

In year 2045 under Alternative 2, segment speeds in the GP lanes in the EB direction on I-10 range from 21 to 64 mph during the AM peak hour and 18 to 30 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 14 to 63 mph during the AM peak hour and 10 to 33 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 10 to 33 mph during the AM peak hour and 10 to 63 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 10 to 29 mph during the AM peak hour and 10 to 56 mph during the PM peak hour. Segment speeds in the HOV lanes during the peak hours range from 10 to 65 mph in the EB direction and 10 to 60 mph in the WB direction. For an entire corridor trip between the LA/SB county line and the Ford Street interchange speeds range from 24 to 30 mph in the GP lanes during the peak hours, compared to Alternative 1 (No Build) speeds of 21 to 29 mph during the peak hours. Speeds for HOVs for an entire corridor trip range from 29 to 57 mph during the peak hours, compared to Alternative 1 (No Build) speeds of 21 to 36 mph during the peak hours.

Corridor Travel Time. Table 3.1.6-7 shows forecast Alternative 2 corridor travel time for 2025 and 2045 along I-10 between the LA/SB county line and Ford Street during peak hours in each direction by lane type (GP and HOV).

In 2025 under Alternative 2, segment travel times in the GP lanes in the EB direction on I-10 range from 2 to 18 minutes during the AM peak hour and 3 to 19 minutes during the PM peak hour, compared to Alternative 1 (No Build) travel times of 2 to 17 minutes during the AM peak hour and 6 to 26 minutes during the PM peak hour. In the WB direction, the GP segment travel times range from 7 to 24 minutes during the AM peak hour and 2 to 41 minutes during the PM peak hour, compared to Alternative 1 (No Build) travel times of 12 to 24 minutes during the AM peak hour and 2 to 37 minutes during the PM peak hour. Segment travel times in the HOV lanes in the EB direction range from 2 to 12 minutes during the AM peak hour and 3 to 12 minutes during the PM peak hour. In the WB direction, the HOV segment travel times range from 2 to 13 minutes during the AM peak hour and 2 to 49 minutes during the PM peak hour. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, travel times range from 36 to 49 minutes in the GP lanes during the peak hours, compared to Alternative 1 (No Build) travel times of 33 to 56 minutes during the peak hours. Travel times of HOVs for an entire corridor trip range from 26 to 33 minutes during the peak hours, compared to Alternative 1 (No Build) travel times of 31 to 55 minutes during the peak hours.

In year 2045 under Alternative 2, segment travel times in the GP lanes in the EB direction on I-10 range from 2 to 42 minutes during the AM peak hour and 7 to 29 minutes during the PM peak hour, compared to Alternative 1 (No Build) travel times of 2 to 57 minutes during the AM peak hour and 12 to 50 minutes during the PM peak hour. In the WB direction, the GP segment travel times range from 15 to 32 minutes during the AM peak hour and 2 to 49 minutes during the PM peak hour, compared to Alternative 1 (No Build) travel speeds of 15 to 32 minutes during the AM peak hour and 3 to 56 minutes during the PM peak hour. Segment travel times in the HOV lanes in the EB direction range from 2 to 12 minutes during the AM peak hour and 12 to 17 minutes during the PM peak hour. In the WB direction, the HOV segment travel times range from 14 to 30 minutes during the AM peak hour and 3 to 49 minutes during the PM peak hour. For an entire corridor trip between the LA/SB county line and the Ford Street interchange travel time range from 56 to 72 minutes in the GP lanes during the peak hours, compared to Alternative 1 (No Build) travel times of 59 to 85 minutes during the peak hours. Travel times of HOVs for an entire corridor trip range from 30 to 60 minutes during the peak hours, compared to Alternative 1 (No Build) travel times of 47 to 84 minutes during the peak hours.

Vehicle Hours of Delay. Table 3.1.6-8 presents the daily and annual VHD forecast to occur on I-10 on weekdays in 2025 and 2045. VHD is based on the number of additional hours of vehicle travel required within the corridor due to speeds lower

than 65 mph on weekdays during peak periods when congestion reduces speeds and increases corridor travel times. Under Alternative 2 in 2025, approximately 20,349 daily and 5.1 million annual VHD are anticipated on I-10, compared to 19,295 daily and 4.8 million annual VHD under Alternative 1 (No Build) conditions. In 2045 under Alternative 2, approximately 27,281 daily and 6.8 million annual VHD are anticipated, compared to 31,871 daily and 8.0 million annual VHD under Alternative 1 (No Build) condition.

Freeway Connector Volumes. Tables 3.1.6-9 and 3.1.6-14 provide the 2025 and 2045 forecast, respectively, of branch connector volumes and v/c ratios on ramps between freeways within the project limits. The branch connectors are located at I-15, I-215, and SR-210. Branch connectors are forecast to operate with v/c ratios ranging from 0.29 to 1.97 in 2025 and from 0.38 to 2.18 in 2045 under Alternative 2 conditions, compared to 0.32 to 1.98 in 2025 and 0.40 to 2.13 in 2045 under Alternative 1 (No Build) conditions.

Arterials, Intersections, and Interchanges

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for 2025 Alternative 2 conditions is provided in Table 3.1.6-1 for all study intersections. In 2025 under Alternative 2, the study intersections are anticipated to operate at LOS D or better, except for three intersections that are anticipated to operate at F during the PM peak hour. This compares to the five intersections, including three of the intersections under Alternative 2 that are anticipated to operate at LOS E or F under Alternative 1 (No Build) conditions in 2025.

Table 3.1.6-1 shows that the study intersections are anticipated to operate under capacity (v/c equal to or less than 1.00) in 2025 under Alternative 2 during peak hours, except for five intersections that are anticipated to operate over capacity during either the AM or PM peak hour or both. The same five intersections are also anticipated to operate over capacity under Alternative 1 (No Build) conditions in 2025.

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for 2045 Alternative 2 conditions is provided in Table 3.1.6-1 for all study intersections. In 2045 under Alternative 2, the study intersections are anticipated to operate at LOS D or better, except for five intersections that are anticipated to operate at LOS E or F during either the AM or PM peak hour or both, compared to eight intersections under Alternative 1 (No Build) conditions in 2045.

Table 3.1.6-1 shows that the study intersections are anticipated to operate under capacity (v/c equal to or less than 1.00) in 2045 under Alternative 2 during peak hours, except for nine intersections that are anticipated to operate over capacity

during either the AM or PM peak hour or both. This compares to 13 intersections, including the nine intersections under Alternative 2 that are anticipated to operate over capacity under Alternative 1 (No Build) conditions in 2045.

Table 3.1.6-1 compares the Opening Year (2025) and Design Year (2045) overall v/c ratios for study intersections under Alternative 1 (No Build) with Alternative 2 (HOV). Table 3.1.6-1 shows that the project does not have an adverse effect on any of the study intersections under Alternative 2. Intersection improvements have been incorporated as part of the proposed project.

A comparison of vehicle queuing (higher of AM or PM peak-hour 95th percentile queues) in year 2045 with available storage (in feet) was conducted at all arterial interchange study intersections and is summarized in Table 3.1.6-11. Table 3.1.6-11 shows that 56 percent of off-ramps with traffic control at their arterial intersections are anticipated to have adequate turning lane storage under Alternative 2 in 2045, compared to 44 percent under Alternative 1 (No Build) conditions. Under the year 2045 Alternative 2 (HOV) condition, 8 off-ramp locations have queues that exceed the available storage, compared to 10 off-ramp locations under Alternative 1 (No Build).

Table 3.1.6-11 also shows that 32 percent of arterials are anticipated to have adequate turning lane storage at ramp intersections under Alternative 2 in 2045, compared to 26 percent under Alternative 1 (No Build) conditions. Additionally, Table 3.1.6-11 shows that 33 percent of turning lanes at arterial/arterial intersections are anticipated to have adequate storage under Alternative 2 in 2045, which is the same percentage expected under Alternative 1 (No Build) conditions. Finally, Table 3.1.6-11 shows that 73 percent of the on-ramps with ramp meters are anticipated to have sufficient storage to avoid queuing onto adjacent arterials under Alternative 2 in 2045. No ramp metering analysis was conducted for Alternative 1 (No Build) conditions.

Alternative 3 (Express Lanes)

Alternative 3 (Express) lane configurations for the I-10 mainline and all interchange ramps within the project limits for Opening Year (2025) and Design Year (2045) are illustrated in the Traffic Study (Figures 2.6.1 and 2.6.2). Alternative 3 (Express) lane configurations for the study intersections for Opening Year (2025) and Design Year (2045) are illustrated in the Traffic Study (Figures 3.6.2 and 3.6.4).

Freeway Mainline

The Opening Year (2025) and Design Year (2045) Alternative 3 (Express) AM/PM peak-hour traffic volumes, along with lane configurations for the I-10 mainline and all interchange ramps within the project limits, are presented in the Traffic Study (Figures 2.6.1 and 2.6.2).

The Alternative 3 ADT along the I-10 mainline freeway in 2025 and 2045 is presented in Table 3.1.6-2. ADTs in 2025 for Alternative 3 range from 223,000 to 336,000 vpd, compared to the range of 191,000 to 288,000 vpd for Alternative 1 (No Build). ADTs in 2045 for Alternative 3 range from 260,000 to 369,000 vpd compared to the range of 241,000 to 313,000 vpd for Alternative 1 (No Build). As shown in Table 3.1.6-3, Alternative 3 daily VMT in the study corridor is forecast to be 8,937,000 in 2025 and 10,736,000 in 2045, compared to 8,195,000 in 2025 and 9,746,000 in 2045 under Alternative 1 (No Build). The reason for the increase in ADT and VMT anticipated along the I-10 mainline is the same under this alternative as under Alternative 1.

V/C Ratio and LOS. Table 3.1.6-4 presents the LOS and v/c ratios for peak hours of Alternative 3 in 2025 for the GP lanes of the EB and WB I-10. Under Alternative 3 in year 2025, the freeway mainline is anticipated to operate at LOS F during both the AM and PM peak hours in both directions, except for the EB direction during the AM peak hour and WB segment during the PM peak hour from California Street to Ford Street when LOS C is anticipated. Under Alternative 1 (No Build), LOS F is also anticipated during both the AM and PM peak hour in both directions, except for LOS D during the AM peak hour in the EB direction between the LA/SB county line and Haven Avenue and LOS C between California Street and Ford Street in the EB direction during the AM peak hour and the WB direction during the PM peak hour.

The range of v/c ratios in the freeway's GP lanes during the AM peak hour in 2025 under Alternative 3 is 0.72 to 1.18 and 0.74 to 1.32 during the PM peak hour. Alternative 3 v/c ratios range from 0.18 less than to 0.14 greater than v/c ratios in the GP lanes under Alternative 1 (No Build). A more-detailed link-by-link presentation of the freeway mainline LOS under Alternative 3 Opening Year (2025) and Design Year (2045) traffic conditions for GP lanes is included in the Traffic Study (Tables 2.6.2 and 2.6.4).

Table 3.1.6-5 presents the LOS and v/c ratios for peak hours of Alternative 3 in 2025 for the Express Lanes of the EB and WB I-10. Under Alternative 3 in year 2025, the Express Lanes are expected to operate at LOS D or better during both the AM and PM peak hours in both directions. Under Alternative 1 (No Build), LOS F is anticipated in the HOV lanes between the LA/SB county line and Haven Avenue. The range of v/c ratios in the Express Lanes between the LA/SB county line and Ford Street in both directions during the AM and PM peak hours in 2025 is 0.22 to 0.85. Under Alternative 1 (No Build), the range of v/c ratios in the HOV lane between the LA/SB county line and Haven Avenue is 0.68 to 1.31 during the AM and PM peak hours, and the range of v/c ratios in the GP lane between Haven Avenue and Ford Street is 0.58 to 1.39. A more-detailed link-by-link presentation of the freeway mainline LOS under

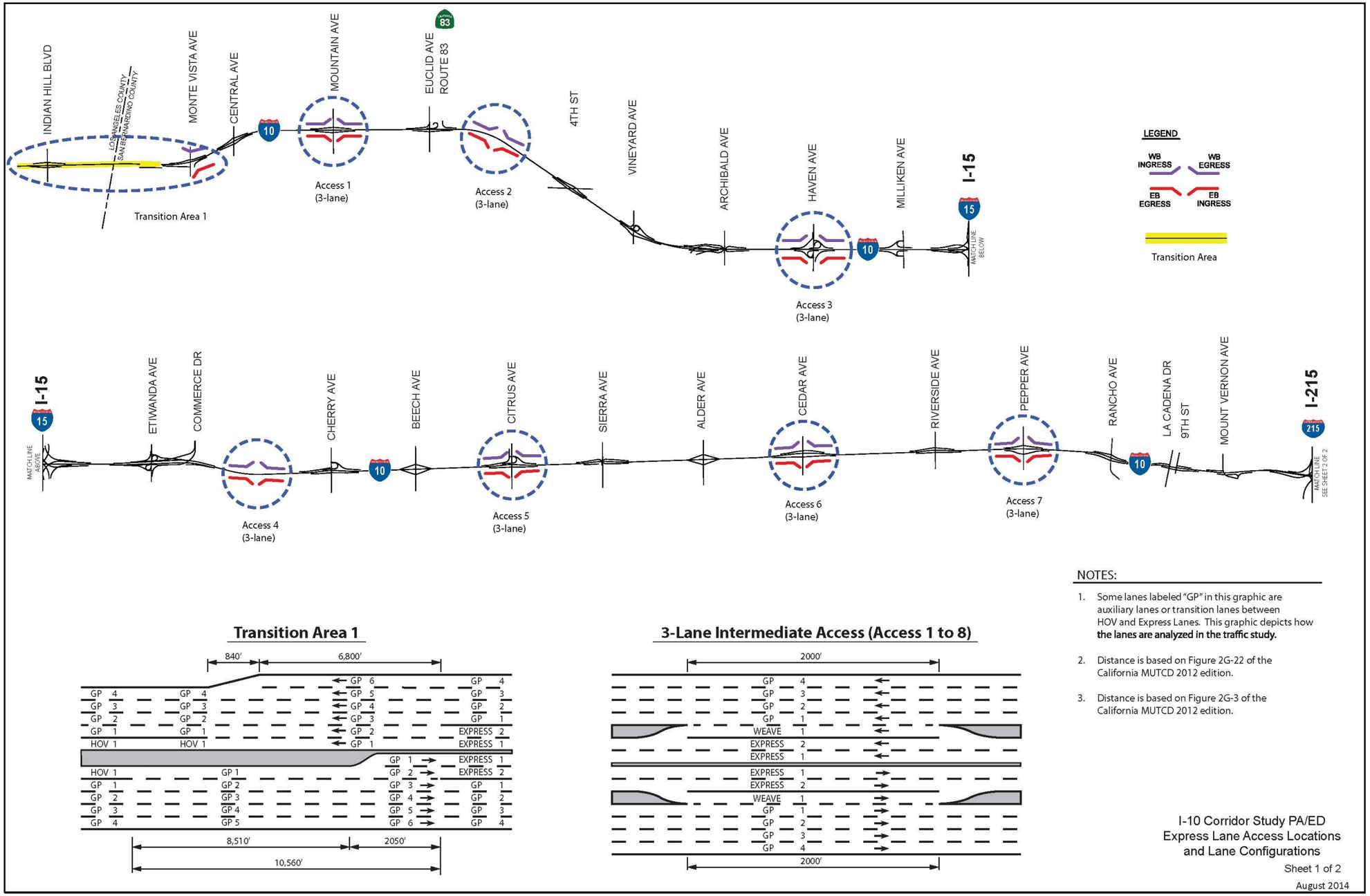
Alternative 3 Opening Year (2025) and Design Year (2045) traffic conditions for HOV lanes is included in the Traffic Study (Tables 2.6.2 and 2.6.4).

The volume of traffic in the Express Lanes would be actively managed to maintain high-speed operations with maximum hourly volumes of 1,700 vphpl. Tolls would be used to control the volume of traffic in the Express Lanes and minimize the potential for congestion, thereby avoiding speed degradation. As demand for the Express Lanes increases, tolls would be increased to limit the volume of traffic in the Express Lanes to no more than 1,700 vphpl to limit congestion and maintain high speeds. Similarly, as demand for the Express Lanes decreases, tolls would be decreased to increase the volume of traffic in the Express Lanes, attract traffic from the GP lanes, and improve GP lane operations. Independent toll adjustments would be necessary on each of the Express Lane segments between access points.

Transition areas would be provided where the Express Lanes begin and end. Transition areas near the beginning of the Express Lanes would allow traffic in HOV and GP lanes to change lanes to access the GP and Express Lanes within the project limits of Alternative 3. Transition areas at the end of the Express Lanes would allow traffic in the Express and GP lanes to change lanes to access the GP and HOV lanes downstream of the end of the Express Lanes facility. Transition areas may add new lanes and/or redesignate lanes from Express to HOV or GP. For analytical purposes, all lanes are treated as GP lanes, even though some are transition lanes linking HOV to Express Lanes (and vice versa). Transition areas for transitioning from Express Lanes to HOV lanes are approximately 1 mile long, and they are 2 miles long for transitioning from HOV lanes to Express Lanes.

Express Lanes would begin and end near the LA/SB county line and in the vicinity of the Ford Street interchange. Two transition areas (one in each direction) would be required for each location, for a total of four transition areas. Transition area locations and schematic designs are shown in Figure 3.1.6-5.

Table 3.1.6-15 summarizes the LOS in each of the transition areas anticipated in 2025 and 2045. The transition area near the LA/SB county line area under Alternative 3 in 2025 is expected to operate at LOS C to D during the AM and PM peak hours in both directions. The transition area in the vicinity of the Ford Street interchange is expected to operate at LOS D or better during the AM and PM peak hour, except LOS F in the EB direction during the PM peak hour and in the WB direction during the AM peak hour. The LOS F anticipated at the Ford Street transition area is a result of the traffic demand volume exceeding the capacity of the lanes in the transition area.



Source: Traffic Study, 2014.

Figure 3.1.6-5 Alternative 3 Express Lane Access Locations and Lane Configuration (Page 1 of 2)

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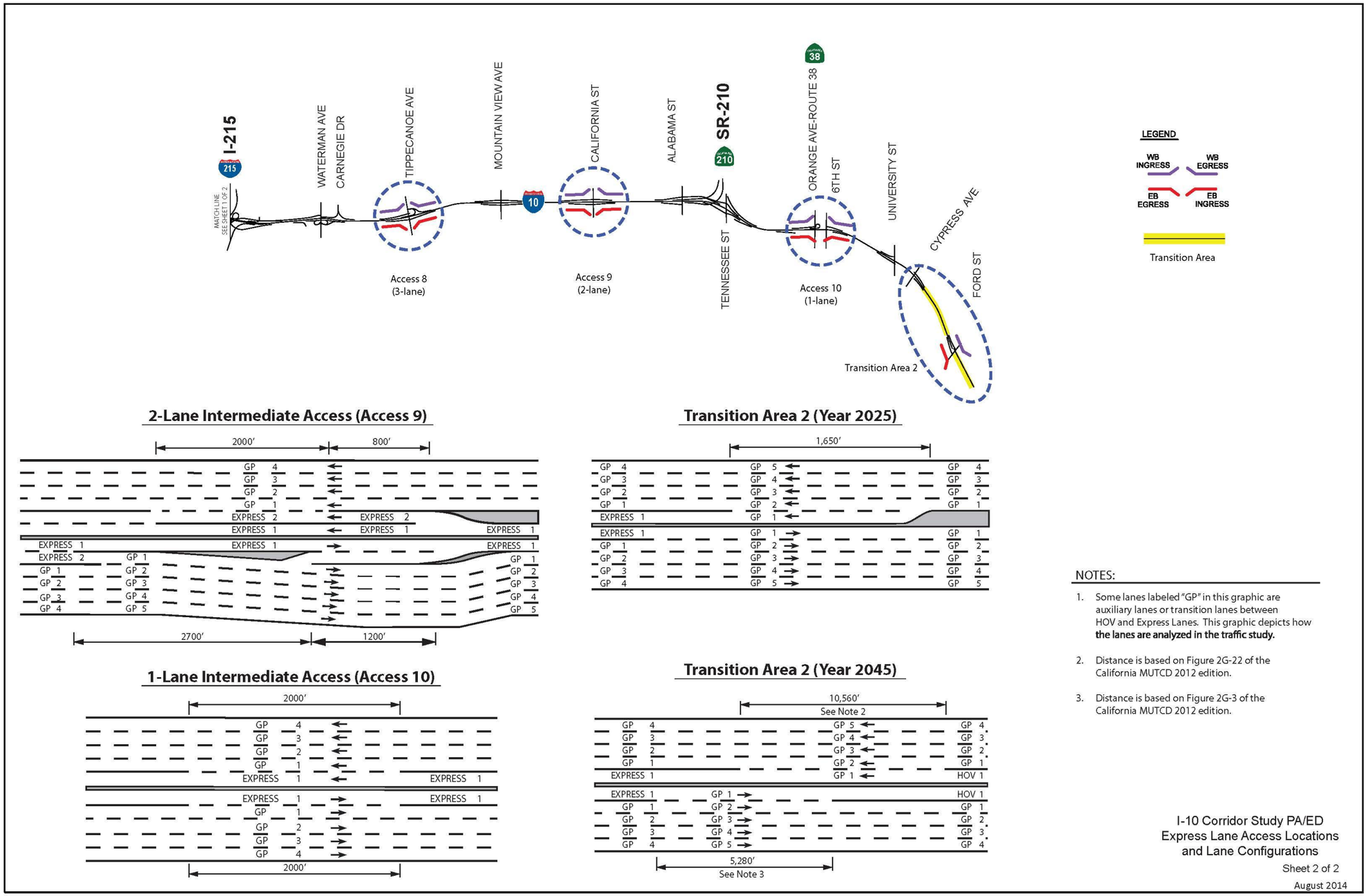

Source: Traffic Study, 2014.

Figure 3.1.6-5 Alternative 3 Express Lane Access Locations and Lane Configuration (Page 2 of 2)

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Table 3.1.6-15 Year 2025 and 2045 Alternative 3 Condition Express Lane Transition Area Peak-Hour Level of Service[1]

Transition Area Locations	Year 2025						Year 2045					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	D/C	Density[4]	LOS[5]	D/C	Density[4]	LOS[5]	D/C	Density[4]	LOS[5]	D/C	Density[4]	LOS[5]
Eastbound												
Near LA/SB County Line	0.81	24.2	C	0.92	27.1	D	0.93	27.7	D	0.97	28.7	D
Vicinity of Ford Street	0.52	15.7	B	1.01	*	F	0.63	19.5	C	1.16	*	F
Westbound												
Vicinity of Ford Street	**1.12**	*	**F**	0.68	21.6	C	**1.21**	*	**F**	0.74	22.6	C
Near LA/SB County Line	0.97	29.2	D	0.98	29.7	D	0.99	29.6	D	**1.10**	*	**F**

Notes:

1. The transition areas were analyzed based on the Highway Capacity Manual (HCM) 2000 basic freeway segment analysis.
2. Peak-hour capacity for each GP freeway lane is 1,850 vph.
3. Peak-hour traffic volumes are shown in vph.
4. Density is shown in passenger cars per mile per lane (pc/mi/ln).
5. Level of Service (LOS): Based on density, except when traffic demand volume-to-capacity (D/C) ratio is greater than 1.00, which is LOS F (indicated with an asterisk (*) in the density column).

Source: Traffic Study, 2014.

The transition area near the LA/SB county line area under Alternative 3 in 2045 is expected to operate at LOS D during the AM and PM peak hours in both directions, except LOS F in the WB direction during the PM peak hour. The transition area in the vicinity of the Ford Street interchange is expected to operate at LOS C and F during the AM and PM peak hour in both directions. The LOS F conditions anticipated in the transition areas in 2045 result from the traffic demand volume exceeding the capacity of the lanes in the transition areas.

In addition to the beginning and end near the LA/SB county line and Ford Street, access to the Express Lanes and from the GP Lanes or vice versa would be provided in each direction at the following 10 locations.

1. Mountain Avenue interchange area
2. Between the SR-83 (Euclid Avenue) and Grove Avenue interchanges
3. Haven Avenue interchange area
4. Between the Etiwanda Avenue and Cherry Avenue interchanges
5. Citrus Avenue interchange area
6. Cedar Avenue interchange area
7. Pepper Avenue interchange area
8. Tippecanoe Avenue interchange area
9. California Street interchange area
10. Orange Avenue/6th Street interchange area

Intermediate access area locations and schematic designs are shown in Figure 3.1.6-5. All intermediate access points, except at the California Street and Orange Avenue/6th Street interchange areas, would provide a “weave lane” to facilitate traffic movements between the Express Lanes and GP lanes. A “weave zone” is provided for the intermediate access at the California Street interchange area in the WB direction and Orange Avenue/6th Street interchange area in both directions. Intermediate access at California Street in the EB direction provides a modified “merge lane.” A “weave zone” combines ingress and egress created by short breaks in the buffer striping. A modified “merge lane” access separates the Express Lane ingress and egress, utilizing a dedicated merge lane for ingress and a dedicated GP receiving lane for the egress. The peak-hour ingress and egress volumes are illustrated in the Traffic Study (Figures 2.61 and 2.62).

Table 3.1.6-16 summarizes the LOS in each of the intermediate access areas anticipated in 2025 and 2045. As shown in Table 3.1.6-16, under Alternative 3 in 2025 and 2045, the merge and diverge areas into and out of the Express Lanes into the "weave lane" at Intermediate Access Locations 1 through 8 are anticipated to operate at LOS D or better. At these same locations, weaving between the "weave lane" and the GP lanes is anticipated to operate at LOS F in most of the locations due to the over-capacity condition anticipated in the GP lanes. The poor operations in the weaving area between the "weave lane" and the GP lanes are not anticipated to disrupt operations in the Express Lanes.

Table 3.1.6-12 presents the LOS and v/c ratios for peak hours of Alternative 3 in 2045 for the GP lanes of the EB and WB I-10. Under Alternative 3 in year 2045, the freeway mainline is anticipated to operate at LOS F during both the AM and PM peak hours in both directions, except for the EB direction during the AM peak hour and WB segment during the PM peak hour from California Street to Ford Street when LOS D is anticipated. Under Alternative 1 (No Build), LOS F is also anticipated during both the AM and PM peak hour in both directions, except for LOS D during the AM peak hour in the EB direction between the LA/SB county line and Haven Avenue.

The range of v/c ratios in the freeway's GP lanes during the AM peak hour in 2045 under Alternative 3 is 0.85 to 1.49 and 0.93 to 1.59 during the PM peak hour. Alternative 3 v/c ratios range from 0.17 less than to 0.11 greater than v/c ratios in the HOV lanes under Alternative 1 (No Build).

Table 3.1.6-13 presents the LOS and v/c ratios for peak hours of Alternative 3 in 2045 for the Express Lanes of the EB and WB I-10. Under Alternative 3 in year 2045, the Express Lanes are expected to operate at LOS D or better during both the AM and PM peak hours in both directions. Under Alternative 1 (No Build), LOS F is anticipated in the HOV lanes between the LA/SB county line and Haven Avenue.

The range of v/c ratios in the Express Lanes between the LA/SB county line and Ford Street in both directions during the AM and PM peak hours in 2045 is 0.26 to 0.86. Under Alternative 1 (No Build), the range of v/c ratios in the HOV lane between the LA/SB county line and Haven Avenue is 0.95 to 1.46, and the range of v/c ratios in the GP lane between Haven Avenue and Ford Street is 0.78 to 1.54.

The TSM and TDM measures included in Alternative 3 (identified in Section 2.2.1.1, Common Design Features of the Build Alternatives) are the same as those in Alternative 2 and are expected to provide the same benefits.

Peak-Period Performance. Table 3.1.6-6 shows forecast Alternative 3 speeds for 2025 and 2045 along I-10 between the LA/SB county line and Ford Street during peak hours in each direction by lane type (GP and Express).

In 2025 under Alternative 3, the segment speeds in the GP lanes in the EB direction on I-10 range from 51 to 64 mph during the AM peak hour and 22 to 36 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 46 to 65 mph during the AM peak hour and 21 to 41 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 29 to 61 mph during the AM peak hour and 18 to 64 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 13 to 46 mph during the AM peak hour and 13 to 64 mph during the PM peak hour. Speeds in the Express Lanes during the peak hours range from 55 to 65 mph in both directions. For an entire corridor trip between the LA/SB county line and the Ford Street interchange speeds range from 38 to 54 mph in the GP lanes during the peak hours, compared to Alternative 1 (No Build) speeds of 32 to 52 mph during the peak hours. Speeds in the Express Lanes for an entire corridor trip range from 62 to 65 mph during the peak hours, compared to Alternative 1 HOV speeds of 32 to 55 mph during the peak hours.

In year 2045 under Alternative 3, the segment speeds in the GP lanes in the EB direction on I-10 range from 32 to 61 mph during the AM peak hour and 10 to 27 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 14 to 63 mph during the AM peak hour and 10 to 33 mph during the PM peak hour. In the WB direction, the GP segment speeds range from 10 to 48 mph during the AM peak hour and 10 to 55 mph during the PM peak hour, compared to Alternative 1 (No Build) speeds of 10 to 29 mph during the AM peak hour and 10 to 56 mph during the PM peak hour. Speeds in the Express Lanes during the peak hours range from 58 to 65 mph in the EB direction and 54 to 65 mph in the WB direction. For an entire corridor trip between the LA/SB county line and the Ford Street interchange, speeds range from 31 to 42 mph in the GP lanes during the peak hours, compared to Alternative 1 (No Build) speeds of 21 to 29 mph during the peak hours. Speeds in the Express Lanes for an entire corridor trip range from 58 to 62 mph during the peak hours, compared to Alternative 1 HOV speeds of 21 to 36 mph during the peak hours.

Table 3.1.6-16 Year 2025 and 2045 Alternative 3 Condition Express Lane Intermediate Access Peak-Hour Level of Service[1]

Intermediate Access Locations[2]	Year 2025												Year 2045											
	Weaving[5]				Diverge[5,6]				Merge[5,6]				Weaving[5]				Diverge[5,6]				Merge[5,6]			
	AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Access 1	23.0	C	*	F	24.0	C	27.7	C	21.7	C	23.6	C	*	F	*	F	25.8	C	29.6	D	25.3	C	25.2	C
	*	F	*	F	27.6	C	32.7	D	23.7	C	28.2	D	*	F	*	F	29.8	D	33.1	D	24.6	C	28.3	D
Access 2	*	F	*	F	25.8	C	28.0	C	19.6	B	22.6	C	*	F	*	F	30.0	D	29.8	D	25.5	C	25.9	C
	*	F	*	F	32.0	D	32.9	D	23.6	C	28.0	C	*	F	*	F	33.1	D	33.1	D	25.5	C	28.3	D
Access 3	22.5	C	*	F	23.3	C	26.8	C	18.6	B	19.6	B	*	F	*	F	30.0	D	30.5	D	26.2	C	26.5	C
	*	F	*	F	29.5	D	31.0	D	27.2	C	28.1	D	*	F	*	F	33.0	D	33.1	D	28.3	D	28.3	D
Access 4	22.8	C	27.6	C	22.0	C	23.2	C	19.3	B	20.2	C	25.7	C	*	F	30.5	D	31.1	D	26.2	C	26.6	C
	*	F	25.2	C	23.8	C	23.1	C	24.5	C	25.7	C	*	F	*	F	31.8	D	31.1	D	27.8	C	27.8	C
Access 5	22.8	C	24.0	C	23.6	C	24.7	C	18.9	B	19.5	B	*	F	*	F	31.2	D	31.8	D	25.5	C	25.5	C
	19.1	B	20.8	C	21.8	C	22.6	C	19.7	B	19.1	B	24.5	C	*	F	29.3	D	31.2	D	26.9	C	26.3	C
Access 6	20.0	B	21.4	C	22.4	C	23.0	C	16.5	B	16.4	B	24.2	C	24.7	C	29.6	D	29.7	D	22.4	C	21.7	C
	16.2	B	18.4	B	19.8	B	22.0	C	17.9	B	18.6	B	20.9	C	24.3	C	26.7	C	31.4	D	24.6	C	26.5	C
Access 7	22.9	C	*	F	20.2	C	20.0	C	15.8	B	18.0	B	*	F	*	F	26.7	C	25.9	C	22.0	C	21.3	C
	15.3	B	24.6	C	22.0	C	14.8	B	16.3	B	17.8	B	20.1	C	*	F	27.8	C	22.2	C	22.4	C	26.2	C
Access 8	22.0	C	*	F	19.7	B	22.2	C	9.7	A	19.4	B	23.1	C	*	F	26.5	C	25.8	C	16.4	B	23.9	C
	*	F	23.6	C	19.6	B	12.2	B	18.4	B	11.9	B	*	F	*	F	28.3	D	16.8	B	23.8	C	18.4	B
Access 9	19.1[7]	C[7]	28.8[7]	D[7]	23.7[8]	C[8]	37.4[8]	E[8]	16.1[9]	B[9]	26.3[9]	C[9]	21.5[7]	C[7]	*[7]	F[7]	24.1[8]	C[8]	*[8]	F[8]	16.9[9]	B[9]	26.2[9]	C[9]
	*	F	18.7	B	No Weave Lane so No Merge or Diverge Analysis								*	F	22.6	C	No Weave Lane so No Merge or Diverge Analysis							
Access 10	16.8	B	*	F	No Weave Lane so No Merge or Diverge Analysis								20.9	C	*	F	No Weave Lane so No Merge or Diverge Analysis							
	*	F	17.2	B									*	F	22.1	C								

Notes:
1. The Express Lane intermediate access (EB and WB) areas were analyzed based on the Highway Capacity Manual (HCM) 2000 ramp junction analysis method and/or weaving analysis method, depending on the lane configuration.
2. Locations of the access areas are illustrated in Figure 2.6-3.
3. Peak hour capacities for freeway lanes include:
   - 1,850 vph for each GP lane and 2,000 vph for each Express Lane.
   - 1,850 vph for an auxiliary or weave lane if the length exceeds 1 mile.
   - 1,000 vph for an auxiliary or weave lane if the length is greater than 0.5 mile and less than 1 mile.
   - 0 vph for an auxiliary or weave lane if the length is less than 0.5 mile.
4. Peak-hour traffic volumes are shown in vph.
5. Level of Service (LOS): LOS is based on density, except when traffic demand volume-to-capacity (d/c) ratio is greater than 1.00, which is LOS F (indicated with an asterisk (*) in the density column. Density is shown in passenger cars/mile/lane (pc/mi/ln).
6. The merge and diverge analysis was conducted for the areas into and out of the Express Lanes into the "weave lane."
7. A basic segment analysis was conducted for EB Access 9 because the proposed design separates the ingress and egress and the distance between the two areas is greater than 2,500 feet.
8. The diverge analysis for EB Access 9 was conducted for the exit from the freeway mainline number one GP lane to the Express Lane merge lane.
9. The merge analysis for EB Access 9 was conducted for the merge from the merge lane into the Express Lane.

Source: Traffic Study, 2014.

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Corridor Travel Time. Table 3.1.6-7 shows forecast Alternative 3 corridor travel time for 2045 along I-10 between the LA/SB county line and Ford Street during peak hours in each direction by lane type (GP and Express). Table 3.1.6-7 also shows the average travel time across both lane types. Forecast year 2045 Alternative 3 travel time in the GP lanes during peak hours ranges from 41 to 70 minutes. Forecast year 2045 Alternative 3 travel time in the Express Lanes during peak hours is expected to be 27 to 30 minutes. For both lane types combined, average travel time under Alternative 3 in year 2045, weighted for the volumes using each lane type, ranges from 38 to 61 minutes, compared to 57 to 83 minutes under Alternative 1 (No Build) conditions. A corridor travel time comparison between Alternative 2 and Alternative 1 (No Build) is not provided for each lane type because the two alternatives do not consist of the same lane type for the entire length.

Vehicle Hours of Delay. Table 3.1.6-8 presents the daily and annual VHD forecast to occur on I-10 on weekdays in 2025 and 2045. VHD is based on the number of additional hours of vehicle travel required within the corridor due to speeds lower than 65 mph on weekdays during peak periods when congestion reduces speeds and increases corridor travel times. Under Alternative 3 in 2025, approximately 19,766 daily and 4.9 million annual VHD are anticipated on I-10, compared to 21,705 daily and 5.4 million annual VHD under Alternative 1 (No Build) condition. In 2045 under Alternative 3, approximately 24,165 daily and 6.0 million annual VHD are anticipated, compared to 31,871 daily and 8.0 million annual VHD under Alternative 1 (No Build) condition.

Freeway Connector Volumes. Tables 3.1.6-9 and 3.1.6-14 provide the 2025 and 2045 forecast, respectively, of branch connector volumes and v/c ratios on ramps between freeways within the project limits. The branch connectors are located at I-15, I-215, and SR-210. Branch connectors are forecast to operate with v/c ratios ranging from 0.36 to 2.03 in 2025 and from 0.43 to 2.25 in 2045 under Alternative 3 conditions, compared to 0.32 to 1.98 in 2025 and 0.40 to 2.13 in 2045 under Alternative 1 (No Build) conditions.

Arterials, Intersections, and Interchanges

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for 2025 Alternative 3 conditions is provided in Table 3.1.6-17 for all study intersections. In 2025 under Alternative 3, the study intersections are anticipated to operate at LOS D or better, except for one intersection that is anticipated to operate at LOS E during the PM peak hour. This compares to the five intersections, including the one intersection under Alternative 3 that are anticipated to operate at LOS E or F under Alternative 1 (No Build) conditions in 2025.

Table 3.1.6-17 shows that the study intersections are anticipated to operate under capacity (v/c equal to or less than 1.00) in 2025 under Alternative 3 during peak hours, except for one intersection that is anticipated to operate over capacity during the PM peak hour. This compares to five intersections that are anticipated to operate over capacity under Alternative 1 (No Build) conditions in 2025.

A summary of the LOS analysis and v/c ratios for AM and PM peak hours for 2045 Alternative 3 conditions is provided in Table 3.1.6-17 for all study intersections. In 2045 under Alternative 3, the study intersections are anticipated to operate at LOS D or better, except for two intersections that are anticipated to operate at LOS E or F during the peak hours, compared to nine intersections under Alternative 1 (No Build) conditions in 2045.

Table 3.1.6-17 shows that the study intersections are anticipated to operate under capacity (v/c equal to or less than 1.00) in 2045 under Alternative 3 during peak hours, except for 10 intersections that are anticipated to operate over capacity during the peak hours. This compares to 13 intersections, including the 11 intersections under Alternative 3 that are anticipated to operate over capacity under Alternative 1 (No Build) conditions in 2045.

Table 3.1.6-17 compares the Opening Year (2025) and Design Year (2045) overall v/c ratios for study intersections under Alternative 1 (No Build) with Alternative 3. Table 3.1.6-17 shows that the project does not have an adverse effect on any of the study intersections under Alternative 3. Intersection improvements have been incorporated as part of the proposed project.

A comparison of vehicle queuing (higher of AM or PM peak-hour 95th percentile queues) in year 2045 with available storage (in feet) was conducted at all arterial interchange study intersections and is summarized in Table 3.1.6-11. Table 3.1.6-11 shows that 79 percent of the off-ramps with traffic control at their arterial intersections are anticipated to have adequate turning lane storage under Alternative 3 in 2045, compared to 44 percent under Alternative 1 (No Build) conditions. Under the year 2045 Alternative 3 (Express) condition, 3 off-ramp locations have queues that exceed the available storage, compared to 10 off-ramp locations under Alternative 1 (No Build). No off-ramps are anticipated to back onto the freeway mainline.

Table 3.1.6-17 Years 2025 and 2045 Alternative 3 (Express) – Peak Hour Intersection LOS and Adverse Effect Determination

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025													Year 2045												
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Adverse Effect	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Adverse Effect
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
		East/West Street	North/South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	
Monte Vista Avenue	71	I-10 WB Ramp	Monte Vista Ave	Sig	0.83	25.3	C	0.77	22.3	C	0.90	28.6	C	1.02	38.2	D	0.54	22.3	C	0.58	21.0	C	N	0.99	39.6	D	1.19	57.7	E	0.68	21.3	C	0.67	24.7	C	N
	72	I-10 EB Off-Ramp/ Palo Verde St	Monte Vista Ave	Sig	0.83	31.7	C	1.00	45.8	D	0.93	36.1	D	1.18	57.4	E	0.76	31.9	C	0.79	39.1	D	N	1.01	46.1	D	1.29	74.6	E	0.85	39.5	D	1.00	46.7	D	N
	73	Palo Verde St	I-10 EB On-Ramp	Sig	0.36	10.7	B	0.37	13.0	B	0.38	9.8	A	0.41	11.6	B	0.41	12.1	B	0.49	14.3	B	N	0.43	10.3	B	0.46	13.1	B	0.47	12.1	B	0.55	16.3	B	N
Mountain Avenue	241	7th St/Shopping Center	Mountain Ave	Sig	0.56	16.5	B	0.79	26.4	C	0.67	17.2	B	0.96	35.1	D	0.70	17.6	B	0.94	36.2	D	N	0.84	19.6	B	1.01	40.3	D	0.78	21.2	C	0.99	42.7	D	N
	242	I-10 WB On-/ Off-Ramp	Mountain Ave	Sig	0.70	20.0	C	0.79	25.3	C	0.85	32.2	C	0.99	35.2	D	0.89	33.3	C	1.03	40.0	D	N	0.98	40.9	D	1.11	52.0	D	0.99	46.2	D	1.11	54.2	D	N
	243	I-10 EB On-/ Off-Ramp	Mountain Ave	Sig	0.57	16.2	B	0.78	29.1	C	0.59	16.7	B	0.85	32.8	C	0.62	17.8	B	0.83	32.3	C	N	0.68	25.7	C	0.87	34.6	C	0.69	19.0	B	0.84	36.9	D	N
	244	6th St	Mountain Ave	Sig	0.65	18.7	B	0.71	21.7	C	0.48	16.7	B	0.74	22.8	C	0.48	16.9	B	0.74	23.0	C	N	0.57	18.5	B	0.77	23.3	C	0.55	19.2	B	0.74	24.2	C	N
SR-83 (Euclid Avenue)	351	7th St	SB Euclid Ave	Sig	0.74	18.1	B	0.73	20.6	C	0.79	22.8	C	0.78	21.8	C	0.88	22.6	C	0.91	28.3	C	N	0.95	32.8	C	0.90	29.6	C	1.04	46.5	D	1.00	40.1	D	N
	352	7th St	NB Euclid Ave	Sig	0.52	10.3	B	0.66	13.8	B	0.60	12.9	B	0.83	17.8	B	0.70	11.1	B	0.92	28.9	C	N	0.69	13.6	B	0.95	20.4	C	0.79	12.9	B	1.02	38.7	D	N
	353	7th St	I-10 WB Off-Ramp/ 2nd Ave	AWS/ Sig*	0.43	13.7	B	0.57	20.9	C	0.55	21.1	C	**0.70**	**50.1**	**F**	0.49	17.4	B	0.67	15.6	B	N	0.63	35.2	E	**0.78**	**98.1**	**F**	0.56	15.9	B	0.74	16.7	B	N
	354	I-10 WB On-Ramp	SB Euclid Ave	UC	0.43	--	--	0.37	--	--	0.45	--	--	0.39	--	--	0.50	--	--	0.46	--	--	N	0.50	--	--	0.43	--	--	0.55	--	--	0.49	--	--	--
	355	I-10 WB On-Ramp	NB Euclid Ave	UC	0.27	--	--	0.31	--	--	0.29	--	--	0.32	--	--	0.23	--	--	0.25	--	--	N	0.31	--	--	0.35	--	--	0.27	--	--	0.29	--	--	--
	356	I-10 EB Ramp	Euclid Ave	Sig	0.97	45.3	D	1.00	52.0	D	1.00	53.6	D	**1.14**	**92.1**	**F**	0.58	20.7	C	0.69	28.6	C	N	**1.23**	**92.5**	**F**	**1.39**	**156.7**	**F**	0.86	24.9	C	1.02	49.1	D	N
Vineyard Avenue	611	Inland Empire Blvd	Vineyard Ave	Sig	0.52	8.3	A	0.55	9.2	A	0.63	8.9	A	0.82	12.0	B	0.64	9.1	A	0.83	9.5	A	N	0.57	7.5	A	0.67	12.9	B	0.69	7.9	A	0.61	9.0	A	N
	612	I-10 WB Ramp	Vineyard Ave	Sig	0.59	10.0	A	0.64	11.9	B	0.83	14.5	B	1.05	36.8	D	0.83	15.5	B	1.00	28.0	C	N	1.02	34.7	C	1.16	58.6	E	1.08	46.4	D	1.14	54.6	D	N
	613	I-10 EB Ramp	Vineyard Ave	Sig	0.71	16.6	B	0.65	12.1	B	0.95	29.7	C	0.89	18.7	B	0.98	32.9	C	0.97	23.4	C	N	1.12	60.6	E	1.09	45.6	D	1.16	71.3	E	1.19	72.5	E	N
	614	E G St	Vineyard Ave	Sig	0.44	9.8	A	0.43	8.9	A	0.65	12.2	B	0.54	9.8	A	0.73	12.6	B	0.63	8.8	A	N	0.87	18.3	B	0.71	13.2	B	0.92	19.8	B	0.72	11.0	B	N
	615	E D St	Vineyard Ave	Sig	0.40	15.0	B	0.55	18.3	B	0.63	16.1	B	0.71	23.7	C	0.63	16.0	B	0.79	22.4	C	N	0.73	20.1	C	0.90	32.4	C	0.77	19.7	B	0.97	37.8	D	N
Etiwanda Avenue/ Commerce Drive	1111	Valley Blvd/ Ontario Mills Pkwy	Etiwanda Ave	Sig	0.38	16.5	B	0.47	20.3	C	0.44	18.7	B	0.56	22.6	C	0.45	17.7	B	0.67	23.5	C	N	0.45	18.6	B	0.63	26.2	C	0.46	17.0	B	0.63	21.6	C	N
	1112	Valley Blvd	Commerce Dr	Sig	0.36	31.6	C	0.44	32.5	C	0.30	34.0	C	0.39	31.7	C	0.32	35.2	D	0.38	33.5	C	N	0.36	33.6	C	0.48	36.2	D	0.34	34.7	C	0.45	31.6	C	N
	1113	I-10 WB On-Ramp	SB Etiwanda Ave	UC	0.12	--	--	0.19	--	--	0.24	--	--	0.41	--	--	0.27	--	--	0.41	--	--	N	0.29	--	--	0.39	--	--	0.25	--	--	0.41	--	--	--

Table 3.1.6-17 Years 2025 and 2045 Alternative 3 (Express) – Peak Hour Intersection LOS and Adverse Effect Determination

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025																		Year 2045																	
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Adverse Effect	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Adverse Effect
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
		East/West Street	North/South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	
Etiwanda Avenue/ Commerce Drive	1114	I-10 WB Off-Ramp	Etiwanda Ave	Sig	0.55	17.8	B	0.42	12.9	B	0.50	15.2	B	0.52	12.7	B	0.55	14.8	B	0.53	12.6	B	N	0.53	16.0	B	0.58	15.3	B	0.59	16.7	B	0.62	13.0	B	N
	1115	I-10 WB On-Ramp	NB Etiwanda Ave	UC	0.23	--	--	0.38	--	--	0.23	--	--	0.40	--	--	0.29	--	--	0.46	--	--	N	0.26	--	--	0.44	--	--	0.26	--	--	0.47	--	--	--
	1116	I-10 EB On-Ramp	SB Etiwanda Ave	UC	0.06	--	--	0.19	--	--	0.06	--	--	0.17	--	--	0.06	--	--	0.18	--	--	N	0.06	--	--	0.18	--	--	0.06	--	--	0.20	--	--	--
	1117	I-10 EB Off-Ramp	Etiwanda Ave	Sig	0.77	24.5	C	0.44	13.3	B	0.62	17.4	B	0.46	10.4	B	0.63	17.6	B	0.49	10.3	B	N	0.68	18.6	B	0.51	12.1	B	0.72	19.6	B	0.57	12.4	B	N
	1118	I-10 EB On-Ramp	NB Etiwanda Ave	UC	0.14	--	--	0.41	--	--	0.15	--	--	0.45	--	--	0.15	--	--	0.44	--	--	N	0.18	--	--	0.52	--	--	0.19	--	--	0.54	--	--	--
Pepper Avenue	2101	Valley Blvd	Pepper Ave	Sig	0.64	30.9	C	0.62	31.3	C	0.62	38.6	D	0.60	28.1	C	0.58	29.9	C	0.55	29.4	C	N	0.60	31.0	C	0.58	30.6	C	0.65	52.3	D	0.75	33.8	C	N
	2102	I-10 WB Ramp	Pepper Ave	Sig	0.65	24.3	C	0.52	14.9	B	0.50	24.9	C	0.42	21.3	C	0.51	19.0	B	0.43	17.4	B	N	0.64	28.8	C	0.61	23.2	C	0.79	32.4	C	0.63	22.9	C	N
	2103	I-10 EB Ramp	Pepper Ave	Sig	0.98	53.1	D	0.89	49.6	D	0.59	28.6	C	0.52	34.1	C	0.59	27.0	C	0.50	29.4	C	N	0.64	25.0	C	0.65	30.2	C	0.77	26.7	C	0.68	34.6	C	N
La Cadena Drive/ 9th Street	2261	I-10 WB On-Ramp	La Cadena Dr	UC	0.09	4.0	A	0.17	5.3	A	0.11	4.5	A	0.20	5.7	A	0.13	4.6	A	0.23	6.6	A	N	0.14	4.8	A	0.24	6.4	A	0.15	5.2	A	0.24	6.6	A	N
	2262	I-10 WB Off-Ramp	9th St	SC	0.49	12.9	B	0.46	12.9	B	0.43	12.5	B	0.65	16.9	C	0.41	11.7	B	0.70	19.0	C	N	0.49	13.3	B	0.80	24.8	C	0.53	14.6	B	0.80	26.4	D	N
	2263	I-10 EB Ramp	9th St	AWS	0.38	11.3	B	0.44	11.9	B	0.23	10.0	B	0.35	11.1	B	0.27	9.7	A	0.26	11.2	B	N	0.26	10.9	B	0.28	11.7	B	0.29	11.2	B	0.32	12.1	B	N
Tennessee Street	2981	I-10 WB Ramp	Tennessee St	Sig	0.74	20.5	C	0.57	16.9	B	0.61	18.0	B	0.51	19.8	B	0.46	15.9	B	0.49	13.0	B	N	0.62	15.9	B	0.70	18.0	B	0.47	14.6	B	0.56	14.9	B	N
	2982	I-10 EB Ramp	Tennessee St	Sig	0.52	14.7	B	0.90	37.2	D	0.55	15.8	B	0.98	52.9	D	0.45	14.1	B	0.75	24.0	C	N	0.68	23.8	C	**1.07**	**81.0**	**F**	0.55	15.4	B	0.84	29.1	C	N
Ford Street	3311	Reservoir Rd/ I-10 WB On-Ramp	Ford St	SC	**1.25**	**253.2**	**F**	0.60	45.6	E	0.89	32.9	C	0.75	20.6	C	0.73	23.2	C	0.64	14.1	B	N	0.55	20.9	C	0.50	22.0	C	0.51	10.2	B	0.50	9.6	A	N
	3312	I-10 EB Off-Ramp	Ford St	SC	0.50	13.9	B	0.86	29.5	D	0.71	19.1	C	**1.09**	**85.3**	**F**	0.59	19.3	C	0.93	34.8	D	N	0.72	17.4	C	**1.07**	**76.3**	**F**	0.58	15.7	C	0.90	33.2	D	N
	3313	Parkford Dr	Ford St	SC	0.40	21.9	C	0.65	31.8	D	0.47	27.9	D	0.79	48.8	E	0.49	28.9	D	0.76	44.6	E	N	0.45	24.9	C	**1.18**	**162.3**	**F**	0.47	25.9	D	**1.26**	**197.6**	**F**	N
	3314	Redlands Blvd/I-10 EB On-Ramp/ WB Off-Ramp	Ford St	Sig	0.62	19.8	B	0.52	32.8	C	0.62	23.3	C	0.48	18.1	B	0.86	23.7	C	0.55	24.9	C	N	0.84	35.1	D	1.01	44.0	D	0.84	32.4	C	1.04	42.6	D	N
	3315	Oak St	Ford St	SC	0.27	19.2	C	0.10	12.5	B	0.25	19.1	C	0.12	14.0	B	0.25	19.4	C	0.12	14.5	B	N	0.27	20.6	C	0.12	14.6	B	0.27	21.2	C	0.12	14.6	B	N
Wabash Avenue	3431	I-10 WB Off-Ramp/Reservoir Rd	Wabash Ave	SC	0.12	12.7	B	0.08	10.7	B	0.19	12.4	B	0.18	11.1	B	0.17	12.1	B	0.15	10.8	B	N	--	--	--	--	--	--	--	--	--	--	--	--	--
	3432	I-10 EB On-Ramp	Wabash Ave	UC	0.02	1.4	A	0.01	1.2	A	0.03	2.4	A	0.05	2.7	A	0.03	2.1	A	0.03	2.0	A	N	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

Sig – Signalized; SC – Stop-Control; AWS – All Way Stop; None – No Traffic Control.

LOS – Level of Service; V/C – Volume-to-Capacity Ratio; D/C – Demand Volume-to-Capacity Ratio; Bold indicates an intersection forecast to operate at LOS E or F.

* - The intersection of 7th Street and I-10 WB Ramps/2nd Avenue at the SR-83 (Euclid Avenue) interchange is analyzed with a traffic signal under the proposed Alternative 3.

Source: Traffic Study, 2014.

Table 3.1.6-11 also shows that 50 percent of arterials are anticipated to have adequate turning lane storage at ramp intersections under Alternative 3 in 2045, compared to 26 percent under Alternative 1 (No Build) conditions. Additionally, Table 3.1.6-11 shows that 33 percent of turning lanes at arterial/arterial intersections are anticipated to have adequate storage under Alternative 3 in 2045, which is the same percentage expected under Alternative 1 (No Build) conditions.

Finally, Table 3.1.6-11 shows that 71 percent of the on-ramps with ramp meters are anticipated to have sufficient storage to avoid queuing onto adjacent arterials under Alternative 3 in 2045. No ramp metering analysis was conducted for Alternative 1 (No Build).

Pedestrian and Bicycle Facilities

Existing bike lanes and trails within the project limits would be maintained. In addition, new bike lanes (Class II or Class III) would be incorporated in the design of the proposed arterial improvements at Tennessee Avenue in Alternative 2 and at Monte Vista Avenue, Euclid Avenue, Vineyard Avenue, and Tennessee Avenue in Alternative 3. These streets have been identified in their respective local circulation plans as having a bicycle facility.

Existing sidewalks within the project limits would be maintained. Under Alternative 2, the project includes reconstruction of Richardson Street, which has one sidewalk along the west side of the roadway, and Tennessee Street, which has one sidewalk along the east side of the roadway. Because of low pedestrian volume, the project would replace the existing sidewalk in kind except two sidewalks that would be provided on the replacement bridges. Under Alternative 3, sidewalks would be provided on both sides of proposed arterial improvement locations, including Monte Vista Avenue, Sultana Avenue, Campus Avenue, Euclid Avenue, and Vineyard Avenue. Because of low pedestrian volume, proposed reconstruction of Richardson Street and Tennessee Street in Alternative 3 would maintain one continuous sidewalk on these streets. Two sidewalks would be installed on the replacement bridges for Richardson Street and Tennessee Street. Pedestrian facilities on arterials being improved would meet current ADA standards. In addition, there is a project currently in planning to retrofit existing curb ramps on various cross streets along the I-10 corridor (EA 1C490).

Temporary/Construction Impacts

No Build Alternative

There are no improvements proposed under the No Build Alternative; therefore, there are no temporary impacts.

Build Alternatives

Potential construction-related traffic and circulation/pedestrian and bicycle impacts would be minimized through implementation of a comprehensive Transportation Management Plan (TMP). A Draft TMP for the project has been prepared in accordance with the Caltrans Guidelines Deputy Directive 60 (DD-60) to minimize motorist delays when performing work activities on the State Highway System. The TMP is designed to minimize traffic delays that may result from lane restrictions or closures during construction operations and move motorists, pedestrians, and bicyclists through work zones quickly and safely.

A Ramp Closure Study (RCS), which is an appendix to the Community Impact Assessment (CIA), was prepared for the project. The RCS identifies potential ramp closures during construction, as well as detour routes for ramp closures.

Construction Staging

The project may be implemented in segments and procured under one or more contracts. The construction staging concept will be developed during the plans, specifications, and estimate (PS&E) phase. The project construction is envisioned to be carried out in several construction stages, with construction progressing from west to east and some overlap between stages.

Construction of interchange improvements (i.e., consisting of freeway ramp reconstruction, local arterial improvements, and overcrossing structure replacement) is envisioned to be staggered throughout the corridor to minimize impacting two consecutive interchanges or closing two consecutive on- or off-ramps at the same time. If feasible, arterials and overcrossing improvements that add capacity over the existing condition would be constructed in the earlier stages in efforts to ease traffic congestion during subsequent construction stages.

Closures and Lane Restrictions

During construction, construction-related delays are anticipated along I-10, I-15, I-215, and SR-210 and at interchanges, as well as on the surrounding arterials, including SR-83 and SR-38. There will be numerous different closures of the freeway mainline, branch connectors, interchange ramps, and local arterials required to

accommodate various construction activities. Temporary and short-term closures will occur intermittently throughout the construction duration. Full freeway lane, ramp, and arterial street closures will also be required during nighttime and on weekends (55-hour closure) during various roadway and structure construction activities.

Long-term closure lasting up to 12 months may be employed during construction of certain streets and overcrossing structures to facilitate faster construction time, thus allowing quicker return of the public usage of the facility. Although impacts to local commuters, residents, and local businesses would be more severe during the closure, the impacts would end sooner because the improvements would be completed more quickly, allowing the roadway to reopen to the public faster. Potential locations for long-term closures include the following arterial improvements and structure replacements:

- Alternative 2 (HOV) – Potential Long-Term Arterial Closure
  - Richardson Street Overcrossing (OC) – 8 to 12 months
- Alternative 3 (Express Lanes) – Potential Long-Term Arterial Closure
  - San Antonio Avenue OC – 8 to 12 months
  - Sultana Avenue OC – 8 to 12 months
  - Campus Avenue OC – 8 to 12 months
  - 6th Street OC – 8 to 12 months
  - Richardson Street OC – 8 to 12 months

Most interchange ramps are expected to be open for traffic during construction with periodic closure at night, during the weekend (55-hour closure), or for a period less than 10 days. Periodic temporary closure of these ramps is not expected to cause excessive inconvenience to the traveling public because the interchanges along I-10 are spaced approximately 1 mile apart, such that there are nearby alternate accesses to and from I-10. No two consecutive off-ramps or two consecutive on-ramps in the same direction would be concurrently closed.

There are 4 ramps in Alternative 2 and 14 ramps in Alternative 3 that may require prolonged closure for a period up to 30 days during reconstruction because the new ramp alignments are proposed over the existing alignments and there is limited space and right-of-way (ROW) to accommodate a detour pavement. Interchange ramps that are expected to require up to 30 days of closure are identified below:

- Alternative 2 (HOV) – Potential Prolonged Ramp Closure
  - La Cadena Drive EB off-ramp
  - E Street/Sunwest Lane WB on-ramp
  - Waterman Avenue EB on-ramp
  - Tennessee Street EB off-ramp
- Alternative 3 (Express Lanes) – Potential Prolonged Ramp Closure
  - Monte Vista Avenue WB off-ramp
  - Monte Vista Avenue WB on-ramp
  - Monte Vista Avenue EB off-ramp
  - Monte Vista Avenue EB on-ramp
  - Central Avenue EB on-ramp
  - Central Avenue WB off-ramp
  - 4th Street EB off-ramp
  - Etiwanda Avenue EB loop on-ramp
  - Etiwanda Avenue EB on-ramp
  - 9th Street EB off-ramp
  - E Street/Sunwest Lane WB on-ramp
  - Waterman Avenue EB on-ramp
  - Alabama Street EB off-ramp
  - Tennessee Street EB off-ramp

Further evaluation and studies would be needed during PS&E to determine the locations and feasibility of arterial and long-term ramp closures.

Existing pedestrian and bicycle facilities within the project limits are anticipated to be maintained during construction, except where the arterial roadways are closed to traffic during construction. In either of the build alternatives, the project may require periodic or temporary closure of the Santa Ana River Trail and the Class I bicycle facility along the river during widening of the Santa Ana River bridges. During construction, the trail on at least one riverbank would remain open at all times. The Final TMP would identify methods to minimize impacts to pedestrian and bicycle traffic.

The Final TMP, which would be prepared during the plans, specifications, and estimate (PS&E) phase, would require minimization of construction-related effects on traffic and circulation/pedestrian and bicyclists by applying a variety of techniques, including public information, motorist information, incident management, construction strategies, demand management, and alternate route strategies. During the course of project construction, the Traffic Management Team would observe traffic conditions and make recommendations to the Resident Engineer concerning any changes that need to be made with respect to traffic management. The TMP Coordinator would work closely with the Traffic Management Team to develop timely recommendations to address traffic-related effects on traffic and circulation/ pedestrians and bicyclists. The Final TMP would be prepared prior to project construction and would address traffic detours for roadway closures during construction. The Final TMP would also avoid and minimize construction-related traffic and circulation effects of the proposed project.

3.1.6.4 Avoidance, Minimization, and/or Mitigation Measures

No permanent adverse effects to traffic and circulation are anticipated due to the project. Temporary adverse effects due to construction-related activities are anticipated.

Detour Routes during Project Construction

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.

TSM and TDM Measures

T-2 Every effort will be made to incorporate the following TSM and TDM elements:

- Improved ramp metering hardware and software and CCTV systems for viewing ramps and nearby arterials
- At locations of interchange improvements, upgraded traffic signals interconnected and coordinated with adjacent signals and ramp meters
- Additional way-finding signs on freeways and arterials

- Design of on- and off-ramps to limit impacts to nonmotorized travel and preserve access to bike lanes and trails
- ITS elements, including fiber-optic and other communication systems for improved connectivity and remote management; CMS; CCTV coverage of the entire freeway mainline, ramps, and adjacent arterials; video detection systems; and vehicle detection system (VDS) for volume, speed, and vehicle classification
- Traveler Information Management System improvements to enhance dissemination of real-time information on roadway conditions
- Vanpool initiatives
- Carpooling programs
- Promote and integrate public transit design features
- CCTV with Pan-Tilt-Zoom (PTZ) capability
- Ramp Metering System (RMS)
- VDS

Additional measures during project construction are presented in Section 3.1.4.1.4, Community Character and Cohesion (Avoidance, Minimization, and/or Mitigation Measures).

3.1.7 Visual/Aesthetics

3.1.7.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [U.S.C.] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

3.1.7.2 Affected Environment

This section describes the aesthetic and visual resource conditions within the project limits. The section also discusses potential aesthetic impacts that could result from implementation of the proposed project build alternatives. A program of minimization measures is also included. Information in this section is based on the Visual Impact Assessment (VIA) completed for this project (March 2015). The VIA uses a quantitative methodology and has tables for each key view to show impact ratings; conclusions in the text below for each key view is summarized from the VIA and these tables.

The visual impacts of the proposed project were determined by assessing the existing visual resources, the visual resource change due to the project, and predicting viewer response to that change. The degree of visual quality in a view was evaluated using the following FHWA descriptive terms:

Vividness: Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns (e.g., Niagara Falls is a highly vivid landscape component).

Intactness: Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept

urban and rural landscapes and natural settings (e.g., a two-lane road that meanders through the countryside).

Unity: Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape (e.g., an English or Japanese garden).

The degree of visual character in a view was evaluated using the following FHWA descriptive terms:

- *Scale:* Visual scale is the apparent size relationship between landscape components or features and their surroundings.
- *Diversity:* Diversity is the number of pattern elements, as well as the variety among them and edge relationships between them.
- *Continuity:* Continuity is the uninterrupted flow of pattern elements and the maintenance of visual relationships between immediately connected or related landscape components or features.
- *Dominance:* Dominance is components or specific features in a scene that may be dominant because of prominent positioning, contrast, extent, or importance of pattern elements.

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

- *Low (L):* Low negative change to existing visual resources and low viewer response to that change. May or may not require mitigation.
- *Moderately Low (ML):* Low negative change to the visual resource with a moderate viewer response or moderate negative change to the resource with a low viewer response. Impact can be mitigated using conventional methods.
- *Moderate (M):* Moderate negative change to the visual resource with moderate viewer response. Impact can be mitigated within 5 years using conventional practices.
- *Moderately High (MH):* Moderate negative change in the visual resource with high viewer response or high negative change with a moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than 5 years to mitigate.

- *High (H):* High level of negative change in character or a high level of viewer response to the change such that extraordinary architectural design and landscape treatments may not mitigate impacts below a high level. An alternative project design may be required to avoid high negative impacts.

Visual Environment

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

The regional landscape of the project corridor is characterized by two identifying elements: the flat appearance of the foreground landscape and the steep San Bernardino and San Gabriel mountains, which form a dramatic backdrop. Along the existing corridor in many locations are rows of mature eucalyptus *(Eucalyptus camaldulensis)* trees that provide a signature visual element to the existing corridor. The trees are very large and striking; many are taller than 80 with trunk diameters larger than 2 feet. They were planted as windrows years ago to beautify the corridor and add a valuable visual identity to the corridor; however, many are also close to the existing roadway in a proximity that would not be allowed under today's design standards.

One additional element to be considered in the regional landscape is the haze that frequently develops in the area that obscures the views of the mountains and influences the overall appearance of the regional landscape.

Project Viewshed

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

For the I-10 Corridor Project (I-10 CP), views into the corridor are associated with the cross streets and are generally located near (approximately 0.25 mile) the corridor due to the relatively flat nature of the project area. Areas in which high-rise buildings are located may have views farther out from the corridor. From within the corridor, views out are also generally limited to a short distance due to the flat groundplane and the proximity of buildings. In addition, the rows of eucalyptus help to screen views into and out of the corridor.

The Redlands portion of the corridor is different in that it was recently widened and reconstructed. The proposed construction will add many soundwalls to this portion of the corridor, which would limit the views and the associated viewshed into and out from the corridor.

Landscape Unit

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

The I-10 CP area was divided into eight landscape units: five that cover the area for Alternative 2 and an additional three that cover additional areas included in Alternative 3. These units are distinct, but not necessarily homogenous, in character. The landscape units are described in detail below, along with each unit's existing visual character and existing visual quality.

Los Angeles County Landscape Unit

As the name implies, this landscape unit covers the portions of the corridor within Los Angeles County, at the very west end of the study area, and covers the area from Town Avenue to the county line at Mills Avenue. The area falls within the cities of Claremont and Pomona. Typical views for this portion of the corridor can be seen in Figure 3.1.7-1.

Existing Visual Character: Development in this landscape unit consists of primarily residential development, including single-family and multi-family units. Commercial properties are also found within the unit, especially near Indian Hill Boulevard. The Interstate 10 (I-10) corridor within this unit is very confined and frequently includes a soundwall right at the edge of the shoulder. Landscaping within the I-10 corridor is limited to the interchange areas only.

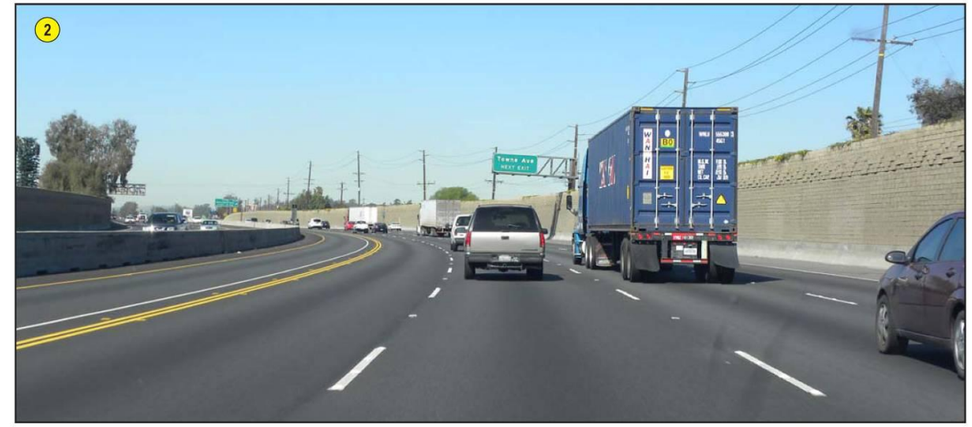

Figure 3.1.7-1 Los Angeles County Landscape Unit

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Existing Visual Quality: The overall visual quality for the unit is moderate, with moderate vividness, intactness, and unity. Corridor areas, by in large, have a moderately low visual quality due to the confined views found in the corridor and the lack of elements, such as landscaping, that might soften the appearance of the highway.

County Gateway Landscape Unit

This landscape unit extends from the county line at Mills Avenue to the eastern edge of the Mountain Avenue interchange. It covers portions of the cities of Montclair, Upland, and Ontario. Typical views for the County Gateway Landscape Unit can be seen in Figure 3.1.7-2.

Existing Visual Character: The landscape unit appears evenly divided between residential and commercial properties within the study area. Significant commercial properties (including Montclair Plaza) exist on both sides of I-10 between Monte Vista Avenue and Central Avenue, and along the north side of I-10 through Mountain Avenue. Residential properties are generally found along the south side of I-10 in the unit.

Existing Visual Quality: As with the previous landscape unit, the corridor is tight, and soundwalls can be found along the edge of the shoulder along long stretches of the eastbound (EB) lanes, limiting the views out from the corridor. The general existing visual quality is moderately low.

Residential Landscape Unit

The Residential Landscape Unit extends from the eastern end of the Mountain Avenue interchange to just east of Vineyard Avenue. Portions of the cities of Upland (north of I-10) and Ontario are covered in the unit. Typical views for the Residential Landscape Unit can be seen in Figure 3.1.7-3.

Existing Visual Character: Unlike the previous two units, this landscape unit is primarily residential in character, although commercial areas are sprinkled within the unit, particularly at Grove Avenue and in the Guasti area from Vineyard Avenue east. Due to its residential nature, there are many soundwalls within the landscape unit. In addition, portions of the western side of the unit sit below the surrounding neighborhoods with retaining walls adjacent to the highway; however, unlike the previous two units, landscaping is located above the retaining walls and the soundwalls sit at the right-of-way (ROW) line, so the views from the corridor are less constrained than previously noted. Another key feature of this landscape unit is the North Euclid Avenue Historic Corridor that crosses the I-10 corridor. See Section 3.1.7.3 for a discussion.

Existing Visual Quality: The existing visual quality of the landscape unit is moderate with moderately high vividness and moderate intactness and unity. The visual quality of the corridor is helped by the views available to travelers – the existing landscaping along the corridor, which softens the highway elements.

Commercial-Warehouse Landscape Unit

The Commercial-Warehouse Landscape Unit is the westernmost of the landscape units and centers on the Interstate 15 (I-15)/I-10 interchange. It is located in the cities of Ontario and Fontana. The landscape unit was identified by Ontario Mills Mall in the northwest quadrant of the I-15/I-10 interchange and by the large warehouses of newer construction found along this portion of I-10. Typical views for this landscape unit can be seen in Figure 3.1.7-4.

Existing Visual Character: The development of this portion of the corridor is relatively new, compared to other portions, and includes Ontario Mills Mall, big box retail stores, and office buildings west of the I-15/I-10 interchange. West of the interchange, the development is in large, newer warehouse buildings. Within the I-10 corridor, there is limited landscaping, mostly associated with the interchanges. In addition, a row of mature eucalyptus trees stands west of the Etiwanda Avenue interchange along the north side of I-10.

Existing Visual Quality: The overall visual quality of the project corridor in the Commercial-Warehouse Landscape Unit is moderate, with moderate vividness, intactness, and unity. Areas west of the I-15 interchange tend to have a higher visual quality, while the areas east, around Etiwanda Avenue, tend to have a lower visual quality.

Industrial Landscape Unit

The Industrial Landscape Unit is immediately east of the Commercial-Warehouse Landscape Unit, beginning at Mulberry Avenue and ending at Sierra Avenue to the east. It is located almost entirely within Fontana, although the corridor does pass through portions of unincorporated San Bernardino County. This unit was identified based on the older industrial nature of the surrounding land uses and that the railroad, which is offset from the I-10 corridor in the previous landscape unit, is situated immediately south of I-10, beginning at Mulberry Avenue and continuing through this landscape unit. Typical views within the Industrial Landscape Unit are shown in Figure 3.1.7-5.

Figure 3.1.7-2 County Gateway Landscape Unit

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Figure 3.1.7-3 Residential Landscape Unit

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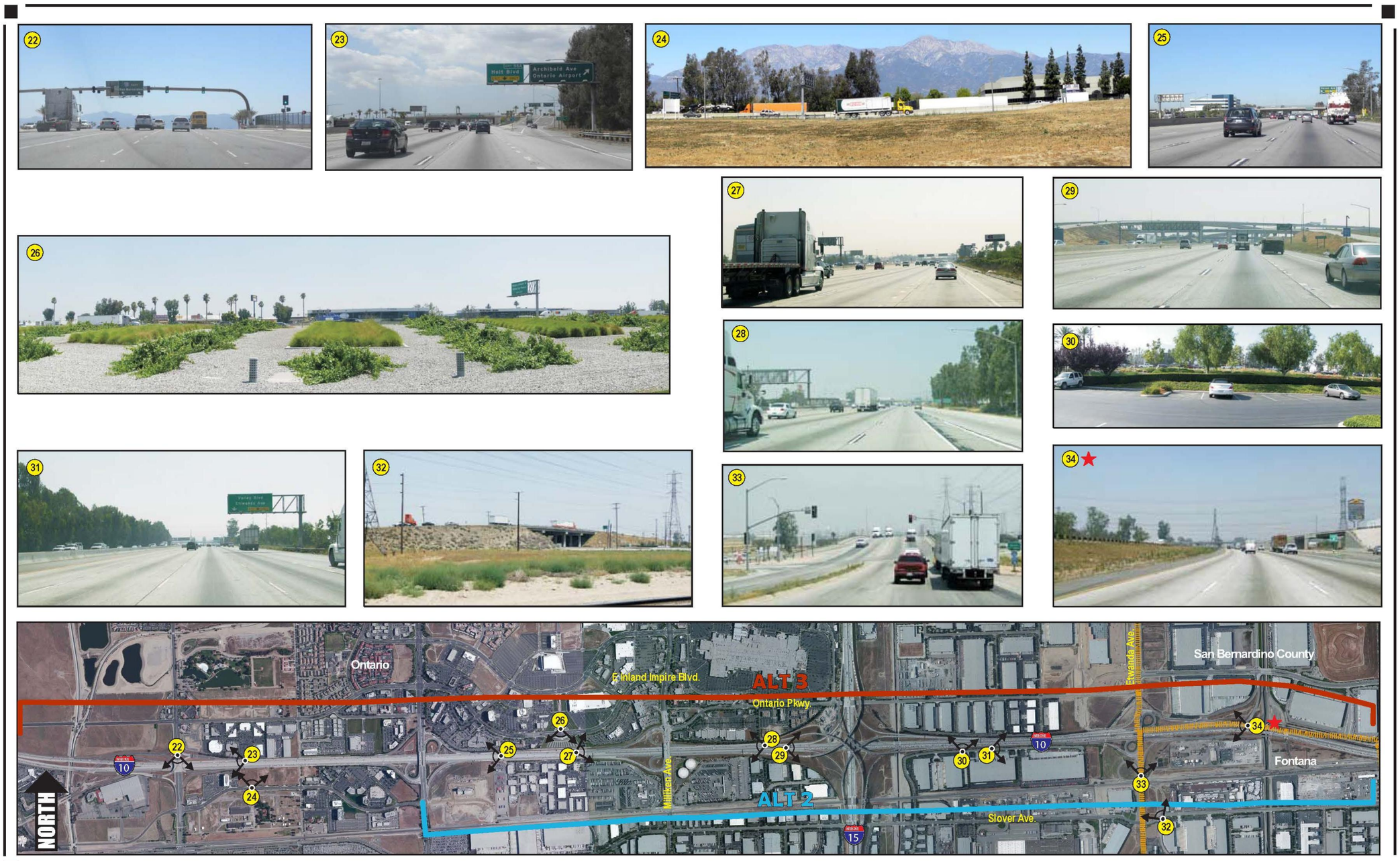

Figure 3.1.7-4 Commercial-Warehouse Landscape Unit

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Figure 3.1.7-5 Industrial Landscape Unit

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Existing Visual Character: The development that borders on the north of the I-10 corridor within this unit, and to the south of the railroad tracks that parallel the south side of I-10, consists primarily of small industrial sites that are intermixed with commercial and residential land uses. These industrial sites are oriented towards truck and semitrailer traffic. Residential areas consist of smaller homes and trailer parks. A large commercial development has been constructed at the Sierra Avenue interchange, including large retail stores and an office complex for Kaiser Hospitals.

Within the I-10 corridor, the two most visually prominent elements are the rows of eucalyptus trees and numerous billboards. These can be found on the north and south sides of I-10. At approximately the midpoint of this landscape unit, near Elm Avenue, is an old Caltrans Rest Area site that has been taken out of service; however, the trees associated with this site provide a large landscape presence in the otherwise narrow corridor. Paralleling the I-10 corridor to the south are the railroad tracks. These tracks have a large presence in the landscape, particularly from the land uses south of the tracks. The railroad tracks generally sit slightly higher in the landscape than the land uses to the south.

Existing Visual Quality: The overall existing visual quality of the Industrial Landscape Unit is low, with low vividness, intactness, and unity. The older, industrial nature of the surrounding land uses combine with the railroad corridor, billboards, and freeway paving to lower the overall visual quality; the rows of mature eucalyptus trees work to increase the visual quality.

Rail Yard Landscape Unit

The visual environment of the Rail Yard Landscape Unit is dominated by two elements: the large rail yard between Cedar and Pepper avenues and the Colton Cement Works Quarry between Pepper and Rancho avenues. This landscape unit begins at Sierra Avenue, extends to the east to the Santa Ana River crossing, and falls within Rialto and Colton, with a significant portion falling within unincorporated San Bernardino County. Typical views within the Rail Yard Landscape Unit are shown in Figures 3.1.7-6 and 3.1.7-7.

Existing Visual Character: Much of the development that surrounds the I-10 corridor within the Rail Yard Landscape Unit is similar in character to the development in the Industrial Landscape Unit (i.e., older industrial development associated with truck/semitrailer traffic interspersed with residential and commercial developments). This is particularly true of the areas west of Rancho Avenue. East of

Rancho Avenue, the development becomes more residential. A large retail/ commercial development is situated on the north and south sides of I-10 at the Sierra Avenue interchange.

As in the Industrial Landscape Unit, many rows of mature eucalyptus trees line the I-10 corridor. Additional landscaping is found at several of the interchanges within the corridor, including Riverside and Rancho avenues. Many are also found on the north and south sides of I-10, but most of them are on the south side along the railroad tracks.

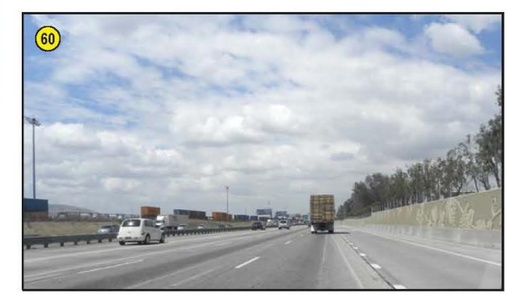
Existing Visual Quality: The overall visual quality of this landscape unit is low, with low vividness, intactness, and unity. As in the Industrial Landscape Unit, the older industrial developments in the area, combined with the rail corridor and billboards, lower the visual quality. The quarry also lowers the visual quality of this portion of the corridor. The primarily residential areas west of Rancho Avenue generally have a higher overall visual quality than the areas to the east. The mature trees within the corridor raise the visual quality.

Commercial-Agricultural Landscape Unit

The boundaries for the Commercial-Agricultural Landscape Unit are the Santa Ana River crossing to the west and Nevada Street to the east. This unit includes the Interstate 215 (I-215)/I-10 interchange and falls within the cities of Colton, San Bernardino, and Loma Linda. The development patterns surrounding the I-10 corridor include large commercial and office developments in the western half of the unit, with agricultural fields still present in the eastern half. Between these two are many residential neighborhoods. Typical views for the Commercial-Agricultural Landscape Unit are shown in Figure 3.1.7-8.

Existing Visual Character: The railroad corridor has a less visually prominent role within the Commercial-Agricultural Landscape Unit because the tracks move south, away from the I-10 corridor, beginning near the Santa Ana River. In addition, the corridor changes character by being elevated in the landscape with the cross streets crossing under I-10. Fewer billboards are located in this landscape unit.

The rows of eucalyptus trees in the previous landscape units are not present in this landscape unit; however, median plantings of olive trees are present near the Waterman Avenue interchange. The I-215/I-10 interchange has a substantial landscape within the ROW.



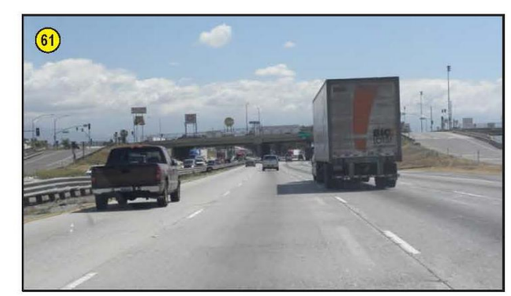


Figure 3.1.7-6 Rail Yard Landscape Unit (1 of 2)

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Figure 3.1.7-7 Rail Yard Landscape Unit (2 of 2)

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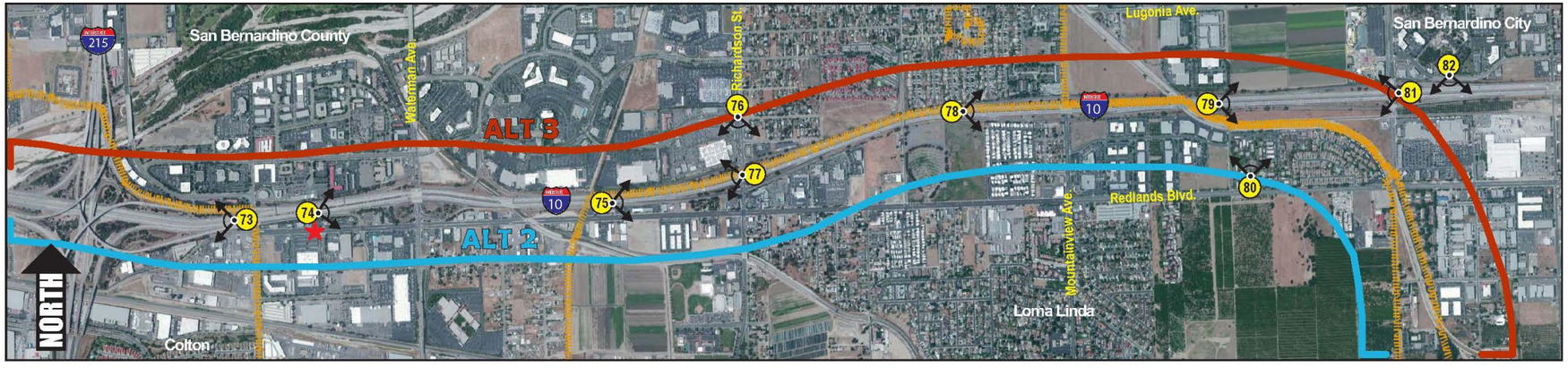

Figure 3.1.7-8 Commercial-Agricultural Landscape Unit

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Existing Visual Quality: The overall existing visual quality of the Commercial-Agricultural Landscape Unit is moderate, with moderate vividness and intactness and moderately low unity. Overall, removal of the railroad corridor as a visual element in the landscape and the associated reduction of billboards combine with the additional landscaping found in the corridor and the agricultural fields to give this portion of the corridor its rating. Detracting or encroaching elements are generally much less in this landscape unit.

Redlands Landscape Unit

The Redlands Landscape Unit stretches from Nevada Street on the west through to the end of the project near Ford Street. This landscape unit is situated almost entirely within Redlands. It is identified by the elevated character of I-10 combined with the predominantly residential development of the adjacent land uses. Typical views within the Redlands Unit are shown in Figure 3.1.7-9.

Existing Visual Character: The two features that tend to dominate the visual character of this landscape unit are the State Route (SR) 210/I-10 interchange on the western end of the landscape unit and the existing soundwalls on the eastern end. These soundwalls limit the views into and out of the corridor, leaving only skyline trees (mostly eucalyptus and fan palms) to be seen over the walls. The interchange area has been landscaped by Caltrans.

As in the previous landscape unit (Commercial-Agricultural), I-10 is elevated in the landscape, with the cross streets crossing under I-10. Some landscaping is associated with the slopes along I-10, which takes on a naturalistic appearance and may be volunteer plantings of eucalyptus and palm. Cross street interchanges within this unit are generally landscaped.

Existing Visual Quality: The existing visual quality of the Redlands Landscape Unit is moderate, with moderate to moderately high vividness and moderate intactness and unity. Because the existing soundwalls limit the views into or out of the corridor, they generally have lower visual quality. In some locations, vine plantings have been introduced, which help to soften the appearance of these walls.

Key Viewpoints

The project is assessed from stationary locations, as well as from dynamic viewpoints such as vehicles, pedestrians, and bicyclists; however, because it is not possible to analyze every possible view within the project area, the FHWA analysis methodology recommends selecting many key viewpoints that represent the potential visual effects

of the project and the viewers' experience. A key viewpoint is a representative, typical, characteristic, and clear perception of project elements to the primary viewer group. Key viewpoints also need to represent the landscape units and include all of the project elements. Additionally, key viewpoints are areas seen to and from the roadway, viewpoints that clearly display the visual effects of the proposed project. The key viewpoints include a representation of all critical visual elements of the proposed project and viewer group types. Key viewpoints are denoted with a red star in applicable figures. Descriptions of the key viewpoints are provided below.

The postconstruction simulations shown for the key viewpoints on the following pages include application of Best Management Practices (BMPs) and avoidance and minimization measures as described in Section 3.1.7.4 for each particular view. The most noticeable measures shown in the simulations are listed below:

- Applying architectural detailing to the retaining walls and soundwalls, including textures, colors, and patterns
- Coloring and staining of bridge elements
- Installing vinyl-coated chain-link fencing along pedestrian areas
- Saving and protecting as much existing vegetation as feasible
- Including new landscaping where feasible
- Including skyline trees in the new plantings

Aesthetic treatments shown on structures and specific plant types in the simulations are representative only. Actual types of treatments and landscaping would be based on community input. The key views within the project area are described below:

- **Viewpoint #14, Residential Landscape Unit:** This view was taken from the San Antonio Avenue Overcrossing (OC) looking EB into the I-10 corridor. The view was selected because it shows the improvements to the corridor from Alternative 3 from the perspective of the pedestrians on the overcrossing.
- **Viewpoint #15, Residential Landscape Unit:** This photo was taken on the existing Euclid Avenue OC looking west across the bridge. It was selected to show the potential changes to the visual environment along the historic corridor from the viewpoint of the bridge user.
- **Viewpoint #18, Residential Landscape Unit:** This viewpoint looks west from the existing E. Alvarado Street, which parallels the corridor. Because the street is residential in nature, this viewpoint was selected to show the proposed improvements from the perspective of residents looking into the corridor.

Figure 3.1.7-9 Redlands Landscape Unit

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- **Viewpoint #21, Residential Landscape Unit:** This photo is taken from the westbound (WB) lanes looking at the Vineyard Avenue crossing. The photo is from the vantage point of the freeway user and was selected to show any changes associated with the proposed improvements to this user group.
- **Viewpoint #34, Commercial-Warehouse Landscape Unit:** This view, from unincorporated San Bernardino County looking toward Ontario, is taken from WB I-10 looking west toward the Etiwanda Avenue OC in the distance. To the right is the on-ramp from southbound (SB) Etiwanda Avenue to WB I-10. The view was selected because it shows what will occur on the I-10 corridor, as well as to the existing median on I-10. This is currently one of the few areas in the corridor with a median.
- **Viewpoint #40, Industrial Landscape Unit:** This view, within unincorporated San Bernardino County adjacent to Fontana, is taken from the first lane of WB I-10 looking west along the freeway edge towards the existing row of eucalyptus and the existing I-10 Channel, which parallels I-10 along the north edge of the freeway. The view was selected because it shows the impacts to the existing row of eucalyptus.
- **Viewpoint #43, Industrial Landscape Unit:** This photo is taken off the corridor in a neighborhood within Fontana. The view is to the south and was selected to show the impact of a soundwall in the vicinity of these homes.
- **Viewpoint #50, Rail Yard Landscape Unit:** This view is within San Bernardino County within the Fontana area and looks east along EB I-10. This view was selected to show the changes to the row of eucalyptus along the south side of I-10 (between I-10 and the railroad tracks).
- **Viewpoint #65, Rail Yard Landscape Unit:** This view is from the perspective of the pedestrian and is taken from the midpoint of the Rancho Avenue OC looking east. This view is in Colton and was selected to show the changes to the visual environment from the perspective of pedestrians.
- **Viewpoint #72, Commercial-Agricultural Landscape Unit:** This view is taken from the existing Santa Ana River Trail southwest to the existing I-10 crossing over the Santa Ana River. The viewpoint was selected as a key viewpoint because it shows changes that would be seen by trail users. (The Viewpoint #72 photo was taken from a Commercial-Agricultural Landscape Unit, but it is looking into a Rail Yard Unit. The Santa Ana River forms the break between these adjacent landscape units.)
- **Viewpoint #74, Commercial-Agricultural Landscape Unit:** This view looks east from the EB lanes and shows the proposed impacts to the existing median

plantings. The viewpoint is in the City of San Bernardino. It was selected to show the changes to the visual environment associated with removal of the existing median vegetation.

- **Viewpoint #86, Redlands Landscape Unit:** This photo looks east from the EB lanes, near Texas Street in Loma Linda. This view was selected to show the potential impacts on corridor impacts within this unit.

Methodology

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

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

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

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

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

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

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

The resulting percent change corresponds to the following:

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

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

Graffiti

Graffiti is frequently an issue on publicly owned structures such as fences, retaining walls, bridge supports/columns, soundwalls, and other similar structures, as well as privately owned buildings, fences, etc. Graffiti may also occur on traffic control devices such as stop signs, stop lights, other traffic directional and safety signs, and posts/poles. Public agencies frequently have dedicated maintenance programs for the control and removal of graffiti. Caltrans has graffiti control and removal programs.

3.1.7.3 Environmental Consequences

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

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

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

Permanent Impacts

No Build Alternative – Summary

Activities that would occur under the No Build Alternative include routine maintenance of the project corridor area. The roadway would not be expanded for high-occupancy vehicle (HOV) lanes. The large number of projects already being developed in the project corridor exclusive of the I-10 CP indicates that the visual environment of the project corridor will, over time, change from the existing views to views that are more urban in appearance. These changes include new bridges, retaining walls, and anticipated soundwalls, in addition to widened pavement sections, such as in the area of the auxiliary lanes.

Build Alternatives – Summary

Without the application of mitigation, minimization, and/or avoidance measures, the two build alternatives would result in a substantial effect on the existing visual quality or character of the corridor. The construction of substantial amounts of hardscape (i.e., walls, bridges, and paving) would add to the scale and urbanity of the corridor from its present condition.

Changes in the visual environment for travelers on I-10 would primarily consist of views to areas with wider pavement widths, replacement bridges, and retaining walls and soundwalls. Given the number of existing soundwalls in the corridor, many of the views into or out of the corridor are restricted to areas that are generally adjacent commercial land uses where there are no soundwalls, or to the bridge crossings. As shown in Tables 3.1.7-1 through 3.1.7-36, 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 build alternatives, removal of the rows of eucalyptus trees and other vegetation within the interchange areas would likely have the greatest impact on the visual quality; however, this effect would remain until any replanted (from the proposed mitigation measures) trees grow back to existing conditions, which would take approximately 15 to 20 years to reach similar scale and proportions. Replacement plantings are possible within the project corridor. These plantings would be primarily associated within the local street interchanges and in select locations between the interchanges where sufficient ROW exists between the edge of pavement and the edge of the ROW. Caltrans standard setbacks for the planting of trees require that most trees be located a minimum of 34 feet from the outside edge of the lanes (i.e., edge of travelway); therefore, the areas where trees can be planted within the corridor must be a minimum of 24 feet wide, between edge of paving and the ROW, assuming a 10-foot-wide shoulder on the roadway. This occurs in select locations along the mainline throughout the project corridor and at most interchanges.

Other elements, such as replacement structures, new retaining walls, and soundwalls, would be a permanent change to the elements within the existing viewsheds along the corridor, including some areas where visual impacts were determined to be Moderately High, as described for Viewpoints 17A and 17B. With the implementation of Mitigation Measures VA-1 to VA-37, the potential adverse effects of the build alternatives on the visual character and quality of the project surroundings would be minimized and in the long term not substantial.

The summary below describes the anticipated changes to the visual environment by each project element.

Overcrossings/Bridges: Construction of the project would require the following improvements to overcrossings/bridges:

- Alternative 2
  - 3 structure replacements
  - 43 structure widening/modifications

- Alternative 3
  - 12 structure replacements
  - 58 structure widening/modifications

The bridge replacements would be longer than the existing and may be wider depending on the local requirements for the street, such as adding a lane to an existing arterial crossing. Given that the existing bridges were generally constructed without the design and aesthetic considerations that usually apply to new projects, the design of the replacement and widened bridges would be constructed to include aesthetics elements of the Corridor Aesthetics Master Plan. From a visual standpoint, the current structures lack many of the unifying aesthetic elements; therefore, it is anticipated that the replacement and modified bridges would improve the overall corridor aesthetics, despite their longer appearance.

Graffiti: As discussed earlier, public structures are often targets of graffiti. The permanent structures proposed under the build alternatives, including bridges, overcrossings, structural supports, retaining walls and soundwalls, traffic control devices, and signing, may be attractive targets for graffiti. The build alternatives would include treatments on many of the structures and project features that may deter taggers. Those may include anti-graffiti coatings, wall texturing, aesthetic surface treatments, and landscaping/plantings. Nonetheless, the new/modified structures under the build alternatives may be attractive targets for taggers; therefore, the build alternatives could result in increased graffiti within the project corridor, including along local streets at their crossings of the freeway.

As discussed earlier, Caltrans has existing ongoing maintenance programs for the control and removal of graffiti. Those programs would apply to all structures and project features in the build alternatives, on public and private property, as appropriate.

Alternative 2 (HOV Alternative)

The discussion below outlines the anticipated effects by category. This is followed by a discussion that outlines the effects by landscape unit.

Vegetation Removal: While not listed as a contributing historic feature in the corridor, the mature rows of eucalyptus provide a striking accent to the corridor.

Originally, these were planted as a colonnade of trees along the corridor. Over the years, many of these trees were removed by projects, either along the I-10 corridor or at a street crossing. In addition, many have succumbed to old age, drought, or other natural causes; therefore, the remaining rows are sporadic and concentrated primarily between I-15 and Rancho Avenue. Throughout the project area, Alternative 2 is expected to require the removal of approximately 374 eucalyptus trees within the corridor. Approximately 253 more trees could be impacted, depending on the final alignment of the roadway and the proximity of retaining walls that would be required. In some locations, the walls might have to be placed too close to the trees, and removing too many roots would kill the trees. See Appendix A of the VIA for a set of aerial maps showing the effects of Alternative 2 on these corridor elements.

In addition to removal of the eucalyptus, existing plantings within interchanges would be affected by the proposed alternative. Vegetation along the mainline, which occurs mostly in the eastern half of the corridor, east of the Santa Ana River, would also be affected by the wider paving required by the alternative. Most of this disturbance would occur where walls (retaining or sound) and bridge construction would be scheduled to occur.

Freeway Paving: A new lane would be added in each direction within the current median of I-10. The addition of this lane would also require widening to the outside to accommodate a full 10-foot-wide shoulder in the median, as well as the 4-foot-wide HOV lane buffer. The result would be a wider pavement section throughout the corridor. The widened pavement would be a noticeable feature for drivers in the corridor; the added concrete would impact the overall visual quality of the corridor.

Local Streets: The minor impacts associated with the local street interface (i.e., where ramp and local streets meet) are not expected to alter the existing visual quality along the streets. Three new overcrossings would be constructed as part of the project. In these locations, the local street would potentially see a wider section to the road. In addition, six undercrossings would be widened, extending the length of the local street that is in shadow under I-10. Other areas where the local streets might see effects from the project are associated with the ramps where they interface with the local street. Changes to the ramp configurations, such as widened sections and improved radiuses at the curb returns, may cause changes to the local street.

Retaining Walls: Approximately 67,000 linear feet of retaining walls may be constructed along the corridor under this alternative. The retaining walls associated with

Alternative 2 are primarily located within the interchange areas and are associated with the outside edge of the ramps; therefore, they would face outward from the corridor. In addition, some walls would be located along the mainline, some would be associated with interchanges and the reconfiguration of the ramp areas, while others would be located along the edge of the ROW. In general, those along the edge of the shoulder would face inward to the corridor and would be visible to travelers on I-10; those at the edge of the ROW would face outward and would be visible to the adjacent community.

Soundwalls: Alternative 2 would construct or rebuild 56 soundwalls within the I-10 corridor, with a total linear footage of approximately 54,500 linear feet. The largest number of new soundwalls is found in the eastern two landscape units (Commercial-Agricultural and Redlands landscape units), with additional walls located in the Rail Yard and Industrial landscape units. Under this alternative, there are no walls located in the Commercial-Warehouse unit. Wall heights range from 8 to 16 feet, with the typical wall being 14 feet in height; however, there is a proposed 20-foot-high wall along the edge of the I-10 ROW in the area of Willow Avenue and an 18-foot-high wall along the edge of the ROW in the area of Acacia Avenue; both of these fall within the Rail Yard Landscape Unit. The proposed soundwalls along I-10 and its ROW would limit views from the surrounding areas into the corridor and from the corridor out to the surrounding areas.

Specific impacts associated with this alternative within each landscape unit are discussed below.

Commercial-Warehouse Landscape Unit: Within the Commercial-Warehouse Landscape Unit, Alternative 2 would require the removal of 25 eucalyptus trees along I-10, with the possible addition of 90 others, depending on plans, specification, and estimate (PS&E) configurations. With the protection of short retaining walls or roadway barriers, the remaining trees could be protected in place.

The widened roadway would cause a small increase in the perceived paving within the I-10 corridor; however, much of the existing area in which the lanes would be located is already paved. No soundwalls are anticipated within this landscape unit, but four retaining walls would be constructed. These have an average height in the range of 4 to 9 feet, with a maximum height of 14 feet, for a wall located in the Milliken Avenue interchange.

While no bridges would be replaced within this unit, many existing crossings, primarily associated with the creeks/drainage or railroads, would be widened. The

requirements for aesthetics for bridges and other structures outlined in the Corridor Aesthetics and Landscape Master Plan would be applied to any new bridge widening.

Given the large presence of warehouses and other businesses found within this unit, many without windows, it is anticipated that viewer sensitivity is expected to be moderately low. The potential effects of the proposed alternative, as described above, are anticipated to create a moderate degree of change within the corridor. Without mitigation, the overall visual quality within the landscape unit would likely decrease to moderately low, with moderately low vividness and intactness, and moderate unity. With mitigation, the existing overall visual quality of moderate would remain the same or increase slightly. With the addition of aesthetics and landscape elements currently not found in the corridor, the vividness would remain at moderate, with moderate intactness and unity.

Industrial Landscape Unit: The Industrial Landscape Unit has the largest number of existing eucalyptus trees that might be affected by the project. Approximately 345 trees, primarily along the northern edge of I-10, would be removed under Alternative 2. In addition, approximately 14 trees along the northern edge, paralleling the I-10 Channel, might have to be removed, depending on a final determination of the proximity of the protection elements versus the root zone required to maintain the health of the trees. Another 373 trees would be protected in place.

Sufficient ROW exists in portions of the corridor to allow new tree plantings in some locations within this landscape unit. In these cases, the new trees would be located along the north side of I-10 between the back edge of the I-10 Channel and the edge of ROW. Other replacement plantings could be located within the Cherry Avenue and Citrus Avenue interchanges. Many billboards are situated along I-10, particularly along its south side. Removing the trees would likely make these billboards even more prominent within the viewscape of the corridor.

As in the Commercial-Warehouse Landscape Unit, the additional paving associated with the alternative would likely cause a small increase in the perceived paving area, particularly to the outside edge. Within this unit, no retaining walls are proposed, and no bridges would be replaced or widened by this alternative.

Four soundwalls are proposed for this landscape unit, totaling 7,440 linear feet and with heights ranging between 12 to 16 feet. The average height is 14 feet. The walls are expected to block views into the corridor for residents adjacent to I-10 that currently have these views and to block views out of the corridor for freeway travelers. Plantings associated with the walls, such as vines, could help soften the

presence of the wall in the corridor for both viewers. At locations where proposed new trees are planted in conjunction with the soundwalls, additional screen could be expected as the trees mature over time.

Viewer sensitivity within this unit is anticipated to be moderate, given its mix of residential and industrial businesses. The effects created by Alternative 2 would likely also be moderate within the unit, primarily related to the removal of many eucalyptus trees and the addition of soundwalls along the corridor. Without mitigation, the low overall visual quality rating for the landscape unit would likely drop to very low, with very low vividness, intactness, and unity. Much of this drop is due to the removal of trees, combined with the older industrial and railroad areas that would become more visible after the trees are removed. With mitigation, the landscape unit could have an increased overall visual quality rating of moderately low, with moderately low vividness and intactness, and moderate unity.

Rail Yard Landscape Unit: Within the Rail Yard Landscape Unit, only 3 of the eucalyptus trees would be removed by the project, and another 149 are potentially in the path of the planned improvements and might require removal, depending on the final configuration of the roadway; however, as currently designed, it is anticipated that 383 of these trees would likely remain in place. In addition to the trees removed as part of the I-10 CP, the future planed improvements at the Cedar Avenue interchange would likely cause further removals. Similar to many of the landscape units, tree removal would likely make the existing billboards more visually prominent.

Within this unit, the I-10 CP would add new lanes in the median area of I-10 and would widen the outside edge of I-10 to accommodate the required shoulders, similar to the proposed construction in the other units. Forty-three (43) retaining walls are proposed within this landscape unit for Alternative 2. One of the walls associated with the 9th Avenue/La Cadena Drive interchange has a maximum height of 26 feet, which is the tallest wall proposed as part of this alternative. This wall would face out from the corridor into the railroad corridor. Most of the proposed retaining walls have an average height of 8 to 10 feet, with maximum heights in the range of 12 to 16 feet.

The existing Slover Mountain Railroad Bridge, which is over I-10 east of Pepper Avenue, would be replaced, as would the Mt. Vernon Avenue OC. In addition, many existing bridges would be widened, including the bridge for the Colton Railroad line under I-10, the La Cadena Drive Undercrossing (UC), the 9th Street UC, and the

Pavilion Spur line under I-10, all of which would be widened to the outside of the existing bridge; and the Warm Creek and Santa Ana River crossings, which would be widened to the inside. With incorporation of the aesthetic designs that are part of the approved Aesthetics and Landscape Master Plan for the I-10 corridor (as part of the mitigation and minimization requirements), the design of the new bridges would likely place a greater emphasis on the aesthetics of the corridor than do the current bridges, which were designed and constructed decades ago. These aesthetic treatments would likely improve the overall aesthetics in the corridor.

For Alternative 2, eight soundwalls would be constructed in several locations within this landscape unit. The total length of anticipated wall is 12,620 linear feet, with heights generally between 12 and 16 feet; however two taller soundwalls are proposed in this unit, one at 20 feet high along the WB ROW near Willow Avenue and one that is proposed at 18 feet along the WB ROW in the area of Acacia Avenue. As described for the Industrial Landscape Unit, these walls would be expected to block views for residents along the walls and for travelers on I-10. Where feasible, plantings associated with the walls would soften the presence of the walls.

Viewer sensitivity within this unit is likely to be moderately low, with the residences and businesses located along the north side of I-10 having a higher sensitivity. Any viewers along the railroad track that parallels the south side of I-10 would likely have a very low sensitivity, and for residents farther south, the views are more distant with a corresponding lower sensitivity. The effects of the project would be moderately high for the landscape unit, given the reduction in the mature trees that provide partial screening, the addition of a large number of walls, plus soundwalls. For the Rail Yard Landscape Unit, the project without mitigation would be expected to lower the overall visual quality of the landscape unit from low to very low. This drop is primarily based on removal of the existing trees and the opening of views into areas with very low visual quality, such as the rail yard area. With mitigation, the overall visual quality would be moderately low, with moderately low vividness and intactness, and moderate unity.

Commercial-Agricultural Landscape Unit: There are no eucalyptus trees within the Commercial-Agricultural Landscape Unit; however, most of the interchanges within this landscape unit, including the large I-215/I-10 interchange and the Waterman, Richardson, and Mountain View Avenue interchanges, are well landscaped. Plantings are also present along the freeway embankments, some of which appear to be planted and some that are volunteer species (i.e., fan palms). There are planted olive trees *(Olea* sp.) in the median between the I-215/I-10

interchange and Waterman Avenue. All of these trees would be removed with this alternative.

Within this unit, the Richardson Bridge would be replaced, and many other bridges would be widened (see Appendix J-2 for the full list). The bridges would be widened approximately 10 feet from the outside face to accommodate the necessary lanes and shoulders for this alternative. Widening to the outside would allow for corridor aesthetic elements that are currently being developed in the corridor master plan process to be incorporated into the bridge design.

Ten soundwalls are proposed within this landscape unit, totaling 10,460 linear feet. Heights for these walls range from 12 to 14 feet, with most walls at 14 feet. One 10-foot-tall wall is proposed in the area along the WB lanes between Elm and Mountain View avenues.

Viewer sensitivity within this unit is anticipated to be moderate, based on community preferences and the location of some residences within this unit. The overall effects of the project to the unit are anticipated to be moderate as well. The primary effects would be associated with the removal of vegetation and the added presence of retaining walls that face out into the community. Without mitigation, the net effect of the alternative on this landscape unit is to slightly decrease the overall visual quality from moderate to moderately low. With mitigation, this landscape unit would likely maintain its moderate visual quality, with moderate vividness, intactness, and unity.

Redlands Landscape Unit: Under Alternative 2, there are fewer anticipated changes to the visual environment within the Redlands Unit compared to the other units in the corridor. This is due to fewer project elements needing to be included in this unit compared to the other units. Most of the improvements anticipated under this alternative within the Redlands unit are on the unit's western half, except for retaining walls associated with the Ford Street interchange. Other retaining walls are proposed for areas west of the Texas Street UC. These are anticipated to have a height in the 4- to 12-foot range. See Appendix J-2 for the wall information. Most existing bridges in the unit would be maintained; however the 6th Street, Citrus Street, Cypress Street, and Highland Avenue UCs would be reconstructed in the median areas only, and the Ford Street and Redlands Boulevard off-ramp would be widened to the outside.

Existing vegetation along the western half of I-10 would be removed by construction activities, as would the existing vegetation within the Ford Street interchange; however, the existing vegetation within the central area of Redlands (from east of

Texas Street to west of Ford Street) would remain, as would the existing soundwalls in this area that are currently covered with vines.

Thirty-four (34) new soundwalls would be constructed in the Redlands Landscape Unit as part of this alternative; however, many of these walls are considered extensions of existing soundwalls in the corridor. The total length of these walls would be 23,980 linear feet with heights between 14 and 16 feet. Because much of I-10 is elevated in this landscape unit, the views out of the corridor are anticipated to be more affected than those in the surrounding community.

Viewer sensitivity within this unit is anticipated to be moderately high due to the closeness of the community to I-10 and the established preferences of the communities; however, because the improvements in this area are limited, the effects of the alternative are likely to be low for the unit as a whole. Because fewer project elements will be constructed in this area, the anticipated construction in this unit is more limited; thus, the corresponding effect to the visual environment is anticipated to be minor. The existing overall visual quality should remain moderate, as should the moderately high vividness and moderate intactness and unity.

Key Viewpoints – Alternative 2

Viewpoints identified as key for identifying the changes to the visual environment anticipated with Alternative 2 are viewpoints #34, #40, #43, #50, #65, #72, #74, and #86. These are described and evaluated below.

The post-construction simulations shown for the key views on the following pages include mitigation measures described at the end of this section to the extent feasible for each particular view. The most noticeable mitigation measures shown in the simulations are listed below:

- Applying architectural detailing to the retaining walls and soundwalls, including textures, colors, and patterns
- Coloring and staining of bridge elements
- Installing decorative fencing on the overcrossing bridges
- Saving and protecting as much existing vegetation as feasible
- Including new landscaping where feasible
- Including skyline trees in the new plantings
- Plantings are shown at approximately 10 years after planting

Aesthetic treatments shown on structures and specific plant types in the simulations are representative only. Actual types of treatments and landscaping would be based on community and Caltrans input during the design phase of the work.

Viewpoint #34 Analysis

Orientation: Figure 3.1.7-10 shows the location of Viewpoint #34. Figure 3.1.7-11 shows a photosimulation for Viewpoint #34 and depicts the pre- and post-construction views. The photograph is taken from the WB lanes of I-10 looking west. The Etiwanda Avenue interchange can be seen in the distance.

Figure 3.1.7-10
Location of Key Viewpoint #34

Existing Visual Character/Quality: The existing visual character is typical for a highway view. The view includes the highway paving, the ramp OC bridge, and slope paving. The power lines add an additional industrial element to the view. The median area is unique to the corridor. Given the size of the highway, the scale in the view tends towards the monumental; diversity is low, as is the rating for dominance. The view also tends towards the dissonant because of the starkness of the highway and the lack of softening elements. The overall visual quality of the view is moderately low, with moderately low vividness, intactness, and unity.

Proposed Project Features: The project would add a new inside lane to the view, reducing the open median area. The existing W-beam guardrail on the other side of the median for the EB traffic would be replaced with a concrete barrier. The existing ramp and bridge would not be changed; however, color would be applied to the walls and slope paving to mitigate their appearance. Plantings, to the extent possible, and/or gravel and hardscape treatments would be included in the median area.

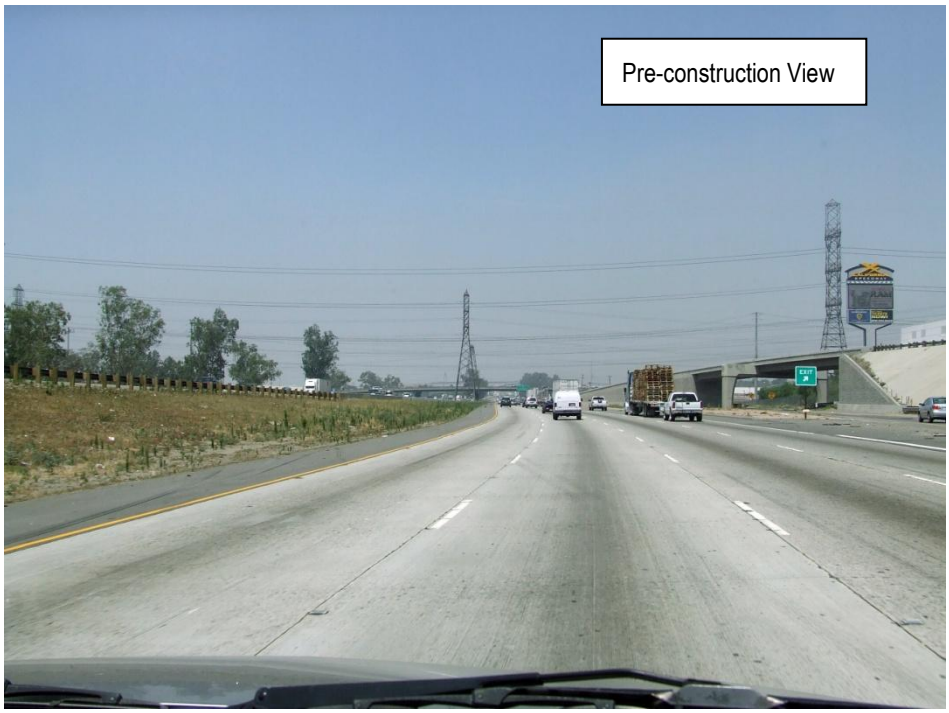

Figure 3.1.7-11
Viewpoint #34, Commercial-Warehouse Landscape Unit

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

Changes to Visual Character: For drivers on I-10, the new lane, combined with plantings in the median area, would be the most noticeable new elements in this view. The paving would appear wider than the existing and would continue to dominate the view. The mitigation measures, particularly in the median area, would also be a noticeable fore- to mid-ground addition to the view.

Anticipated Viewer Response: Freeway viewers are likely to be very aware of the changes in the I-10 corridor, but their sensitivity would be moderately low because the view to the new I-10 corridor would be similar in nature to the existing highway view, with many of the same elements. For these viewers, the wider pavement section is not expected to create any substantial changes to the visual environment.

Resulting Visual Impact: The moderately high impact to the visual environment is expected to increase the overall visual quality of the view to moderately high with moderately high vividness, intactness, and unity. This is due in large part to the addition of the planted median, which adds to the memorability of the view by softening the appearance of the hard surfaces of the corridor.

Viewpoint #40 Analysis

Orientation: Figure 3.1.7-12 shows the location of Viewpoint #40. Figure 3.1.7-13 shows a photosimulation for Viewpoint #40 and depicts the pre- and post-construction views. The photograph looks to the west-northwest towards the row of existing eucalyptus trees that parallels this stretch of I-10.

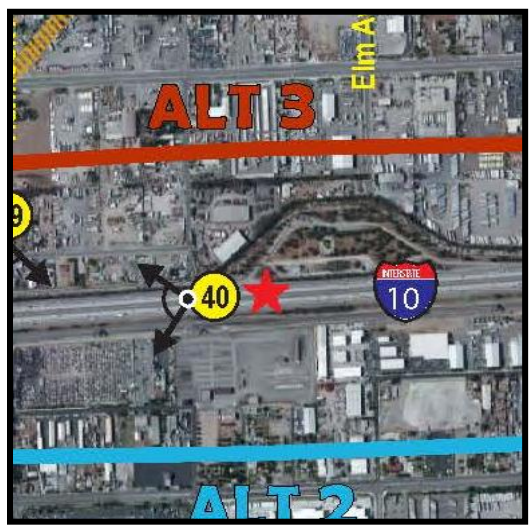

Figure 3.1.7-12
Location of Key Viewpoint #40

Existing Visual Character/Quality: The existing visual character of this view is dominated by the eucalyptus trees. The trees are mature, with some in good health and others in decline. Behind the trees is the I-10 Channel, which parallels the north side of I-10 from the San Sevaine Creek outfall to just east of Sierra Avenue. The other main visual element in the view is the paving associated with the shoulder. The placement of the eucalyptus trees helps to provide a sense of scale and balance to the highway and adds some complexity to the diversity of the view. The existing visual quality of the view is moderate overall, with moderate vividness, intactness, and unity.

Figure 3.1.7-13
Viewpoint #40, Alternative 2, Industrial Landscape Unit

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

Proposed Project Features: The proposed project features within this portion of the corridor include a widened pavement section that pushes the roadway into the area currently occupied by the row of eucalyptus trees, necessitating their removal. The existing channel would remain, but due to its proximity to the roadway, it would require a concrete barrier to protect motorists from the hazard; however, sufficient ground is available on the other side of the channel to include new plantings of trees. It is also anticipated that a soundwall would be constructed along the edge of the existing ROW to protect adjacent homes.

Changes to Visual Character: Removal of the mature trees along the corridor would substantially alter the visual character of the corridor. With replanting, as shown in the photosimulation, the character would still change, but this change would be softened by the new plantings, which would continue to grow and would eventually approach a mature size in 15 to 20 years.

Anticipated Viewer Response: Removal of the trees would be very noticeable to travelers on I-10, who would likely be very sensitive to the removal. The new tree plantings would, over time, replace the existing trees in stature and presence in the landscape and would soften the roadway and bring a sense of scale to the corridor. It is anticipated that viewer exposure and sensitivity would be moderate to the changes in the corridor.

Resulting Visual Impact: Although the anticipated impact to the visual quality is expected to be low, the anticipated impact to the view is expected to be moderate, due mostly to removal of the existing vegetation. Removal of the existing trees and planting of newer, smaller plantings would greatly affect the view and the ability of the plantings to bring scale and diversity to the corridor. This, however, would be temporary, because as the trees grow, their presence and ability to provide scale and a softening element to the corridor would increase over time.

Viewpoint #43 Analysis

Orientation: Figure 3.1.7-14 shows the location of Viewpoint #43. Figure 3.1.7-15 shows a photosimulation for Viewpoint #43 and depicts the pre- and post-construction views. The photograph looks south towards the I-10 corridor from a residential area north of I-10.

Figure 3.1.7-14
Location of Key Viewpoint #43

Existing Visual Character/Quality: The existing visual character of the view is typical of the residential areas near I-10, with smaller homes on small- to medium-sized lots. In the interior of the neighborhoods, the residents' views to I-10 are partially blocked by homes and associated vegetation that back onto the I-10 corridor. Within this view, the power poles and lines, billboards, and dead eucalyptus trees, as well as the freeway corridor itself, detract from the overall visual quality of the view. The existing visual quality in this view is moderately low, with moderately low vividness, intactness, and unity; however, because the view is residential in nature, the scale is much more intimate than the previous key viewpoints on I-10, the diversity of the view is greater and the dominance is more balanced.

Proposed Project Features: It is very likely that a soundwall would be constructed along this neighborhood area. Because Oleander Avenue dead-ends at the I-10 ROW, this soundwall would be a prominent visual feature. In addition, sufficient ROW likely exists in this stretch of the project to allow tree plantings between I-10 and the wall.

Changes to Visual Character: The soundwall would block the residents' existing views into the I-10 corridor. The other changes within the I-10 corridor would not be visible to the residents, except that the tops of the existing eucalyptus trees in the view, which would be visible if the trees were to remain, would no longer be visible due to the removal of the trees. However, mitigation in the form of new plantings along the wall, primarily vines, would soften the wall face.

Anticipated Viewer Response: Residents are expected to have a high degree of sensitivity to the changes to the visual character of their neighborhood. These viewers have long duration views and are very familiar with the existing views. Visitors to the neighborhood are likely to be less sensitive to the changes.

Resulting Visual Impact: The overall change to the view is expected to be moderate. The change would result in a more urban appearance to the neighborhood, given the height of the walls and the size of the nearby homes. Appropriate architectural treatments on the wall would help minimize the urbanizing effect of the wall. The anticipated visual quality is anticipated to be slightly higher than the existing, due in large part to the screening of I-10 by the new soundwall. New plantings would soften the appearance of the wall, and, in combination with other planting and architectural treatments, would lead to a moderate visual quality with moderate vividness, intactness, and unity.

Figure 3.1.7-15 Viewpoint #43, Alternative 2, Industrial Landscape Unit

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

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Viewpoint #50 Analysis

Orientation: Figure 3.1.7-16 shows the location of Viewpoint #50. Figure 3.1.7-17 shows a photosimulation for Viewpoint #50 and depicts the pre- and post-construction views. The photograph was taken from the EB lanes of I-10 looking east-southeast towards the railroad corridor and the row of eucalyptus trees that parallels the south side of I-10.

Figure 3.1.7-16
Location of Key Viewpoint #50

Existing Visual Character/Quality: The existing visual character of the view is dominated by the railroad corridor; however, the trees in the foreground help to break up the views into the rail corridor. The row of trees along the south side of I-10 is much more sporadic than on the north, and the trees are in a greater state of decline, so the quality of the screening is less than found elsewhere in the corridor where the trees are in better condition. The trees do help provide a sense of scale and diversity to the roadside corridor and add to the balance of the view. The overall visual quality of the view is moderately low, with moderately low vividness, intactness, and unity.

Proposed Project Features: The addition of the new EB HOV lane in the median area of I-10 would require widening the lanes slightly to the south toward the row of eucalyptus trees. A roadside barrier would be needed along the edge of the shoulder, and a ROW fence would be attached to the top of the barrier.

Changes to Visual Character: The corridor would appear wider to those traveling on I-10 with the addition of the HOV lane in each direction; however, by preserving the existing trees, the view is not substantially changed from the existing.

Anticipated Viewer Response: For those traveling on the I-10 corridor, the change would not be very noticeable. The wider pavement and the addition of a road barrier would add some additional hard surfaces to the view, but overall, the anticipated change is not highly noticeable.

Resulting Visual Impact: The overall changes to the view are expected to be moderately low. The resulting visual impact would be to maintain the overall existing moderately low visual quality of the view with moderately low vividness, intactness, and unity.

Figure 3.1.7-17
Viewpoint #50, Alternative 2, Rail Yard Landscape Unit

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

Viewpoint #65 Analysis

Orientation: Figure 3.1.7-18 shows the location of Viewpoint #65. Figure 3.1.7-19 shows a photosimulation for Viewpoint #65 and depicts the pre- and post-construction views. The photograph looks east from the Rancho Avenue OC. The view is from the perspective of the pedestrian on the sidewalk looking into the corridor.

Figure 3.1.7-18
Location of Key Viewpoint #65

Existing Visual Character/ Quality: The existing eight lanes of freeway dominate this view, with the center barrier and the weeds growing under it providing a focal point to the view. Landscaping associated with the interchange provides a green counterpoint to the large areas of paving. The scale of the view tends toward the monumental given the number of lanes of the freeway, but the plantings associated with the ramps help add to the diversity and harmoniousness of the view. The overall visual quality of the view is moderately low, with moderately low vividness, intactness, and unity.

Proposed Project Features: For pedestrians on the bridge, the new fence that would be included as part of the improvements to the interchange would be prominent. Looking into the I-10 corridor, the two new HOV lanes and median shoulder associated with the widened paving of the corridor would be seen. The inclusion of the new lanes would push the outside edge of I-10 into the landscape areas along the ramps and would require a retaining wall to address the existing slopes along the ramps, which would also be seen from this vantage point.

Changes to Visual Character: In general, I-10 would appear wider to viewers on the bridge, and the new lanes and the retaining walls would increase the area of hard surfaces in the view. The improvements to the corridor would, in effect, clean up much of the existing view, removing weeds from the median area and adding plantings to the ramps. The effect of this would be to increase the diversity of the view and provide better scale to the freeway; however, the view is still into a freeway corridor and would be similar in appearance to the existing, equating to a low level of change.

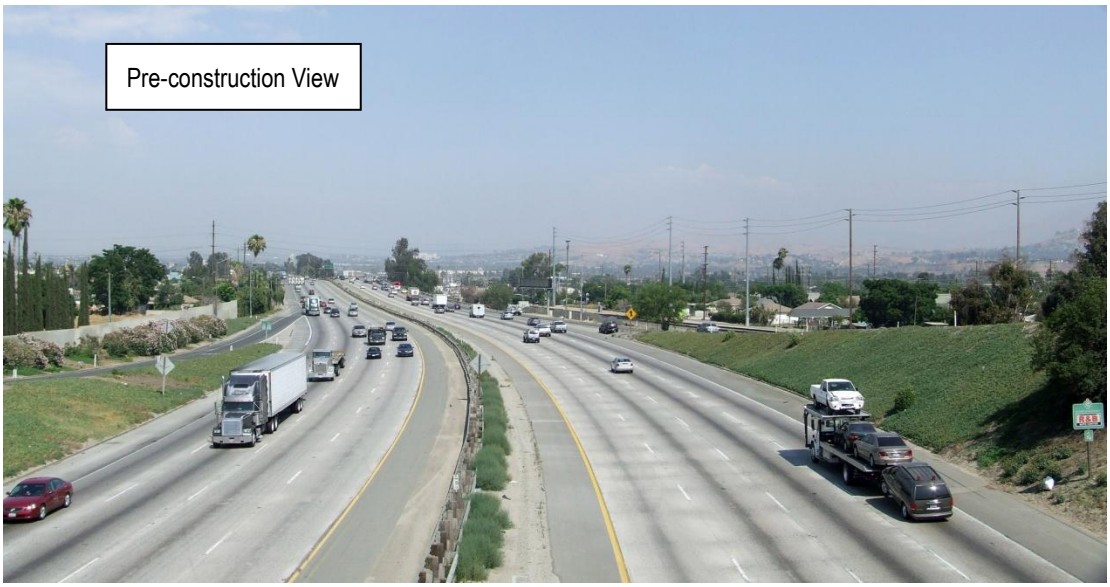

Figure 3.1.7-19
Viewpoint #65, Alternative 2, Rail Yard Landscape Unit

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

Anticipated Viewer Response: From the perspective of the pedestrian, the viewer is likely to have a moderate degree of sensitivity to the changes in the visual environment. Pedestrians, while much fewer in number than freeway travelers, have a much longer viewing period than a driver would over a similar distance due to the difference in speed between the two modes of transportation.

Resulting Visual Impact: The overall impact to the view is anticipated to be moderately low. The extra pavement width is somewhat compensated for by the addition of plantings in the interchange, and the removal of weeds and other distracting elements helps slightly increase the overall visual quality; however, the resulting impact to the visual environment is not expected to appreciably alter the existing visual quality for this view. The overall visual quality is expected to increase slightly to moderate, with moderate vividness, intactness, and unity.

Viewpoint #72 Analysis

Orientation: Figure 3.1.7-20 shows the location of Viewpoint #72. Figure 3.1.7-21 shows a photosimulation for Viewpoint #72 and depicts the pre- and post-construction views. The view is from the Santa Ana bike trail, looking southwesterly towards the I-10 corridor.

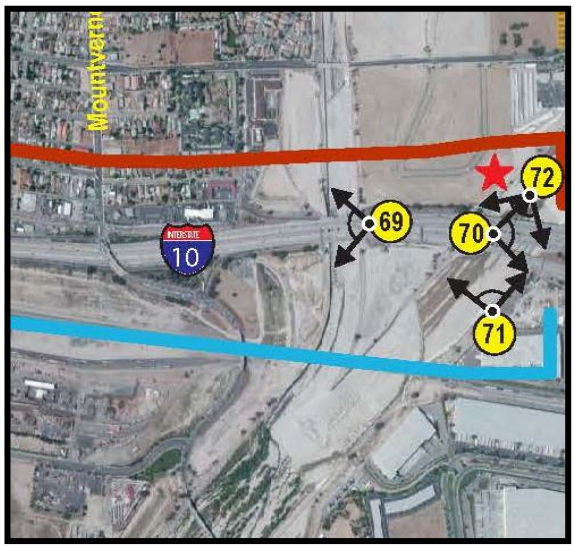

Figure 3.1.7-20
Location of Key Viewpoint #72

Existing Visual Character/Quality: The existing visual character of the view is dominated by the I-10 Bridge over the river. The river is generally dry for large portions of the year, and many weedy plant species can be found in the river bottom. The width of the river, combined with the long bridge, creates a somewhat monumental scale to the elements of the view. Overall, the view has a moderately low visual quality, with moderately low vividness, intactness, and unity.

Proposed Project Features: The project would widen the existing highway bridge to the outside by approximately a lane width, which would bring the bridge that much closer to the viewer on the trail.

Figure 3.1.7-21
Viewpoint #72, Alternative 2, Commercial-Agricultural Landscape Unit

Minimization measures depicted in the simulation include wall texture and new landscaping of disturbed areas. Aesthetic treatments to structures and specific plant types are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect. (The Viewpoint #72 photo was taken from a Commercial-Agricultural Landscape Unit, but it is looking into a Rail Yard Unit. The Santa Ana River forms the break between these adjacent landscape units.)

Changes to Visual Character: Anticipated changes to the visual environment associated with the project features shown in the view are expected to be minor. Moving the edge of the bridge closer to the viewer is not substantial enough to alter the existing views to any considerable degree.

Anticipated Viewer Response: The bike trail is only open to bicyclists; pedestrians are not allowed on the trail, so the users of the trail are more limited than might be expected on a multi-use trail. Viewers would have views to the bridge area that last 1 to 2 minutes as they approach the bridge. Viewer exposure is anticipated to be moderately low based on the speed of travel, while the sensitivity is anticipated to be moderate.

Resulting Visual Impact: The resulting impact to the visual environment is expected to be minor and would likely maintain the existing moderately low visual quality of the view.

Viewpoint #74 Analysis

Orientation: Figure 3.1.7-22 shows the location of Viewpoint #74. Figure 3.1.7-23 shows a photosimulation for Viewpoint #74 and depicts the pre- and post-construction views. The view is from the EB lanes of I-10 looking east near the Waterman Avenue exit within San Bernardino County area, near Loma Linda.

Figure 3.1.7-22
Location of Key Viewpoint #74

Existing Visual Character/Quality: The existing visual character of the view is dominated by the freeway paving and signage. The median olive trees and fan palm trees to the right provide a counterpoint to the hard surfaces of the highway paving. The plant material helps bring a sense of scale to the view and reduces the overall monumentality of the freeway paving. The overall visual quality of the view is moderate, with moderate vividness, intactness, and moderately low unity.

Proposed Project Features: The project would add the HOV lane to the center of I-10 and concrete median barrier in this view. The existing sign bridge in the mid-ground would have to be lengthened to accommodate the wider roadway as well. The existing olive trees in the median would be removed, although the plantings on the outside are expected to remain.

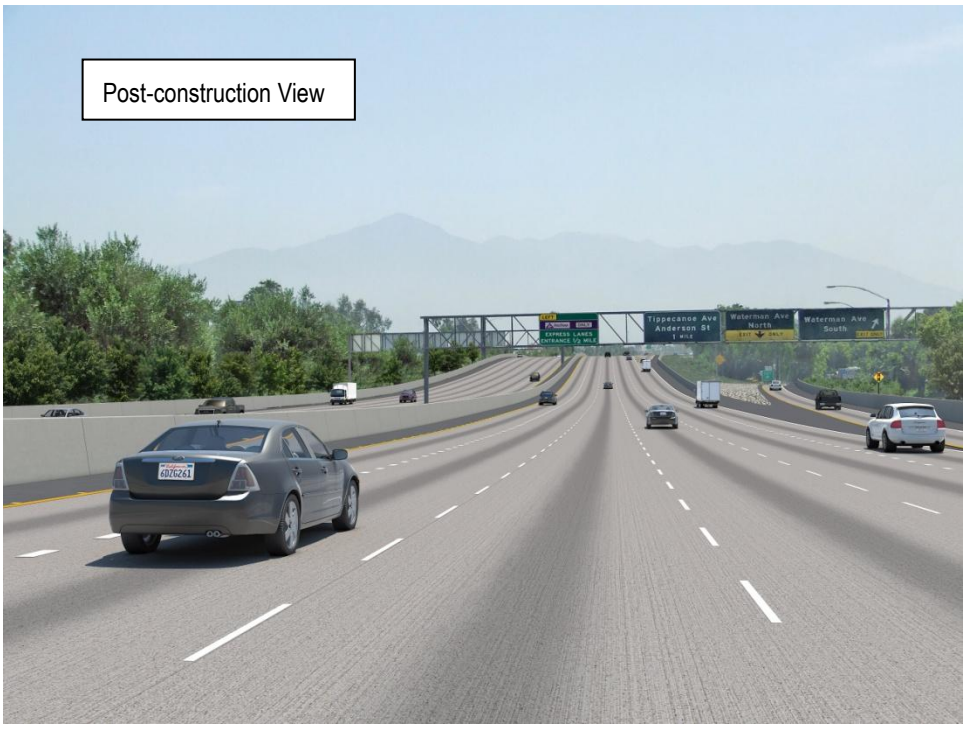

Figure 3.1.7-23
Viewpoint #74, Alternative 2, Commercial-Agricultural Landscape Unit

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

Changes to Visual Character: The biggest change in this view would be the increase in hard surfaces within the view and removal of the vegetation in the median that helps to screen the other half of I-10 from the viewer. The result is a corridor that appears much more open and much larger.

Anticipated Viewer Response: For those traveling on the I-10 corridor, the change would be very noticeable. The change to the median, with the removal of the trees, which helps to provide scale and diversity to the view, would be most notable. It is anticipated that the viewer sensitivity for this group would be moderate, as would their exposure.

Resulting Visual Impact: The overall resulting impact to the visual environment in this view is anticipated to be moderate, with moderate vividness, and moderately low intactness and unity. Removal of the median plantings creates a more monumental appearance to the freeway paving that is only partially compensated for by the roadside plantings in the Waterman Avenue interchange.

Viewpoint #86 Analysis

Orientation: Figure 3.1.7-24 shows the location of Viewpoint #86. Figure 3.1.7-25 shows a photosimulation for Viewpoint #86 and depicts the pre- and post-construction views. The photograph is taken from the EB lanes of I-10, approaching the University Street interchange, looking east.

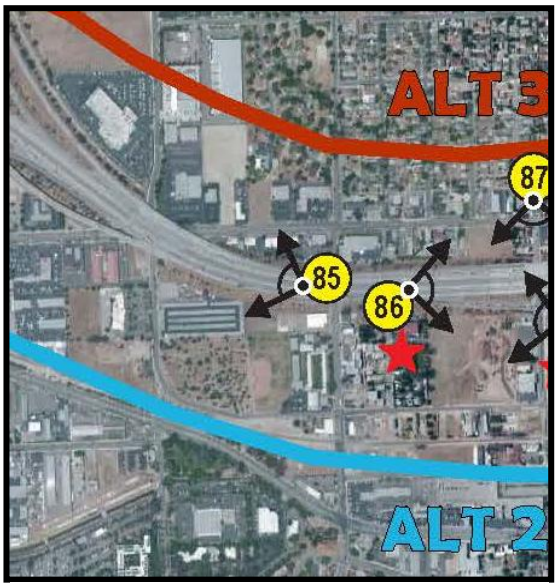

Figure 3.1.7-24
Location of Key Viewpoint #86

Existing Visual Character/Quality: The freeway paving is the dominant feature in this view. The mature plantings on either side of I-10 help to soften the overall feel of I-10; however, given its width, the freeway paving tends towards monumentality in the view and dominates the perceived landscape. The overall visual quality of the view is moderately low, with moderately low vividness and intactness, and moderate unity.

Proposed Project Features: The primary feature for the project would be the addition of the new lane with a full shoulder along the median. The existing median barrier would be replaced with a slightly taller barrier.

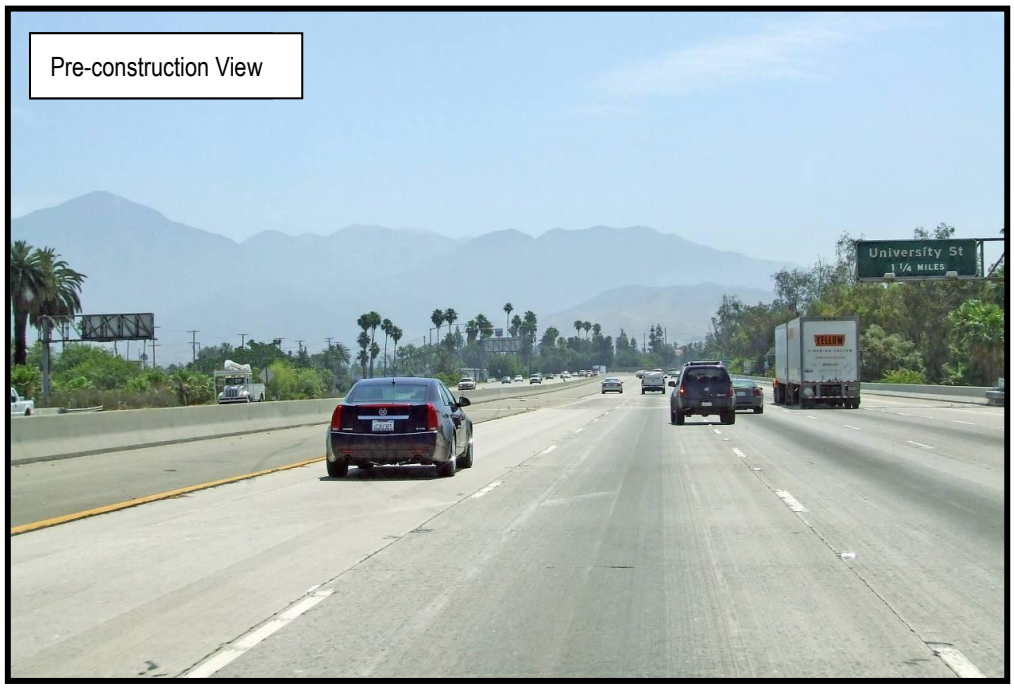

Figure 3.1.7-25
Viewpoint #86, Alternative 2, Redlands Landscape Unit

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

Changes to Visual Character: The addition of the new lane would add some paving into the view; however, the existing median shoulder is paved, so the addition of the lane does not appear to greatly alter the amount of paving in the view. Existing mature plantings along the outside edge of I-10 should remain.

Anticipated Viewer Response: Frequent travelers on I-10 would likely have the greatest sensitivity to changes within the corridor; however, within this view, the changes are not expected to be appreciable, so the overall sensitivity is expected to be moderate, as would be the exposure.

Resulting Visual Impact: The resulting impact to the overall visual environment of the view is anticipated to be moderately low. The new visual quality would likely maintain the existing quality of this portion of the corridor. Vividness and intactness would remain at moderately low, while unity would remain at moderate.

Alternative 3 (Express Lanes Alternative)

Alternative 3 extends from approximately Towne Avenue in Pomona to Ford Street in Redlands, a distance of 36 miles, although the Express Lanes only cover 33 miles from the Los Angeles county line to Ford Street. Because of its longer distance, the effects of the project cover a wider area. The discussion below outlines the anticipated effects by category. This is followed by a discussion that outlines the effects by landscape unit.

Vegetation Removal: Because the cross section is generally wider for Alternative 3, there is a substantial amount of existing vegetation along I-10 that would be potentially disturbed by the project. The rows of eucalyptus trees, which generally fall between the I-15 interchange and the Santa Ana River, would also have greater impacts than in Alternative 2. A total of 1,148 of the trees are potentially impacted by the project, while another 295 are anticipated to remain. See Appendix A of the VIA for a set of aerial maps showing the effects of Alternative 3 on these corridor elements.

Freeway Paving: Alternative 3 adds two new 11-foot-wide lanes of paving in each direction for most of the corridor, between the Los Angeles/San Bernardino (LA/SB) county line to approximately California Street in Redlands. This substantially widens the existing I-10 corridor's appearance for drivers on the corridor and for pedestrians and others who might look into the corridor. Existing medians at Etiwanda Avenue and east of I-215 would be paved as part of this alternative.

Local Streets: Many local streets would be affected by the project, especially where they cross over or under the I-10 corridor. Within interchanges, where the ramps

interface with the local street, additional minor impacts are anticipated that are associated with the improvements to various ramps. The cross section of Monte Vista Avenue would be widened as part of the project. The existing roadway would be widened to accommodate additional left-turn lanes and other safety improvements. The widened section would be limited to the interchange area only, and the changes would extend approximately one to two blocks north and south of the interchange to bring the roadway back to its existing configuration.

Retaining Walls: Approximately 180,000 linear feet of retaining walls would be constructed as part of Alternative 3. These walls would be constructed throughout the project corridor along the mainline and along interchange ramps. The walls within the County Gateway and Residential landscape units would generally face outward to the community in the Community Gateway Landscape Unit and into the I-10 corridor for the Residential Unit, which is similar to the existing condition in both units. Those in the Community Gateway Landscape Unit are very tall, with maximum heights of 30 feet in some locations (near the Monte Vista Avenue and Indian Hill Boulevard interchanges). East of these two units, the walls are generally associated either between an interchange ramp and the mainline facing into the I-10 corridor or are associated with the mainline facing out into the community. These walls generally have average heights of 10 feet or less, although in a few locations the walls have a maximum height of 14 feet.

Euclid Avenue: Unique among the cross streets within the project area, Euclid Avenue has been listed in the National Register of Historic Places (NRHP) within Upland and Ontario, and it has been designated as a historic district within Ontario. The existing bridge (Bridge No. 54 0445) is not included in the designation, and the current design, with its red stamped brick and small palm tree species, is not in keeping with the rest of the Euclid Avenue corridor. Under Alternative 3, the existing Euclid Avenue Bridge would be replaced and the existing interchange associated with the area reconfigured with removal of the existing loop ramp in the northeast quadrant of the interchange. The new bridge would be longer and slightly wider than the existing bridge. There is a potential that the median of the bridge would be narrower than the existing to accommodate a double turn lane, rather than the existing single turn lane, depending on the final design of the interchange.

Soundwalls: A total of 109 new soundwalls would be built as part of this alternative, with a total length of 119,300 linear feet. The proposed heights range from 8 to 20 feet, but most walls fall within the 12- to 16-foot range and, of these, most would have a height of 14 feet; only 10 of the 103 walls have heights 10 feet or less, and

only 2 walls would have heights above 16 feet. There are many existing soundwalls in the corridor, particularly in the western third of the corridor (west of Vineyard Avenue). These walls would be replaced with new walls as part of the project and would likely be approximately the same height or slightly taller than the existing. In the eastern portions within Redlands, there are also existing soundwalls, however, these walls are anticipated to remain under this alternative, but many of them would likely be extended as part of the construction.

San Bernardino County Gateway Wall: Part of the existing soundwall within the County Gateway Landscape Unit includes a graphic gateway element near Mountain Avenue that was created by Caltrans and the local community to serve as an entrance feature to the county. Under Alternative 3, the work would require removal of the existing soundwall associated with this gateway element. A new soundwall would be constructed approximately 10 feet farther out than the existing.

Specific impacts associated with this alternative within each landscape unit are discussed below.

Los Angeles County Landscape Unit: West of the Indian Hills Boulevard interchange, the proposed project elements within the Los Angeles County Landscape Unit are limited to new signage and restriping of the existing pavement. The Indian Hills Boulevard UC and nearby College Avenue UC would be widened on the WB side and the WB ramp at Indian Hills Boulevard reconfigured. Along the EB lanes, a new retaining wall would replace the existing on the approach to the county line and the Mills Avenue UC.

New soundwalls would be constructed in this unit, totaling approximately 16,600 linear feet. All walls, with the exception of one 450-foot-long wall along the EB mainline between Bucknell Avenue and Indian Hills Boulevard, would be 12 to 16 feet tall. The exception would be between 16 and 20 feet tall.

Due to its high residential component, viewer sensitivity within the Los Angeles County Landscape Unit is likely to be moderately high, but because of the limited nature of the changes within this landscape unit, the effects of the alternative are anticipated to be low. The existing visual quality is expected to be maintained; therefore, the moderate visual quality for the landscape unit as a whole, with moderate vividness, intactness, and unity, would remain.

County Gateway Landscape Unit: The County Gateway Landscape Unit includes the Monte Vista Avenue interchange, which would be widened on the local level, as

well as the freeway. No other local streets would be widened within this unit. I-10 would be widened to the north and south by 1 to 10 feet. This would cause the existing retaining walls along the corridor mainline to be removed and a new wall located at the new edge of I-10. Existing undercrossings – Mills, Central, Benson, and Mountain avenues – would be widened along with I-10, making the area of the local streets covered by I-10 longer. Soundwalls associated with these retaining walls would also have to be replaced. Existing on- and off-ramps have some minor realignments associated with them; with the exception of a small acquisition for the WB off-ramp at Monte Vista Avenue, these would fall within the current ROW.

Freeway landscaping within this unit is generally associated with the interchanges at Monte Vista, Central, and Mountain avenues. Because of the widening of the freeway mainline and the ramps, the existing landscaping would likely be removed. In some locations, vine plantings are found associated with the soundwalls, but if these walls are moved out, the vines would also be removed.

Soundwalls, including the San Bernardino County Gateway Wall, currently associated with retaining walls would be replaced in a new location, along with the new retaining wall. Alternative 3 would construct approximately 11,700 linear feet of new or replacement soundwall within this landscape unit. Most of these walls would fall between 12 and 16 feet in height, with one 334-linear-foot-long wall in the area of Central Avenue proposed at only 10 feet in height.

Viewer sensitivity for the unit is anticipated to be moderately high given its residential and commercial makeup. With the exception of the Monte Vista Avenue interchange area, the effects of the alternative on the landscape unit are anticipated to be moderately low due to the limited improvements proposed within the unit. It is anticipated that with mitigation the visual quality of the landscape unit would maintain the existing moderately low visual quality. Without mitigation, the visual quality would likely drop to an overall moderately low. I-10 would appear wider with more and larger paved surfaces; however, the existing views in the corridor are limited by the soundwalls through much of the unit, limiting the visual effects of the proposed changes.

Residential Landscape Unit: I-10 within the Residential Landscape Unit would be widened up to 12 feet to the north and south of I-10 (or more in spot locations) to add two new Express Lanes in each direction. In many instances, this widening occurs into areas currently covered by existing freeway landscaping. The current configuration of retaining walls along the edge of I-10 holding back landscape slopes

would be maintained under this alternative; however, the landscape areas would be much smaller. In addition, many ramps would be reconfigured. The most substantial reconfiguration is removal of the existing loop ramp from northbound (NB) Euclid to WB I-10 and reconfiguration of the WB on- and off-ramp at Vineyard Avenue.

Existing landscaping along the mainline and within interchanges would likely be disturbed by construction activities for the alternative. In some interchange locations where the ramp realignments are minor, such as a portion of the EB Vineyard Avenue interchange, some of the existing vegetation may remain, but this is likely to be limited.

Many bridges over I-10 would need to be replaced by this alternative – San Antonio, Euclid, Sultana, Campus, Grove, and Vineyard avenues, as well as the 4th and 6th Street OCs. In addition, bridges associated with the Holt Boulevard ramps and Cucamonga Wash would be widened. Retaining walls in excess of 20 feet would be anticipated near the Euclid Avenue and 4th Street interchanges. In total, 41 retaining walls would be placed within this landscape unit, primarily at the edge of the shoulder.

In many locations, there are existing soundwalls within this unit. Any soundwalls currently associated with retaining walls would be replaced as the retaining wall is moved. Alternative 3 would place approximately 28,150 linear feet of soundwall within the Residential Landscape Unit. Most of these would fall within the 12- to 16-foot-tall range, with a few walls in the San Antonio and Euclid area in the shorter 8- to 12-foot-high range.

Because of the primarily residential makeup of this unit, viewer sensitivity is expected to be moderately high. Changes to visual environment caused by the alternative are also anticipated to be moderately high, given the number of bridge replacements and retaining walls proposed, all with the accompanying removal of vegetation. Without mitigation, the visual quality would likely drop to moderately low; however, it is anticipated that with mitigation the existing overall moderate visual quality would remain, but due primarily to the reduction in vegetation and the addition of soundwalls, the existing moderately high visual quality would drop to moderate, while intactness and unity would remain with the existing moderate visual quality.

Commercial-Warehouse Landscape Unit: Within the Commercial-Warehouse Landscape Unit, the wider cross section of I-10 for the Express Lanes would require the realignment of many on- and off-ramps, including those associated with Haven, Milliken, and Etiwanda avenues and some of the ramps associated with the I-10/I-15 interchange. No local streets are proposed for widening.

No bridges would be replaced by this alternative; however, bridges associated with drainageways within the unit (Day Canyon, Etiwanda Wash, and San Sevaine Flood Control Channel), along with those associated with Valley Boulevard on- and off-ramps, would be widened. A total of 21 retaining walls would be located within this landscape unit, with average heights of 4 to 13 feet. The tallest walls, at 19 and 22 feet, are located in the Archibald Avenue and I-15/I-10 interchanges, respectively.

Approximately 164 eucalyptus trees along I-10 would be removed by Alternative 3 and approximately 25 would be saved in place within this landscape unit. Other existing landscaping that could be impacted by the project includes the area within the two loop ramps at Haven Avenue and potentially Milliken Avenue due to ramp realignment. The existing median area between the EB and WB lands near Etiwanda Avenue would be removed, and in its place would be paving and a retaining wall. There would be no soundwalls constructed as part of this alternative within this unit.

Because the unit is dominated with commercial warehouses and other businesses with few windows that look into the corridor, viewer sensitivity is expected to be moderately low. The potential effects of the proposed alternative, as described above, are anticipated to create a moderate degree of change within the corridor. This is primarily associated with the removal of vegetation along I-10. Without mitigation, the overall visual quality within the landscape unit would likely decrease to moderately low, with moderately low vividness and intactness, and moderate unity. With mitigation, the existing overall visual quality of moderate would remain the same or increase slightly with the addition of aesthetic elements outlined in the corridor master plan that are not currently found within the unit. With the addition of aesthetics and landscape elements currently not found in the corridor, the vividness would remain at moderate, with moderate intactness and unity.

Industrial Landscape Unit: Approximately 642 of the existing eucalyptus trees would be removed by this alternative, with another 173 likely to be preserved in place. Existing landscaping within the Cherry Avenue and Citrus Avenue interchanges would also likely be affected by the project.

As with the adjacent landscape units, I-10 would be widened to accommodate two new Express Lanes in each direction. The wider pavement cross section would add more hard surfaces to the views in the unity. None of the existing bridges within the unit would be replaced or widened, and only six retaining walls would be constructed.

The average height for these walls would range from 5 to 8 feet, and the tallest wall, associated with the Citrus Avenue interchange, would be 10 feet.

Three new soundwalls would be added within this unit as part of the construction. These walls would total approximately 7,500 linear feet. All of the walls would fall along the ROW on the WB side of I-10. Anticipated heights range from 12 to 16 feet.

Viewer sensitivity within this unit is anticipated to be moderate, given its mix of residential and industrial businesses. The effects created by this alternative would likely also be moderate within the unit, primarily related to the removal of a large number of eucalyptus trees and the addition of soundwalls along the corridor. Without mitigation, the low overall visual quality rating for the landscape unit would likely drop to very low, with very low vividness, intactness, and unity. Much of this drop is due to the removal of many trees from the corridor, combined with the older industrial and railroad areas that would become more visible after the trees are removed. With mitigation, the landscape unit could have an increased overall visual quality rating of moderately low, with moderately low vividness and intactness, and moderate unity.

Rail Yard Landscape Unit: The wider freeway cross section to accommodate two new Express Lanes in each direction would lead to widening of 12 to 20 feet on the north and south sides of I-10. Due to the widening, the Slover Mountain Railroad Bridge and the La Cadena Drive EB off-ramp UC would be replaced. In addition, the Colton Railroad OC and the 9th Street UC, as well as the bridges associated with the Santa Ana River, Warm Creek, and Rialto Channel, would be widened.

Fifty-one (51) retaining walls would be constructed within this landscape unit under this alternative. The average height for these walls ranges from 6 to 19 feet, with the tallest walls located primarily in the Sierra Avenue, Cedar Avenue, Riverside Avenue, Pepper Avenue, Rancho Avenue, and La Cadena Drive/9th Street interchanges. In each of these interchanges, a retaining wall with a maximum height of 20 feet tall is proposed.

Soundwalls would be included within the Rail Yard Landscape Unit as part of the construction. There would be 15 new walls, ranging in height from 12 to 16 feet, built under this alternative. The total approximate length of the anticipated soundwalls to be built is 18,800 linear feet. Two taller walls would be constructed in the area of Willow Avenue and the area of Acacia Avenue at 20 and 18 feet, respectively.

Of the eucalyptus trees, 426 of the total 535 would be removed by Alternative 3, leaving 109 protected in place. In addition, vegetation within the interchanges – Sierra Avenue, Cedar Avenue, Riverside Avenue, and Ranch Avenue, in particular – would be removed to accommodate the widened freeway and its associated walls within these interchanges.

Similar to Alternative 2, the viewer sensitivity within this unit is likely to be moderately low, while the effects of the project would be moderately high for the landscape unit, given the reduction in the mature trees that provide partial screening, the addition of many retaining walls, plus soundwalls that would be constructed. For the Rail Yard Landscape Unit, Alternative 3, without mitigation, would be expected to lower the overall visual quality of the landscape unit from low to very low. This drop is primarily based on the removal of the existing trees and the opening of views into areas with very low visual quality, such as the rail yard area. With mitigation, the overall visual quality would be moderately low, with moderately low vividness and intactness, and moderate unity.

Commercial-Agricultural Landscape Unit: Within the Commercial-Agricultural Landscape Unit, the row of olive trees currently situated in the median between the I-215/I-10 interchange and Waterman Avenue would be removed as in Alternative 2. In addition, this alternative would remove vegetation along I-10 throughout the landscape unit, particularly in the existing interchanges where retaining walls and ramp realignments would affect the landscape areas.

The Richardson Avenue OCs would be replaced in Alternative 3, and the Hunts Lane, Waterman Avenue, Tippecanoe Avenue, Mountain View Avenue, California Street, and Nevada Street UCs would be widened to the outside. The West Redlands Railroad Bridge, along with San Timoteo Creek, would also be widened.

A total of 36 retaining walls would be constructed in this landscape unit. Because I-10 is elevated through much of this landscape unit, most of the walls would face outward from the I-10 corridor into the adjacent properties. Most of the walls proposed in this area are in the range of 4 to 8 feet. The tallest proposed wall, at 20 feet, occurs in the Waterman Avenue interchange at the Carnegie Drive WB I-10 ramp.

Approximately 9,800 linear feet of soundwall would be constructed in the Commercial-Agricultural Landscape Unit under this alternative. All of the walls would fall within the 12- to 16-foot height range.

Viewer sensitivity within this unit is anticipated to be moderate, based on community preferences and the location of some residential within this unit. The overall effects of the project are anticipated to be moderately high. The primary effects would be associated with the removal of vegetation and the added presence of retaining walls that face out into the community. The wider cross section and associated retaining walls and other new elements of the freeway, coupled with the removal of existing mature vegetation, would be expected to reduce the overall visual quality of the unit to moderately low. With mitigation, the alternative would reduce the visual quality slightly, but not enough to change its moderate overall visual quality and its moderate vividness, intactness, and unity.

Redlands Landscape Unit: Only the Tennessee Street OC would be replaced with this alternative. The 6th Street, Citrus Avenue, Cypress Avenue, and Palm Avenue bridges would be reconstructed in the median. Lastly, of the bridges, the Ford Street Bridge would be widened. All other bridges would remain in their current configuration. A total of 13 retaining walls would be constructed within this unit, with 8 planned for the Ford Street interchange. All of the proposed retaining walls are less than 12 feet in height. Average heights are 4 to 8 feet tall.

Thirty-five (35) soundwalls, totaling approximately 26,250 linear feet, would be constructed in the Redlands Landscape Unit as part of Alternative 3. The anticipated height for these walls is in the 12- to 14-foot-range, with a few exceptions of 10- to 12-foot-tall walls in the western half of this landscape unit. In many cases, the length of individually proposed walls is between 200 and 400 feet and represents an extension of an existing wall.

This alternative would have fewer impacts to the landscape than other landscape units. This is mostly due to the reduced amount of proposed changes. Viewer sensitivity within this unit is anticipated to be moderately high due to the closeness of the community to I-10 and the established preferences of the communities; however, because of the limited nature of the improvements, the effects of the alternative are likely to be low for the unit as a whole. The existing moderate overall visual quality should remain, as should the moderately high vividness and moderate intactness and unity.

Key Viewpoints

Viewpoints identified as key for identifying the changes to the visual environment anticipated with Alternative 3 are viewpoints #14, #15, #18, #21, #34, #40, #50, #65, #74, and #86. Viewpoints #43 and #72, shown under Alternative 2, are anticipated to be the same for Alternative 3. The key viewpoints and simulations for Alternative 3

are described and evaluated below. Mitigation measures are depicted in the post-construction views that match the approach described for Alternative 2.

Viewpoint #14 Analysis

Orientation: Figure 3.1.7-26 shows the location of Viewpoint #14. Figure 3.1.7-27 shows a photosimulation for Viewpoint #14 and depicts the pre- and post-construction views. The image is taken from the S. San Antonio Avenue OC over I-10, looking east. The perspective of the image is from that of the pedestrian on the bridge looking into the highway corridor.

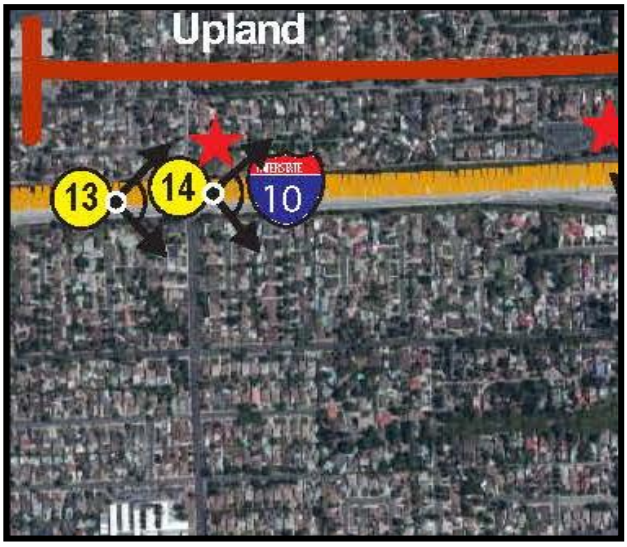

Figure 3.1.7-26
Location of Key Viewpoint #14

Existing Visual Character/ Quality: The existing visual character is typical for a highway view. The view includes highway paving and retaining walls and soundwalls with mature highway plantings above the slope. The width of the existing pavement is monumental in its scale and dominates the view. The overall visual quality of the view is moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: The project would add two new inside lanes to the view, creating a wider highway cross section. The existing San Antonio Avenue Bridge would be replaced with a longer structure to accommodate the wider highway below it. As part of this replacement, the existing fence would be upgraded to the decorative fence shown in the corridor master plan. New retaining walls and soundwalls would be constructed, and new highway plantings would be included in the reduced areas above the new retaining wall locations.

Changes to Visual Character: For pedestrians on the bridge, changes to the visual environment would be associated with the wider freeway and new bridge fence, which would appear as the most noticeable elements. For drivers on I-10, the new lanes would be the most noticeable new element in this view, along with the new walls along the outside edge of I-10. The paving would appear wider than the existing and would continue to dominate the view.

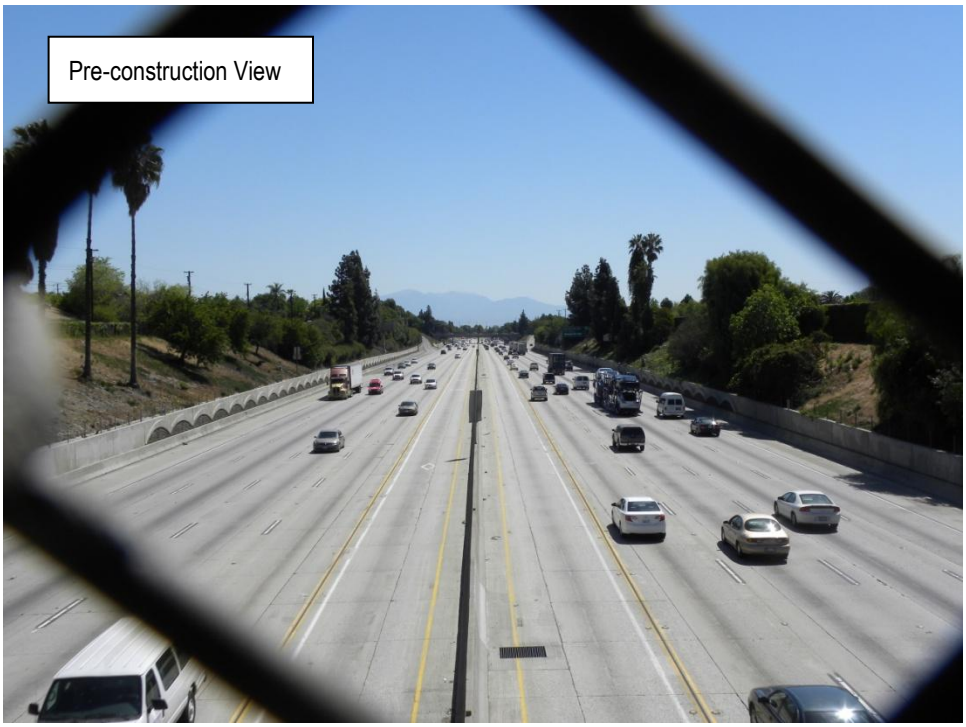

Figure 3.1.7-27
Viewpoint #14, Alternative 3, Residential Landscape Unit

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

Anticipated Viewer Response: Viewer response and exposure are both anticipated to be moderate for this view due to the number of viewers and the length of view associated with pedestrians on the bridge. In general, I-10 would appear wider to viewers on the bridge, and the new lanes and the retaining walls would increase the area of hard surfaces in the view. The improvements to the corridor would, in effect, clean up much of the existing view, removing weeds from the median area and adding plantings to the ramps. The effect of this would be to increase the diversity of the view and provide better scale to the freeway.

Resulting Visual Impact: The overall impact on this view is anticipated to be moderately low. The visual quality is expected to remain approximately the same, with a moderate overall visual quality and moderate vividness, intactness, and unity. This is due to the proposed keeping of vegetation above the retaining walls. While the highway is wider and the planting areas smaller, the percentage changes of these two cover types is small compared to the existing.

Viewpoint #15 Analysis

Orientation: Figure 3.1.7-28 shows the location of Viewpoint #15. Figure 3.1.7-29 shows a photosimulation for Viewpoint #15 and depicts the pre- and post-construction views. The photograph is taken on the Euclid Avenue OC, looking to the northeast across the bridge, from the SB lanes of Euclid Avenue to the NB lanes. The perspective of the view is from that of the pedestrian on the bridge.

Figure 3.1.7-28
Location of Key Viewpoint #15

Existing Visual Character/Quality: The view is dominated by the red, raised median planters on the bridge. These appear out of character with medians immediately north and south of the bridge. The overall visual quality of the view is moderate, with moderate vividness and moderately low intactness and unity, primarily based on the starkness of median treatments.

Figure 3.17-29
Viewpoint #15, Alternative 3, Residential Landscape Unit

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

Proposed Project Features: The Euclid Avenue Bridge would be replaced as part of Alternative 3. This would provide an opportunity to make the bridge area visually compatible with the historic median treatments to the north and south of the bridge. The final design of the bridge elements (e.g., median treatments, barrier fencing along the outside of the bridge) would be determined during PS&E phase of the project in consultation with Caltrans and the cities of Ontario and Upland. The elements shown in the simulation are based on the Caltrans Corridor Master Plan.

Changes to Visual Character: The most likely anticipated change to the existing view would be to the median area of the bridge, bringing the design closer in line with the historic nature of the Euclid Avenue corridor. In addition, pedestrians would have a revised fence along the parapet of the bridge that is upgraded to at least the corridor standard.

Anticipated Viewer Response: The anticipated viewer response and sensitivity are both anticipated to be moderate. In general, the appearance would contain many of the same elements as the existing, but these would be newer and a better fit with the aesthetics of the corridor. The addition of more median plantings would help bring scale to the bridge and add diversity to the view.

Resulting Visual Impact: The impact to the visual environment is expected to be moderate. The visual quality of the view would increase slightly with moderate vividness, intactness, and unity.

Viewpoint #18 Analysis

Orientation: Figure 3.1.7-30 shows the location of Viewpoint #18. Figure 3.1.7-31 shows a photosimulation for Viewpoint #18 and depicts the pre- and post-construction views. This view is taken in a residential area that fronts the I-10 corridor along East Alvarado Street. The view is looking east.

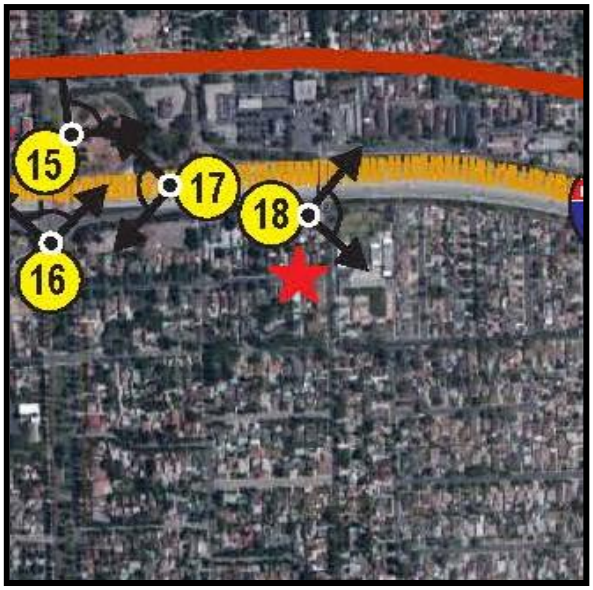

Figure 3.1.7-30
Location of Key Viewpoint #18

Figure 3.1.7-31

Viewpoint #18, Alternative 3, Residential Landscape Unit

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

Existing Visual Character/Quality: The existing view shows a dichotomy along the streetscape, with typical residential on one side of the street and what appears, without hearing the noise of the freeway, to be open space on the other. In addition to the screening they provide, the row of California pepper trees along the edge of the street provides scale and diversity to the view. The overall visual quality of the view is considered to be moderate, with moderate vividness, intactness, and unity.

Proposed Project Features: From this vantage point, the project would include removal of the existing trees and construction of a new soundwall along the back of the existing curb. It is assumed that plantings, including vines, would be included on the freeway side of the new soundwall and that these vines would eventually grow over the wall and provide some softening of the wall.

Changes to Visual Character: For residents along this street, removal of the mature pepper trees and the addition of the new soundwall would provide a stark difference to the views from their homes. While the views into the I-10 corridor would still be screened, the element providing the screening would be more urban in nature and lack, at least for the period of time necessary for the freeway plantings to grow and over top the wall, any visual relief.

Anticipated Viewer Response: Because the view is from the front of a row of residential homes, with their associated foreground views and longer view times, the viewer exposure is anticipated to be overall moderate, but with moderately high numbers for these two categories. Sensitivity is also anticipated to be moderate, given the location of the viewer in relationship to the changes.

Resulting Visual Impact: The overall impact to the view is expected to be moderate. The impact to the visual environment is expected to decrease the overall visual quality of the view to moderately low, with moderately low vividness, intactness, and unity.

Viewpoint #21 Analysis

Orientation: Figure 3.1.7-32 shows the location of Viewpoint #21. Figure 3.1.7-33 shows a photosimulation for Viewpoint #21 and depicts the pre- and post-construction views. The photograph is taken from the WB lanes of I-10 looking west towards the Vineyard Avenue interchange OC.

Figure 3.1.7-32
Location of Key Viewpoint #21

Existing Visual Character/ Quality: The existing view, though somewhat monumental in scale due to the size and scale of the freeway elements, has a moderate visual quality. This is partially due to the presence of trees in the interchange, which bring down the scale of the bridge and add diversity to the view. The overall visual quality of the existing view is rated at moderate, with moderate vividness and unity and moderately low intactness.

Proposed Project Features: Construction of the HOV lane to I-10 would necessitate removal and reconstruction of the existing Vineyard Avenue OC. The trees in the existing view would be removed due to this construction. Reconstruction of the area would include designs from the corridor master plan, including a decorative fence on the bridge and new plantings in the interchange.

Changes to Visual Character: For drivers on I-10, the new lane and bridge, together with removal of the existing vegetation, would be the most noticeable changes to the view. The freeway paving would appear wider and, at least initially, there would be no counterbalancing of mature vegetation to help lend scale to the larger paved surfaces. Over time, the replacement plantings, included in the project, would grow and eventually provide a similar element provided by the existing vegetation.

Anticipated Viewer Response: It is anticipated that the viewer exposure and sensitivity would be moderate, with the number of viewers being high but the length of time for the views being brief.

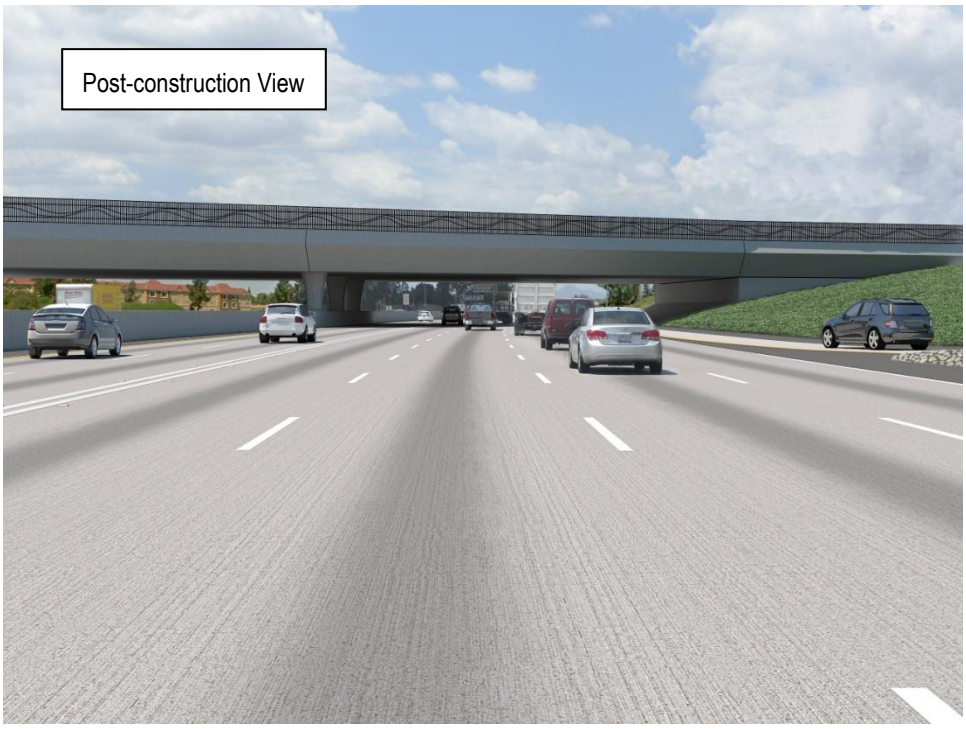

Figure 3.1.7-33
Viewpoint #21, Alternative 3, Residential Landscape Unit

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

Resulting Visual Impact: The overall visual impact to the view is expected to be moderate, with the visual quality dropping slightly to moderately low from moderate, with moderate vividness and moderately low intactness and unity. It is anticipated that as the replacement plantings mature, the visual quality of the view would eventually equal or exceed the existing.

Viewpoint #34 Analysis

Orientation: Figure 3.1.7-34 shows the location of Viewpoint #34. Figure 3.1.7-35 shows a photosimulation for Viewpoint #34 and depicts the pre- and post-construction views. The photograph is taken from the WB lanes of I-10 looking west. The Etiwanda Avenue interchange can be seen in the distance.

Figure 3.1.7-34
Location of Key Viewpoint #34

Existing Visual Character/Quality: The existing visual character is typical for a highway view. The view includes the highway paving, the ramp OC bridge, and slope paving. The power lines add an additional industrial element to the view. The median area is unique to the corridor. Given the size of the highway, the scale in the view tends towards the monumental; diversity is low, as is the rating for dominance. The view also tends towards the dissonant because of the starkness of the highway and the lack of softening elements. The overall visual quality of the view is moderately low, with moderately low vividness, intactness, and unity.

Proposed Project Features: The project would add two new inside lanes to the view, removing the existing median area and placing a retaining wall between the WB and EB lanes. In addition to the roadway elements, the existing towers for the power lines, currently located in the median, would also need to be moved to the outside edges of I-10. As in Alternative 2, the existing ramp and bridge would not be changed; however, color would be applied to the walls and slope paving to mitigate their appearance.

Changes to Visual Character: For drivers on I-10, the new lanes, combined with the retaining wall where the median existed, would be the most noticeable new elements in this view. The paving would appear much wider than the existing and would continue to dominate the view.

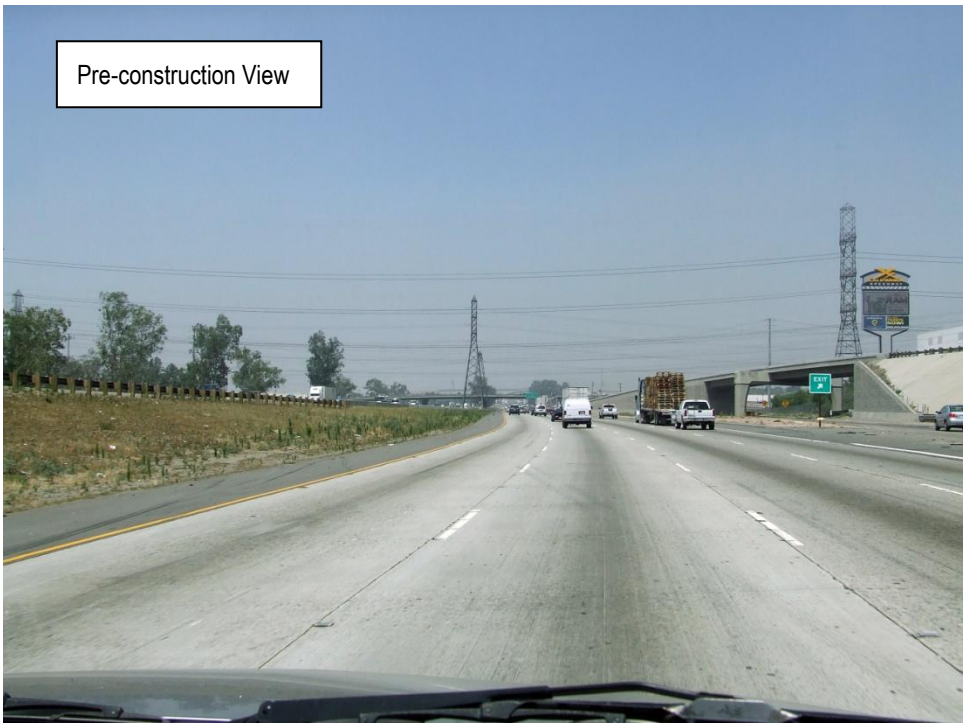

Figure 3.1.7-35
Viewpoint #34, Alternative 3, Commercial-Warehouse Landscape Unit

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

Anticipated Viewer Response: Freeway viewers are likely to be very aware of the changes in the I-10 corridor, but their sensitivity would be moderately low because the view to the new highway corridor would be similar in nature to the existing highway view, with many of the same elements. For these viewers, the wider pavement section is not expected to create any substantial changes to the visual environment.

Resulting Visual Impact: It is anticipated that for the overall visual quality of the view, the additional paving width, typically viewed as a negative, would be counter balanced by moving the power line towers to a less prominent location outside of the freeway corridor, as well as removal of the weedy, unkempt appearance of the median. The overall visual impact to the view is anticipated to be moderately low, with vividness, intactness, and unity remaining moderately low.

Viewpoint #40 Analysis

Orientation: Figure 3.1.7-36 shows the location of Viewpoint #40. Figure 3.1.7-37 shows a photosimulation for Viewpoint #40 and depicts the pre- and post-construction views. The photograph looks to the west-northwest towards the row of existing eucalyptus trees that parallels this stretch of I-10.

Figure 3.1.7-36
Location of Key Viewpoint #40

Existing Visual Character/Quality: The existing visual character of this view is dominated by the eucalyptus trees. The trees are mature, with some in good health and others in decline. Behind the trees is the I-10 Channel, which parallels the north side of I-10 from the San Sevaine Creek outfall to just east of Sierra Avenue. The other main visual element in the view is the paving associated with the shoulder. The placement of the eucalyptus trees helps to provide a sense of scale and balance to the highway and adds some complexity to the diversity of the view. The existing visual quality of the view is moderate overall, with moderate vividness, intactness, and unity.

Figure 3.1.7-37
Viewpoint #40, Alternative 3, Commercial-Warehouse Landscape Unit

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

Proposed Project Features: The proposed project features within this portion of the corridor include a widened pavement section that pushes the roadway into the area currently occupied by the row of eucalyptus trees, necessitating their removal. The existing channel would remain, but due to its proximity to the roadway, it would require a concrete barrier to protect motorists from the hazard; however, as in Alternative 2, sufficient ground is available on the other side of the channel to include new plantings of trees. It is also anticipated that a soundwall would be constructed along the edge of the existing ROW to protect adjacent homes.

Changes to Visual Character: Removal of the mature trees along the corridor would substantially alter the visual character of the corridor. With replanting, as shown in the photosimulation, the character would still change, but this change would be softened by the new plantings, which would continue to grow and would eventually approach a mature size in 15 to 20 years.

Anticipated Viewer Response: Removal of the trees would be very noticeable to travelers on I-10, who would likely be very sensitive to the removal. The new tree plantings would, over time, replace the existing trees in stature and presence in the landscape and would soften the roadway and bring a sense of scale to the corridor. It is anticipated that viewer exposure and sensitivity would be moderate to the changes in the corridor.

Resulting Visual Impact: Although the anticipated impact to the visual quality is expected to be low, the anticipated impact to the view is expected to be moderate, mostly due to removal of the existing vegetation. Removal of the existing trees and planting of newer, smaller plantings would greatly affect the view and the ability of the plantings to bring scale and diversity to the corridor. This, however, would be temporary, because as the trees grow, their presence and ability to provide scale and a softening element to the corridor would increase over time.

Viewpoint #50 Analysis

Orientation: Figure 3.1.7-38 shows the location of Viewpoint #50. Figure 3.1.7-39 shows a photosimulation for Viewpoint #50 and depicts the pre- and post-construction views. The photograph was taken from the EB lanes of I-10 looking east-southeast towards the railroad corridor and the row of eucalyptus trees that parallels the south side of I-10.

Figure 3.1.7-38
Location of Key Viewpoint #50

Existing Visual Character/Quality: The existing visual character of the view is dominated by the railroad corridor; however, the trees in the foreground help break up the views into the rail corridor. The row of trees along the south side of I-10 is more sporadic than on the north, and the trees are in a greater state of decline, so the quality of the screening is less than found elsewhere in the corridor where the trees are in better condition. The trees do help provide a sense of scale and diversity to the roadside corridor and add to the balance of the view. The overall visual quality of the view is moderately low, with moderately low vividness, intactness, and unity.

Proposed Project Features: The addition of the two new EB Express Lanes in the center area of the highway would require widening the lanes into the area currently occupied by the row of eucalyptus trees. A roadside barrier would be needed along the edge of the shoulder, and a ROW fence would be attached to the top of the barrier.

Changes to Visual Character: Removal of the mature trees would change the visual character of the corridor by leaving the railroad corridor fully exposed to view without the softening/screen effects provided by the vegetation. In addition, the corridor would appear wider to those traveling on I-10 with the addition of the Express Lanes.

Figure 3.1.7-39
Viewpoint #50, Alternative 3, Rail Yard Landscape Unit

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

Anticipated Viewer Response: For those traveling on the I-10 corridor, the change would be very noticeable. Depending on the viewer (whether local resident, frequent commuter, or tourist), the degree of sensitivity to the change would depend in part on the frequency of travel and familiarity with the corridor. Those more familiar with the corridor (e.g., local residents) would be very sensitive to the change; infrequent travelers or tourists would likely not be aware of it.

Resulting Visual Impact: The overall changes to the view are expected to be moderate. It is unlikely that there would be sufficient ROW for new plantings that might screen I-10 from the rail corridor. The resulting visual impact would be to maintain the overall existing moderately low visual quality of the view, with moderately low vividness, intactness, and unity.

Viewpoint #65 Analysis

Orientation: Figure 3.1.7-40 shows the location of Viewpoint #65. Figure 3.1.7-41 shows a photosimulation for Viewpoint #65 and depicts the pre- and post-construction views. The photograph looks east from the Rancho Avenue OC. The view is from the perspective of the pedestrian on the sidewalk looking into the corridor.

Figure 3.1.7-40
Location of Key Viewpoint #65

Existing Visual Character/ Quality: The existing eight lanes of freeway dominate this view, with the center barrier and the weeds growing under it providing a focal point to the view. Landscaping associated with the interchange provides a green counterpoint to the large areas of paving. The scale of the view tends toward the monumental given the number of lanes of I-10, but the plantings associated with the ramps help add to the diversity and harmoniousness of the view. The overall visual quality of the view is moderately low, with moderately low vividness, intactness, and unity.

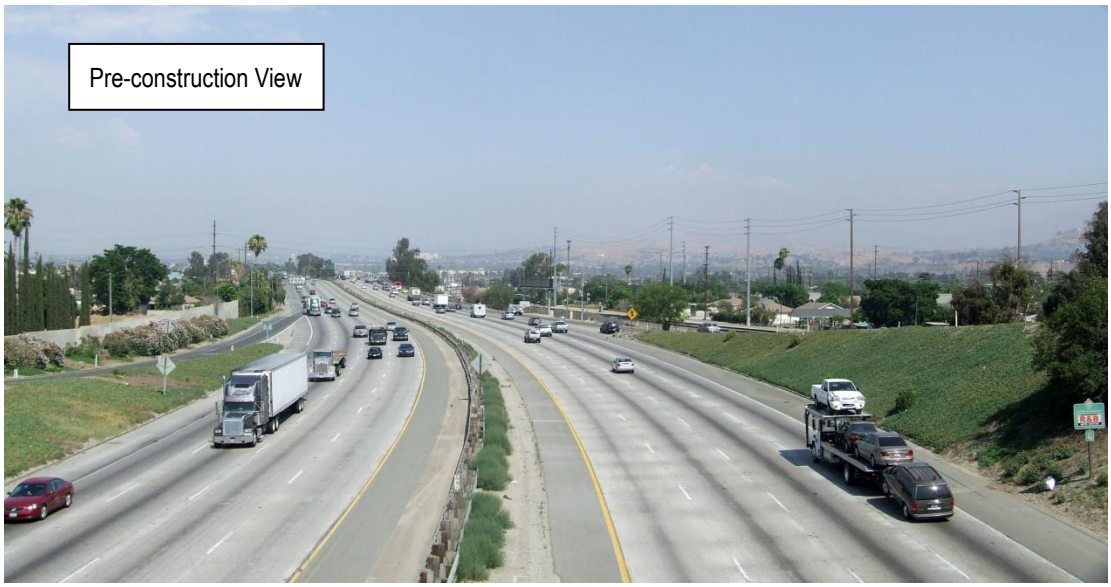

Figure 3.1.7-41
Viewpoint #65, Alternative 3, Rail Yard Landscape Unit

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

Proposed Project Features: For pedestrians on the bridge, the new fence that would be included as part of the improvements to the interchange would be prominent. Looking into the I-10 corridor, the four new Express Lanes and median shoulder associated with the widened paving of the corridor would be seen. The inclusion of the new lanes would push the outside edge of I-10 into the landscape areas along the ramps and would require retaining walls on each side of I-10 to address the existing slopes along the ramps, which would also be seen from this vantage point. These walls would be larger than those anticipated in Alternative 2.

Changes to Visual Character: In general, I-10 would appear wider to viewers on the bridge, and the new lanes and retaining walls would increase the area of hard surfaces in the view. The improvements to the corridor would, in effect, clean up much of the existing view, removing weeds from the median area and adding plantings to the ramps. The effect of this would be to increase the diversity of the view and provide better scale to I-10; however, the view is still into a freeway corridor and would be similar in appearance to the existing, equating to a low level of change.

Anticipated Viewer Response: From the perspective of the pedestrian, the viewer is likely to have a moderately low degree of sensitivity to the changes in the visual environment. Pedestrians, while much fewer in number than freeway travelers, have a much longer viewing period than a driver would over a similar distance due to the difference in speed between the two modes of transportation.

Resulting Visual Impact: The overall impact to the view is anticipated to be moderately low. The extra pavement width is somewhat compensated for by the addition of plantings in the interchange, and the removal of weeds and other distracting elements helps slightly increase the overall visual quality; however, the resulting impact to the visual environment is not expected to appreciably alter the existing visual quality for this view. The overall visual quality is expected to increase slightly to moderate, with moderate vividness, intactness, and unity.

Viewpoint #74 Analysis

Orientation: Figure 3.1.7-42 shows the location of Viewpoint #74. Figure 3.1.7-43 shows a photosimulation for Viewpoint #74 and depicts the pre- and post-construction views. The view is from the EB lanes of I-10 looking east near the Waterman Avenue exit within San Bernardino County area, near Loma Linda.

Figure 3.1.7-42
Location of Key Viewpoint #74

Existing Visual Character/Quality: The existing visual character of the view is dominated by the freeway paving and signage. The median olive trees and fan palm trees to the right provide a counterpoint to the hard surfaces of the highway paving. The plant material helps bring a sense of scale to the view and reduce the overall monumentality of the freeway paving. The overall visual quality of the view is moderate, with moderate vividness, intactness, and moderately low unity.

Proposed Project Features: The project would add two center Express Lanes on each side of I-10 and a concrete median barrier in this view. The widening would require some reconfiguration of the off-ramp to Waterman Avenue, necessitating removal of vegetation. The existing sign bridge in the mid-ground would have to be lengthened to accommodate the wider roadway as well. The existing olive trees in the median would be removed, although the plantings on the outside are expected to remain.

Changes to Visual Character: The biggest change in this view would be the addition of the Express Lanes associated with the corresponding increase in hard surfaces within the view and the removal of vegetation in the median that helps to screen the other half of I-10 from the viewer. In addition, the widening requires reconfiguration of the Waterman Avenue ramps, which equates to the removal of additional mature vegetation within the view. The result is a corridor that appears more open and much larger.

Figure 3.1.7-43
Viewpoint #74, Alternative 3, Commercial-Agricultural Landscape Unit

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

Anticipated Viewer Response: For those traveling on the I-10 corridor, the change would be very noticeable. The addition of two lanes of paving on each side of I-10, coupled with removal of the median trees, would be most notable. It is anticipated that the viewer sensitivity for this group would be moderate, as would their exposure.

Resulting Visual Impact: The overall resulting impact to the visual environment in this view is anticipated to be moderately high, with moderate vividness, and moderately low intactness and unity. Removal of the median plantings and the addition of two lanes on each side of I-10 create a much more monumental appearance to the freeway paving. In addition, removal of the mature plantings at Waterman Avenue further reduces the elements that would add scale and diversity to the view. New plantings, included as part of the work, would eventually bring back some of this, but given the limited space available, the plantings would likely not be to the size and scale of the existing.

Viewpoint #86 Analysis

Orientation: Figure 3.1.7-44 shows the location of Viewpoint #86. Figure 3.1.7-45 shows a photosimulation for Viewpoint #86 and depicts the pre- and post-construction views. The image is taken from the EB lanes of I-10, approaching the University Street interchange, looking east.

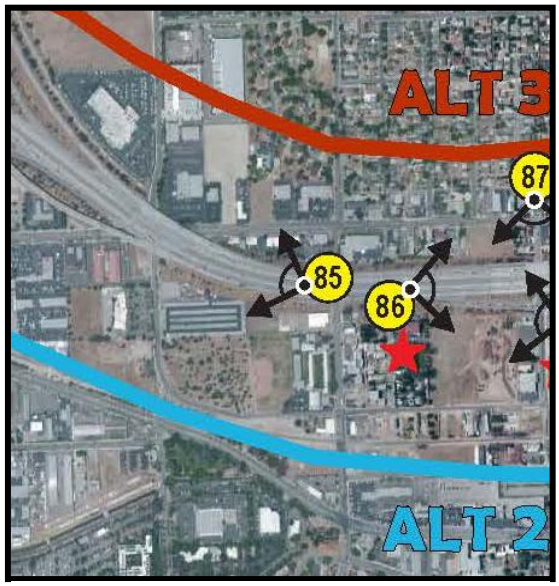

Figure 3.1.7-44
Location of Key Viewpoint #86

Existing Visual Character/Quality: The freeway paving is the dominant feature in this view. The mature plantings on either side of I-10 help soften the overall feel of the freeway; however, given its width, the freeway paving tends towards monumentality in the view and dominates the perceived landscape. The overall visual quality of the view is moderately low, with moderately low vividness and intactness, and moderate unity.

Proposed Project Features: The primary feature for the project would be the addition of the new lane with a full shoulder along the median. The existing median barrier would be replaced with a slightly taller barrier.

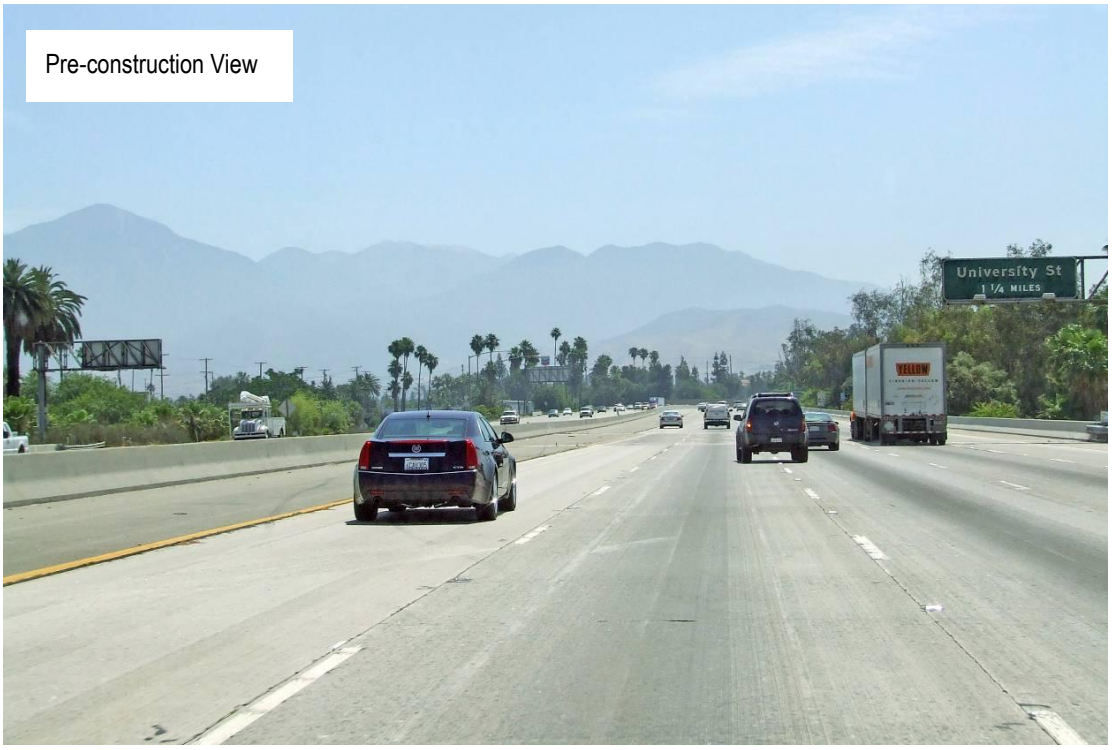

Figure 3.1.7-45

Viewpoint #86, Redlands Landscape Unit

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

Changes to Visual Character: The addition of one new Express Lane would add some paving into the view; however, the existing median shoulder is paved, so the addition of the lane does not appear to greatly alter the amount of paving in the view. Existing mature plantings along the outside edge of I-10 would likely remain.

Anticipated Viewer Response: Frequent travelers on I-10 would likely have the greatest sensitivity to changes within the corridor; however, within this view, the changes are not expected to be appreciable, so the overall sensitivity is expected to be moderate, as would the exposure.

Resulting Visual Impact: The resulting impact to the overall visual environment of the view is anticipated to be moderately low. The new visual quality would likely maintain the existing quality of this portion of the corridor. Vividness and intactness would remain at moderately low, while unity would remain at moderate.

Table 3.1.7-1 provides a summary of findings from the analysis for each key viewpoint for the anticipated change to the visual resource, the anticipated viewer response to that change, and the overall anticipated visual impact for each alternative.

Table 3.1.7-1 Summary of Anticipated Visual Impacts by Key Viewpoint and Alternative

Key Viewpoint	Anticipated Change to Visual Resource	Anticipated Viewer Response	Anticipated Visual Impact
Alternative 2 – HOV Lanes			
Key Viewpoint #34	High	Moderate	Moderately High
Key Viewpoint #40	Moderate	Moderate	Moderate
Key Viewpoint #43*	Moderate	Moderate	Moderate
Key Viewpoint #50	Low	Moderate	Moderately Low
Key Viewpoint #65	Low	Moderate	Moderately Low
Key Viewpoint #72*	Low	Moderate	Moderately Low
Key Viewpoint #74	Moderate	Moderate	Moderate
Key Viewpoint #86	Low	Moderate	Moderately Low
Alternative 3 – Express Lanes			
Key Viewpoint #14	Low	Moderate	Moderately Low
Key Viewpoint #15	Moderately Low	Moderate	Moderate
Key Viewpoint #18	Moderate	Moderate	Moderate
Key Viewpoint #21	Moderate	Moderate	Moderate

Table 3.1.7-1 Summary of Anticipated Visual Impacts by Key Viewpoint and Alternative

Key Viewpoint	Anticipated Change to Visual Resource	Anticipated Viewer Response	Anticipated Visual Impact
Key Viewpoint #34	Low	Moderate	Moderately Low
Key Viewpoint #40	Moderately Low	Moderate	Moderate
Key Viewpoint #50	Moderate	Moderate	Moderate
Key Viewpoint #65	Moderately Low	Moderate	Moderate
Key Viewpoint #74	Moderately High	Moderate	Moderately High
Key Viewpoint #86	Low	Moderate	Moderately Low

*The image and analysis results for these key viewpoints are the same for both build alternatives.

Temporary/Construction Impacts

No Build Alternative

Under the no-build conditions, there would be no improvements to the corridor or alterations to lane configurations; besides routine maintenance of the project corridor, there would be no actions that would impact the visual quality of the project corridor in the short term. Therefore, there would be no temporary impacts.

Build Alternatives

Temporary or short-term impacts are of relatively short duration (e.g., the visual presence of construction equipment or the time for establishment of new plants). For the I-10 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 in most areas because, as the replacement vegetation grows over the years, the overall impact would be expected to diminish. In general, it is anticipated that it would take 15 to 25 years for any replacement trees planted as part of the project to reach maturity, depending on the species selected. The replacement plants, as depicted in the key views, are shown at approximately 10 years post-replacement.

Graffiti is not expected to be an issue during construction of the build alternatives because all of the construction, staging, and equipment storage areas would be fenced. As a result, structures, walls, and other features in the fenced areas would be protected from graffiti during the construction period; therefore, construction of any

of the build alternatives is not expected to result in temporary impacts related to graffiti.

3.1.7.4 Avoidance, Minimization, and/or Mitigation Measures

To address the potential adverse visual impacts to the project area and to address anticipated community concerns over the change of scale of the highway corridor visually within the community, the following actions are required. With implementation of these measures, the visual impacts of this project would be reduced and would not result in a substantial change in overall visual quality for the area.

VA-1: For the application of aesthetics and landscape in the corridor, follow the guidelines from the Interstate 10 Corridor Master Plan, as developed by Caltrans[2], dated November 2011.

VA-2: Beginning with preliminary design and continuing through PS&E and construction, save and protect as much existing vegetation in the corridor as feasible, especially eucalyptus and other skyline trees.

VA-3: Survey exact locations for all existing trees and, in particular, the eucalyptus windrows/colonnades, and include in plan set.

VA-4: Protect the drip zone of isolated trees during construction with temporary fencing.

VA-5: Protect large infield areas of existing plantings to be preserved through the construction period with temporary fencing.

VA-6: Beginning with preliminary design and continuing through PS&E and construction, develop construction plans that apply aesthetic treatments, including color, textures, and patterns, to the soundwalls that follow the guidelines in the Interstate 10 Corridor Master Plan.

VA-7: As part of the project, include a redesign of the existing San Bernardino Gateway, soundwall at the county line.

VA-8: Include vine plantings on one or both faces of soundwalls wherever feasible (given Caltrans setback and maintenance requirements). If vines are only planted on one side of the wall, include vine portals in

[2] Interstate 10 Corridor Master Plan, San Bernardino County, Caltrans District 8, November 2011.

the design of the wall to accommodate vine access to both sides of the wall.

VA-9: Beginning with preliminary design and continuing through PS&E and construction, develop construction plans that apply aesthetic treatments to the retaining walls that follow the guidelines for color, patterns, and textures, as outlined in the Interstate 10 Corridor Master Plan.

VA-10: Beginning with preliminary design and continuing through PS&E and construction, develop construction plans that apply aesthetic treatments, including color, texture, and patterns, to the proposed bridges in the corridor that follow the guidelines in the Interstate 10 Corridor Master Plan.

VA-11: Design the aesthetics of the Euclid Avenue Bridge over I-10 that is consistent with the requirements of the local communities, including plantings on the bridge, decorative fencing, and replacement/ reconstruction of existing historically contributing elements.

VA-12: Include aesthetic treatment on concrete median barrier, including color, texture, and patterns, that are consistent with the Interstate 10 Corridor Master Plan.

VA-13: Design fencing to match the ornamental fencing shown in the Interstate 10 Corridor Master Plan for all pedestrian fencing on all overcrossings, pedestrian bridges, or other elements associated with pedestrian traffic.

VA-14: Beginning with preliminary design and continuing through PS&E and construction, landscape and revegetate disturbed areas to the greatest extent feasible, as directed by the Caltrans District Landscape Architect. SANBAG will facilitate coordination between various construction stages to ensure that planting is not completed until construction in that area is complete and no further disturbance will occur.

VA-15: Provide replacement plants at the rate determined by the Caltrans District Landscape Architect. At a minimum, use a replacement ratio

of 2:1, unless a higher ratio is required by the District Landscape Architect, to address the large number of removals that have occurred in the corridor.

VA-16: Include skyline trees in the planting palette to bring down the scale of the new freeway elements. Where feasible, re-establish the existing colonnades/windrows of eucalyptus.

VA-17: Focus plantings on drought-tolerant and native species of trees and shrubs to the extent feasible.

VA-18: Focus all replanting within the project ROW. Where insufficient space, locations, or water limits the plantings, give consideration to planting within the adjacent communities, beyond the ROW if other agencies commit to maintenance of these plantings.

VA-19: Plant trees to the maximum extent feasible, given space constraints, to provide screening of the facility and structures.

VA-20: Commence replanting the corridor prior to the end of the construction period.

VA-21: Install trees in a variety of sizes from 36-inch box, 24-inch box, and 15-gallon containers, with 24-inch box trees being the dominant size at installation.

VA-22: Install required Caltrans Maintenance access roads through the landscape so that these elements are integral to the overall design.

VA-23: Provide a permanent irrigation system to all plantings. All irrigation should follow the latest requirements for design and installation, including any requirements associated with drought, water restrictions, recycled water use, and water conservation as required by Caltrans.

VA-24: Use reclaimed/recycled water as sources for all irrigation systems, where feasible, including any recycled/reclaimed water supply within 250 feet of the project corridor.

VA-25: Include a 3-year plant and irrigation maintenance period as part of the construction period to provide a single source of maintenance through the establishment period.

VA-26: Beginning with preliminary design and continuing through PS&E and construction, use drainage and water quality elements, where required, that maximize the allowable landscape.

VA-27: Locate basins so that they would be at least 10 feet from the edge of the Caltrans plant setback to allow landscape screening to be installed.

VA-28: Design infiltration/detention basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. Shape these elements in an informal, curvilinear manner to the greatest extent possible.

VA-29: Incorporate slope rounding, variable gradients, and similar techniques to the surrounding topography of any basin slope to de-emphasize the edge. If a wall or hard feature is necessary, its design must appear integral to the overall design concept.

VA-30: 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.

VA-31: Design basins so that chain-link perimeter fencing is not required.

VA-32: Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings.

VA-33: Design rock slope protection to consist of aesthetically pleasing whole material with a variety of sizes.

VA-34: Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas, and design to appear natural to the greatest extent possible.

VA-35: Revegetate any side slopes of detention and/or stormwater basins, as well as any bioswales, with landscaping other than native seeding,

such as container planting. These plantings must be integral to the other replacement plantings in the corridor.

VA-36: To deter graffiti, include textures on walls and surfaces to a minimum depth of 1.25 inches and/or anti-graffiti coatings on all walls, barriers, and bridges. Where feasible, include vine plantings on walls to also deter graffiti.

VA-37: For all new or relocated light fixtures and other sources of glare, provide shielded fixtures that prevent light trespass onto adjacent properties.

VA-38: For portions of the freeway designated as a "Classified Landscaped Freeway" and where landscaping/trees will be removed, every effort will be made to keep this designation by creating areas for replacement landscaping.

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