I-80 Express Lanes Project

SOLANO COUNTY, CALIFORNIA
DISTRICT 04 – SOL – 80 – PM 10.4/30.2
EA 04-4G080/PROJECT ID 0412000332

Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact

Prepared by the State of California Department of Transportation
and Solano Transportation Authority

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 USC 327.

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November 2015

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GENERAL INFORMATION ABOUT THIS DOCUMENT

This is the Final Initial Study with Mitigated Negative Declaration(IS/MND)/Environmental Assessment with Finding of No Significant Impact (EA/FONSI) for the I-80 Express Lanes Project, located in Solano County, California. Caltrans is the lead agency for preparing the environmental document in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The document tells you why the project was proposed, alternatives considered, how the existing environment could be affected by the alternatives, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures. The Draft IS/EA was circulated for comments between July 20 and August 18, 2015. A public open forum hearing was held on August 4, 2015 at the Solano County Events Center.

This Final IS/EA is an update of the Draft IS/EA. Changes made to the Draft IS/EA in response to comments are identified in the text with a vertical line in the margin. All comments received during the 30-day circulation period are included in **Chapter 3.0 Comments and Coordination.** Responses are provided following each comment. No text in the IS/EA was revised in response to the comments.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Zachary Gifford, Associate Environmental Planner, 111 Grand Avenue, Office of Environmental Analysis MS-8B, Oakland, CA, 94612; (510) 286-5610; or use California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

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SCH#2015072037
DISTRICT 04–SOL–80–PM 10.4/30.2
EA 04-4G080/PROJECT ID 041200332

Construct an approximately 18-mile High Occupancy Vehicle/High Occupancy Toll (HOV/HOT or express lane) project on Interstate 80 (I-80) from west of Red Top Road to east of Interstate 505 (I-505), within Solano County.

Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation
And
Solano Transportation Authority

Cooperating Agencies: U.S. Anny Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Federal Highway Administration

Responsible Agencies: California Transportation Commission, North Coast Regional Water Quality Control Board, California Department of Fish and Wildlife, State Historic Preservation Office

12-1-15
Date of Approval

Bijan Sartipi
District Director
Department of Transportation, District 4
CEQA/NEPA Lead Agency

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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR THE

I-80 Express Lanes Project

The California Department of Transportation (Caltrans), in cooperation with Solano Transportation Authority (STA) and the Metropolitan Transportation Commission (MTC), has determined that the Build Alternative will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) and other available reports appended to the EA, which have been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. The EA provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA and appended reports.

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 USC 327.

12-1-15

Date

Bijan Sartipi
District Director
Department of Transportation, District 4
CEQA/NEPA Lead Agency

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Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans), in cooperation with the Solano Transportation Authority (STA) and the Metropolitan Transportation Commission (MTC), proposes to provide High Occupancy Vehicle/High Occupancy Toll lanes (HOV/HOT or express lanes) in both the westbound and eastbound direction of Interstate 80 (I-80) from west of Red Top Road to east of Interstate 505 (I-505), within Solano County, California. The I-80 Express Lanes Project (project) would construct approximately 18 miles of express lanes in the I-80 corridor through conversion of existing HOV lanes and highway widening for new express lanes. The project limit is approximately 20 miles because of the need to install express lanes signs and equipment 1 mile in advance of the actual express lane entrance. The general location of the proposed improvements extends along I-80 from post mile (PM) 10.4 to 30.2 and passing through the cities of Fairfield and Vacaville.

Determination

Caltrans has prepared an Initial Study for this project, and following public review, has determined from this study that the project would not have a significant effect on the environment for the following reasons:

The project would have no effect on land use, coastal zone, wild and scenic rivers, parks and recreational facilities, growth, community character, and energy.

The Build Alternative includes a number of avoidance and minimization measures that are considered part of the project design and apply to all of the proposed improvements under the Build Alternative (see relevant Avoidance, Minimization, and/or Mitigation Measures discussions within each section of **Chapter 2.0, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures**). These avoidance measures would be implemented prior to and during construction activities, and would be included as part of the special provisions of the construction bid package for the project. Implementation of the avoidance and minimization measures included in the project design would avoid significant impacts to the majority of resource topics (farmlands, community impacts, utilities/emergency services, traffic and transportation/pedestrian and bicycle facilities, visual/aesthetics, cultural resources, hydrology and floodplain, water quality and storm water runoff, geology/soils/seismic/topography, hazardous waste/materials, and air quality).

Significant impacts that would not be avoided and/or reduced through the implementation of the avoidance measures include potential significant impacts to paleontological resources; noise levels exceeding the noise abatement criteria thresholds; and the direct displacement of oak and riparian woodlands, jurisdictional water features, and habitats suitable for burrowing owl and California red-legged frog. Therefore, the following mitigation measures have been proposed:

Mitigation Measure PALEONTOLOGY-A (PAL-A): Monitoring and Mitigation Program
Mitigation Measure NOISE-A (NOI-A): Provide noise abatement
Mitigation Measures BIOLOGY-A (BIO-A) through BIO-F: Compensatory mitigation for potential impacts to oak woodland habitat, aquatic and wetland habitat, riparian woodland habitat, burrowing owl, and California red-legged frog

Implementation of Mitigation Measures PAL-A, NOI-A, and BIO-A through BIO-F, in combination with the avoidance and minimization measures, would reduce all significant impacts to a less than significant level.

Bijan Sartipi
District Director
Department of Transportation, District 4
CEQA/NEPA Lead Agency

12-1-15
Date

SUMMARY

INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Solano Transportation Authority (STA) and the Metropolitan Transportation Commission (MTC), proposes to provide High Occupancy Vehicle/High Occupancy Toll lanes (HOV/HOT or express lanes) in both westbound and eastbound directions of Interstate 80 (I-80) from west of Red Top Road to east of Interstate 505 (I-505), within Solano County, California. The I-80 Express Lanes Project (project) would construct approximately 18 miles of express lanes in the I-80 corridor through conversion of existing HOV lanes and highway widening for new express lanes. The project limit is approximately 20 miles because of the need to install express lanes signs and equipment 1 mile in advance of the actual express lane entrance. The general location of the proposed improvements extends along I-80 from post mile (PM) R10.4 to 30.2 and passing through the cities of Fairfield and Vacaville (**Figure S-1**).

The project may be constructed under a single construction contract or in phases depending on available funding. If phasing occurs, the first phase of the project (West Segment) would include the conversion of the existing HOV lane to a new express lane facility along I-80 from the Red Top Road interchange to the Air Base Parkway interchange, including the area around the I-80/I-680 interchange. In the West Segment, existing HOV lanes in both the eastbound and westbound directions would be restriped and repurposed into express lanes. The second phase (East Segment) would construct a new express lane in both the eastbound and westbound directions of I-80 from the Air Base Parkway interchange through the I-80/I-505 interchange. **Figure S-1** illustrates the limits of the two segments.

I-80 Express Lanes Project is currently funded by the Bay Area Toll Authority (BATA) with Regional Measure 2 funds. In 2009, the West Segment Project was identified in MTC's Transportation 2035 Plan (RTP ID # 230660). In 2013, the East Segment Project was added to MTC's Plan Bay Area 2040 (RTP ID# 240581). Later in 2013, MTC updated the Transportation Improvement Program (TIP) to combine the West Segment and East Segment Project now known as "I-80 Express Lanes – Fairfield & Vacaville Phase I & II" with a new RTP ID# 240581 and TIP ID# SOL 110001 under TIP Amendment 2013-16.

As part of the 2015 TIP update, MTC updated the I-80 Express Lanes Project to identify a full funding program of $ 236.8 Million for the remaining project phases (Final Design, Right of Way and Construction) with Long Range Plan (LRP) funds (future RM2, STIP and others) and Other Local funds under TIP Amendment 2015-00.

Caltrans is the lead agency for preparing the environmental document in compliance with the National Environmental Protection Act (NEPA) and the California Environmental Quality Act (CEQA).

OVERVIEW OF THE PROJECT LIMITS

The proposed project is located within a region that varies from urban to rural development patterns, with a diverse mixture of land uses that are visibly and functionally divided through the cities of Vacaville, Fairfield, and unincorporated Solano County. I-80 runs west-east through the study limits and serves both local and regional traffic in the area.

In the West Segment, from the southern project limit to the SR 12/I-80 interchange, there is a mix of commercial, open space, industrial, agricultural, and residential land uses. From the SR 12/I-80 interchange traveling to the northern limit of the West Segment, land uses consist primarily of residential, with some commercial and open space. From the beginning of the East Segment, to the city limits of Fairfield, land uses consist primarily of residential, with some commercial and agricultural development. Continuing to travel north through unincorporated Solano County, to the southern limits of the City of Vacaville, land uses consist of agricultural, open space, and commercial development. Traveling north, through the City of Vacaville to the northern extent of the East Segment, land uses consist of residential, commercial with some open space, and education/public/semi-public development.

Legend

- West Segment - Fundable first phase (convert HOV lane to express lane)
- East Segment - Future phase (construct new express lane)

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MILES

Project Location

Figure S-1

Source: Circlepoint, 2015

PROJECTS IN THE STUDY AREA

There are 70 planned developments within the land use study area (see **Table 2.1-1** in **Section 2.1.1, Land Use**). **Figures 2.4-1a and 2.4-1b** depict the locations of the other planned projects listed in **Table 2.1-1**. The predominant type of planned development in the study area is residential. Other development projects planned in the study area include several commercial and industrial land uses. The following planned and approved transportation improvements along local routes may be implemented by local agencies or under other projects:

- **The I-80/I-680/SR 12 Interchange Project, Initial Construction Package.** Realignment of westbound I-80 from east of the I-80/I-680 IC to SR 12 West connector, relocation of the Green Valley Road IC to the east and reconfiguration of the SR 12 West ramps and Green Valley Road on-ramp, occurring from 0.7 mile west on SR 12 West to SR 12 West/I-80 and on westbound I-80 from SR 12 West/I-80 to I-80/I-680.
- **Freeway Performance Initiative – I-80 Ramp Metering.** Installation of ramp metering equipment, traffic operating systems, metal beam guardrail, and sign structures, and widen ramp along I-80 in Solano County within the cities of Vallejo, Fairfield, and Vacaville from the Contra Costa County line to I-505.
- **Alamo Creek Bridge Widening Project.** Bridge widening and construction drainage on I-80 in Solano County, in and near the city of Vacaville.
- **Local Roadway Widening.** Local roadway widening at Peabody Road, Leisure Town Road, and Foxboro Parkway.
- **Roadway Extensions.** Roadway extensions at Railroad Avenue and Manuel Campos Parkway.
- **Capitol Corridor Station.** A new rail transit station is proposed at the Capitol Corridor Station.

PURPOSE AND NEED

PURPOSE

The purpose of the project is to provide an immediate benefit to the traveling public by maximizing the use of the existing freeway infrastructure and expanding capacity in a limited/constrained right-of-way (ROW) to move vehicles through the corridor efficiently. See **Section 1.3, Purpose and Need** for a more detailed description of the project need. The project would strive to meet the following objectives:

- Offer non-carpool eligible drivers a reliable travel time option;
- Improve public transit utilization by reducing public transit travel times in the corridor; and
- Increase vehicle and passenger throughput and decrease congestion by:
    - Better utilization of existing HOV lane capacity from Red Top Road to east of Air Base Parkway; and
    - Increasing capacity to meet existing and future travel demand from east of Air Base Parkway to I-505.

NEED

- **Capacity and Travel Demand**: Congestion currently exists in the general purpose lanes during peak periods on the I-80 corridor in Solano County and will continue to worsen as traffic demand increases. During the weekday morning and evening peak commute hours, slowing occurs on both eastbound and westbound I-80.
- **Underutilized HOV Lanes:** The existing HOV lanes between Red Top Road and Air Base Parkway are underutilized during peak commute periods. During 2011, passenger occupancy counts were performed. Utilization in the existing HOV lanes ranged from 12 to 24 percent during the morning peak hours and 18 to 34 percent during the evening peak hours.[1] These numbers indicate an unused capacity in the HOV lane where the potential exists to "sell" the available capacity to toll-paying drive-alone users. This underutilized capacity in the HOV lanes results in increased congestion and slower speeds in the general purpose lanes during peak commute periods. Available unused capacity in the existing HOV lane system needs to be utilized to increase vehicle throughput and decrease congestion.
- **Future Conditions:** Projections of future conditions on the I-80 corridor within the project limits indicate that the demand for travel is expected to far exceed the available capacity during peak periods, adversely affecting travel speeds and creating bottlenecks at constrained locations. It is projected that the number of vehicles using this segment of I-80 will increase by up to 35 percent by the year 2040. The forecasted conditions indicate a

[1] Utilization was based on HOV lane capacity of 1,650 vehicles per hour per lane (vphpl), which is the typical acceptable flow rate for an HOV lane.

level of congestion that is also expected to cause substantial increases in the amount of diversion of through traffic onto local streets, degrade air quality, reduce public transit service reliability, and increase the potential for congestion-related collisions.

- **Public Transit Utilization.** Fairfield and Suisun Transit, Rio Vista Delta Breeze, Vallejo Transit and Yolo Bus operate public bus systems within the project limits. In addition, Fairfield and Suisun Transit operates Solano Express regional routes, Americans with Disabilities Act paratransit service and reduced fare taxi program. Additionally, private transit services, such as recreational buses to the Lake Tahoe region and the University of California Intercampus Bus between Davis and Berkeley, must also travel in the general purpose lanes along the I-80 corridor between Fairfield and Vacaville. By having to travel in the general purpose lanes of the East Segment, transit vehicles do not provide a significant travel time savings over single-occupant vehicles in this portion of the corridor. This reduces the incentive for commuters and other travelers to utilize transit options along the I-80 corridor.

PROPOSED ACTION

This section describes the proposed action and the design alternatives that were developed to meet the previously identified project purpose and need, while avoiding or minimizing environmental impacts. The alternatives are the "Build Alternative" and the "No-Build Alternative".

The Preliminary Study Report was prepared and approved for this project in 2012. Two build alternatives were considered:

- Alternative A would implement continuous access express lanes with minimal improvements to the existing facility; and

- Alternative B would implement 12-foot express lanes with ingress and egress access locations, 4-foot buffer, and improvements to the existing facility to meet current design standards. Improvements to meet current design standards included 36-foot paved median, concrete median barrier, correction for existing nonstandard sight distances, new auxiliary lanes, modification/relocation of 25 roadway and creek bridges, and the modification and construction of soundwalls and retaining walls.

Alternative B was determined to be not viable because it required significant impacts to over 100 urban and rural parcels including displacement of persons/businesses and major relocations of both high and low risks facilities. The project cost was estimated at $1.4 billion in 2015 dollars which included $990 million for construction capital, $75 million for right of way capital and $335 million for capital outlay support.

Alternative A was carried forward as the current Build Alternative evaluated in this environmental document, and was ultimately chosen as the Preferred Alternative.

Other express lane access configurations were also evaluated for the Build Alternative. These access alternative configurations are discussed in detail in **Section 1.4.3, Alternatives Considered but Eliminated from Further Discussion.**

BUILD ALTERNATIVE

The Build Alternative proposes to construct express lanes in both westbound and eastbound directions of I-80 from west of Red Top Road to east of I-505, a distance of approximately 18 miles, through conversion of existing HOV lanes and highway widening for new express lanes. The project limit is approximately 20 miles because of the need to install express lanes signs and equipment 1 mile in advance of the actual express lane entrance. The Build Alternative would consist of the following primary improvements, discussed in detail in **Section 1.4.1, Alternatives**:

- Installation of static or dynamic signs, electronic tolling equipment, and toll collection
- Retrofit of existing California Highway Patrol (CHP) observation areas
- Mainline restriping and widening
- Installation of ancillary components such as electrical power and communication conduits and any Caltrans required traffic control devices.

West Segment – Fundable First Phase

The Build Alternative may be constructed under a single construction contract or in phases depending on available funding. If phasing occurs, the first phase of the project (West Segment) would include the conversion of existing HOV lanes into new express lanes along I-80 from Red Top Road to Air Base Parkway, including the area around the I-80/I-680 interchange. In the West Segment, existing HOV lanes in both the eastbound and westbound directions would be restriped and repurposed into express lanes. For the West Segment, additional work includes the extension of the existing auxiliary lane along eastbound I-80 between Beck Avenue on-ramp and Travis Boulevard off-ramp. This improvement would increase the weaving area between the auxiliary lane and general purpose lanes. The existing off-ramp would be modified into two separate off-ramps. This work would require pavement widening, re-striping, sign and lighting installation, and drainage system improvements.

East Segment – Future Phase

The future phase (East Segment) would construct new express lanes in both the eastbound and westbound directions of I-80, from the Air Base Parkway through the I-80/I-505 interchange. The new express lanes require new pavement; concrete barriers; retaining walls; bridge widening at Ulatis and Horse Creeks; median widening at Davis Street and Mason Street undercrossings; new tie-back retaining walls at the eastbound I-80 and northbound I-505 Connector and Cherry Glen overcrossing; drainage culvert extensions; parcel acquisition; and utility/temporary construction easements.

Appendix D includes detailed exhibits of the improvements that would be constructed under the Build Alternative. **Chapter 2.0, Affected Environmental Consequences, Avoidance, Minimization, and/or Mitigation Measures** of this environmental document evaluates the potential effects of the full Build Alternative, including the initial phase of construction. The environmental consequences and avoidance, minimization and/or mitigation measures specific to the West Segment are identified where appropriate.

CONSTRUCTION COST

The estimated construction cost of the proposed improvements, in 2014 dollars, for the Build Alternative is $166,600,000. Construction of the West Segment is $41, 700,000. The breakdown of the cost is provided in **Table S-1**.

Table S-1 Construction Cost Estimate Summary

	Full Build Alternative (West and East Segments)	West Segment (Fundable First Phase)
Construction	$107,500,000	$24,700,000
Right of Way	$1,500,000	$100,000
Tolling System Integration (design, installation, and maintenance)	$21,100,000	$9,100,000
Capital Outlay Support	$35,000,000	$7,200,000
Utility Service	$1,500,000	$600,000
Total Cost	**$166,600,000**	**$41,700,000**

Note: Cost estimates are in 2014 dollars.
Source: Draft Project Report, 2015

NO-BUILD (NO ACTION) ALTERNATIVE

Under the No-Build Alternative, none of the project features described above would be constructed. The freeway travel lanes along the I-80 corridor would remain as they currently exist. No bridge structures would be widened. Traffic volumes within the project corridor would continue to increase under the No-Build Alternative. Other planned and approved transportation improvements along local routes may be implemented by local agencies or under other projects. **Table S-2** lists the projects assumed to be completed prior to construction of the project. The No-Build includes the potential for these improvements to be implemented through design year 2040. The No-Build Alternative is considered the environmental baseline for comparing environmental impacts under the National Environmental Policy Act (NEPA).[2]

[2] Under the California Environmental Quality Act (CEQA), the baseline for environmental impact analysis consists of the existing conditions at the time the Notice of Preparation (NOP) is issued or at the time the environmental studies began. Near-term (2020) and long-term (2040) impacts are also considered under CEQA; similar to the No-Build baseline used for NEPA.

The No-Build Alternative would not achieve the project purpose of increasing the efficiency of the transportation system by adding express lanes on eastbound and westbound I-80 between Red Top Road and I-505 to accommodate current and future traffic demand. In addition, the increased traffic volumes without capacity improvements would worsen the traffic congestion and slow traffic flow on the highway and local roadway network, resulting in increased potential for traffic congestion-related collisions.

Table S-2 Planned Improvements to be Completed Prior to Project Construction

Project Name (EA No.)	Project Limits and Description	Status
I-80/I-680/SR 12 Interchange Project Phase 1, Initial Construction Package (EA 04-0A5344)	**Limits**: From 0.7 mile west on SR 12 West to SR 12 West/I-80 and on westbound I-80 from SR 12 West/I-80 to I-80/I-680. **Description**: Realignment of westbound I-80 from east of the I-80/I-680 IC to SR 12 West connector, relocation of the Green Valley Road IC to the east and reconfiguration of the SR 12 West ramps and Green Valley Road on-ramp. The westbound I-80 realignment to the north will provide for a wider median to accommodate the future I-680/I-80 HOV Lanes Connector (Package 6 of the I-80/I-680/SR 12 IC Project) and correct the nonstandard typical section on westbound I-80 between the relocated Green Valley Road IC and the SR 12 West.	Anticipated Construction Completion 2016
I-80 Ramp Metering (EA O4-153504)	**Limits**: Along I-80 in Solano County, within the cities of Vallejo, Fairfield and Vacaville; from the Contra Costa County Line to I-505. **Description**: Install ramp metering, traffic operating systems, metal beam guardrail, and sign structures, and widen ramp	Completed 2014
Bridge Widening (EA 04-0A0904)	**Limits**: On I-80 in Solano County, in and near Vacaville from 0.2 mile west of Alamo Creek Bridge to 0.2 mile east of Alamo Creek Bridge. **Description**: Widen bridge and construction drainage	Completed 2014

The largest planned improvement project within the project limits is the I-80/I-680/SR 12 Interchange (ICP) – Phase 1 Project, which will be constructed with seven individual construction packages. The project report for the preferred alternative and the corresponding Phase 1, Initial Construction Package for the ICP was approved in October 2012. The Phase 1 of the ICP will include numerous improvements to address existing and future traffic operations and congestion, including relocation of the Cordelia Westbound Truck Inspection Facility. Proposed improvements are intended to add freeway capacity, reduce cut through traffic on local roads, improve local access to and from the freeway, accommodate current and future truck volumes, improve safety and increase the use of HOV lanes and ridesharing. The existing highway geometry on I-80, within the limits of the West Segment, has been adjusted in the design of this I-80 Express Lanes Project to include proposed improvements from Phase 1 of the ICP.

JOINT CEQA/NEPA DOCUMENT

The proposed project is a joint project by the 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 CEQA and the NEPA. Caltrans is the lead agency under NEPA and 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 (USC) 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. The joint document prepared for this project is an IS/EA.

Following receipt of comments from the public reviewing agencies, this IS/EA was prepared. This IS/EA includes responses to comments received on the draft IS/EA and identifies the preferred alternative. Two comments on the project were received during the public review period and are included this IS/EA in **Chapter 3.0 Comments and Coordination.**

Caltrans has determined that the IS/EA adequately and accurately discusses the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. If the decision is made to approve the project, a Notice of Determination (NOD) will be published for compliance with CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) for compliance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

PROJECT IMPACTS

Table S-3 summarizes the adverse effects of the Build Alternative in comparison with the No-Build Alternative. The proposed avoidance, minimization, and/or mitigation measures to reduce the effects of the Build Alternative are also presented. This environmental document evaluates the potential effects of the full Build Alternative, including the initial phase of construction (West Segment). Where appropriate, the environmental consequences and avoidance, minimization and/or mitigation measures specific to the West Segment are identified. For a complete description of potential adverse effects and recommended measures, please refer to the specific sections within **Chapter 2.0, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures**.

Table S-3 Project Impacts

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Land Use				
Division of and established community	None expected	None expected	None expected	None
Consistency with State, Regional, and Local Plans and Programs	Low	High consistency	High consistency	None
Compatibility with habitat conservation plan	No Conflict	No Conflict	No Conflict	None
Located in a Coastal Zone	No	No	No	None
Located near Wild and Scenic Rivers	No	No	No	None
Parks and Recreation Facilities				
No Effect				
Growth				
Growth-inducing	No	Indirectly, but within planned and forecasted growth	Same as Build Alternative	None
Farmlands				
Farmland acquisition	None expected	Low (0.01 acres of Unique Farmland)	Same as Build Alternative	None
Williamson Act Property Acquisition	None expected	Low (0.01 acres of land under a Williamson Act contract)	Same as Build Alternative	**Measure FRM-1:** Comply with Government Code Section 51293(d); land surface disturbed for the relocation of utilities would be restored to its original conditions

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Community Impacts				
Community Character and Cohesion	None expected	None expected	None expected	None
Relocations and Real Property Acquisition	None expected	No relocations; Acquisition of portions (or slivers) of 27 parcels	No relocations; Acquisition of portions (or slivers) of 10 parcels	**Measure TRA-1**: a Transportation Management Plan (TMP) will be given one to two weeks in advance to emergency response services to address detours and roadway/street closures
Environmental Justice	None expected	None expected	Same as Build Alternative	None
Utilities/Emergency Services				
Utilities	None expected	Some relocations of existing gas and electric transmission lines	Same as Build Alternative	**Measure UTL-1:** Coordination and verification with the affected utility service providers
Emergency Services	None expected	Short-term operational effects to police, fire, and emergency service during construction	Same as Build Alternative	**Measure TRA-1:** Implement TMP with notifications of delays and/or detours during construction
Traffic and Transportation/Pedestrian and Bicycle Facilities				
Conflict with applicable plans, ordinances, policies, or programs	Yes	None	None	None
Increase traffic congestion	Yes	Will reduce traffic congestion	Same as Build Alternative	**Measure TRA-1**: Implement TMP with notifications of delays and/or detours during construction
Increase hazards as a result of a design feature	None expected	None	None	None
Visual/Aesthetics				
Adverse effect on scenic	None expected	None	None	None

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
views/damage scenic resources				
Degradation of existing visual character or quality	None expected	Potential visual quality lost	Same as Build Alternative	**Measures VIS-1 through VIS-5:** Roadway design would adhere to Caltrans final design requirements in cooperation with the Caltrans District Landscape Architect
Create a new source of light or glare	None expected	New nighttime lighting; temporary construction lighting	Same as Build Alternative	**Measure VIS-6:** Lighting would adhere to Caltrans Standard Specifications Implement construction light and glare screening measures
Cultural Resources				
Create an adverse change in the significance of a historical resource	None expected	No effect	No effect	None
Create an adverse change in the significance of an archaeological resource	None expected	Potential due to excavation and construction activities	None expected	**Measure CUL-1:** If unidentified cultural materials are unearthed during construction work shall be halted in that area. **Measure CUL-3:** An ESA Action Plan has been prepared to specify avoidance areas and areas requiring monitoring during construction to avoid all impacts to known archaeological resources in the East Segment **Measure CUL-4:** A Testing/Treatment Plan will be implemented to avoid impacts to potential archaeological resources in the East Segment.

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Disturbance to human remains	None expected	None expected	Same as Build Alternative	**Measure CUL-2:** If human remains discovered, activity will stop (State Health and Safety Code Section 7050.5). If the remains are thought to be Native American, the Native American Heritage Commission will be contacted (Public Resources Code Section 5097.98)
Hydrology and Floodplain				
Within a 100-year floodplain	Yes	Yes	Yes	**Measure HYDR-1:** Implement re-vegetation, storm water treatment, or other requirements as designated by the relevant permits
Expose people/structures to a significant risk of loss	None expected	Low risk; minimal increases in storm water runoff and no changes in the 100-year water surface elevations	Similar to Build Alternative; minimal increases in storm water runoff and no changes in the 100-year water surface elevations	None
Water Quality and Storm Water Runoff				
Result in substantial drainage pattern alteration	None expected	Modification/removal of existing drainage structures	Same as Build Alternative	**Measure WQ-1:** Comply with Caltrans National Pollutant Discharge Elimination System permit and Storm Water Management Plan
Violation of water quality standards	None expected	Potential due to excavation and construction activities	Same as Build Alternative	**Measure WQ-1:** Implement Storm Water Pollution Prevention Plan
Change to groundwater supply or groundwater recharge	None expected	None Expected	Same as Build Alternative	None

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Substantially degrade water quality	None expected	Potential minor construction and operational effects	Same as Build Alternative	**Measure WQ-2 and WQ-3:** Implement Design Pollution Prevention and Treatment Best Management Practices
Geology/Soils/Seismic/Topography				
Expected likelihood of seismic related issues, including ground shaking and liquefaction	High potential for ground shaking, liquefaction potential varies	Same as No-Build Alternative	Same as No-Build Alternative	**Measure GEO-1:** Implement Caltrans' seismic design standards, and preparation of geotechnical design reports
Expose people or structures to potential adverse effects	None expected	Worker safety	Same as Build Alternative	**Measure GEO-2:** Comply with Occupational Safety and Health Act Section 5(a)(1)
Mineral Resources	None expected	None expected	None expected	None
Paleontology				
Destruction of paleontological resources (i.e., fossil remains and sites) as a result of ground disturbance	None expected	Potential due to excavation and construction activities in previously undisturbed fossiliferous geologic formations	Same as Build Alternative	**Mitigation Measure PAL-A:** Preparation and implementation of a Caltrans-approved paleontological monitoring and mitigation program.
Hazardous Waste/Materials				
Create a hazard to the environment	None expected	None expected, but potential due to excavation and construction activities	Same as Build Alternative	**Measures HAZ-1** through **HAZ-5**: Additional subsurface sampling and proper management of soil/groundwater contaminants; Site Safety Plan; Lead Compliance Plan Follow regulations requiring abatement of asbestos-containing materials and lead-based paint.

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Create a hazard to the public	None expected	None expected	Same as Build Alternative	**Measures HAZ-1** through **HAZ-5**: Additional subsurface sampling and proper management of soil/groundwater contaminants; Site Safety Plan; Lead Compliance Plan Follow regulations requiring abatement of asbestos-containing materials and lead-based paint
Be located on a site which is included on a list of hazardous materials sites, and, as a result, would create a hazard to the public or environment	Same as Build Alternative	Varies throughout project limits, sites on several lists	Same as Build Alternative	**Measures HAZ-1** through **HAZ-5**: Additional subsurface sampling and proper management of soil/groundwater contaminants; Site Safety Plan; Lead Compliance Plan Follow regulations requiring abatement of asbestos-containing materials and lead-based paint
Air Quality				
Operational Emissions	Greater than Build Alternative	Regional and project-level conformity achieved, No considerable net increase of any criteria pollutant	Same as Build Alternative	None

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Emissions from construction equipment	Unknown	Temporary increases in daily maximum construction emissions	Same as Build Alternative	**Measures AIR-1 though AIR-3:** Implement Caltrans Standard Specifications and control measures for construction emissions
Noise				
A substantial increase in permanent noise levels	None expected	Potential permanent noise level increases ranging from 0 to 2 dBA (varies throughout project limits)	Same as Build Alternative	**Mitigation Measure NOI-A:** Potential noise abatement measures
A substantial increase in temporary noise levels	None	Potential due to construction activities	Same as Build Alternative	**Measure NOI-1:** Compliance with Caltrans Standard Specifications for construction equipment; restricted construction hours
Energy				
No Effect				
Biological Resources				
Effects to habitat or sensitive natural communities	None	Potential effects to oak woodland habitat (1.35 acres) during and post construction activities	Same as Build Alternative	**Mitigation Measures BIO-A and BIO-B**: Compensatory mitigation for oak woodlands and Oak Woodland Habitat Mitigation & Monitoring Plan

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Effects to wetlands and other waters	None	Potential impacts (1.41 acres) and indirect water quality effects to wetlands and other waters.	Potential impacts (0.33 acres) and indirect water quality effects to wetlands and other waters.	**Measures WQ-1 through WQ-3:** Temporary and permanent best management practices to protect water quality **Mitigation Measure BIO-C**: Compensatory Mitigation for Jurisdictional Water Features
Effects to sensitive or special status species	None	Direct impacts to habitat types with the potential to support chinook salmon, Western burrowing owl, Western pond turtle, American badger, dusky-footed woodrat, migratory birds, and bat species	Similar to Build Alternative	**Measures WQ-1 through WQ-3:**See above **Measures BIO-1 through BIO-32 and BIO-E:** Fencing environmental sensitive areas (ESAs), work restriction in aquatic habitat, worker awareness training, cease work orders in the event of special-status species presence, pre-construction surveys for special-status species, seasonal work restrictions, prohibiting the use of insecticides, herbicides, fertilizers, or other chemicals near special-status plants, dust control measures, qualified biological monitors, complying with the Executive Order on Invasive Species (EO 13112), complying with Biological Opinion, compensatory mitigation for burrowing owl.

Environmental Topic	No-Build Alternative	Build Alternative (West and East Segments)	West Segment (Phase 1)	Avoidance, Minimization, and/or Mitigation Measures
Effects to threatened and endangered species	None	Potential effects to the Valley elderberry longhorn beetle, California red-legged frog, Swainson's hawk	Similar to Build Alternative	**Measures WQ-1 through WQ-3**: See above **Measures BIO-1 through BIO-32**: See above **Measures BIO-1 through BIO-3 and BIO-29:** Fencing environmental sensitive areas (ESAs), work restriction in aquatic habitat, worker awareness training, pre-construction nesting surveys **Mitigation Measure BIO-F:** Compensatory mitigation for impacts to California red-legged frog

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 Caltrans determine the necessary scope of environmental documentation, the level of analysis required, potential impacts, and mitigation measures as a result of project implementation, and related environmental requirements. Agency consultation for the proposed project has been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings and interagency coordination meetings. **Chapter 3.0, Comments and Coordination**, summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

In addition to the PDT meetings, there are several other public agencies involved in environmental clearance and permitting of the Build Alternative. These agencies include the U.S. Army Corps of Engineer (USACE), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), State Historic Preservation Officer (SHPO), and the Metropolitan Transportation Commission (MTC) Air Quality Conformity Task Force/Federal Highway Administration (FHWA). See **Section 3.1.1, Consultation and Coordination with Public Agencies**, for a complete discussion of the agency consultation efforts completed and/or planned for the Build Alternative.

Additionally, a public open forum hearing was held from 6:00 pm to 8:00 pm on August 4, 2015 during the 30-day review period of the draft IS/ EA. The intent of the public hearing was to solicit comments and receive input from the public and agencies on the environmental analyses and conclusions presented in the draft IS/EA, including the noise study report. The public open forum hearing was held in Conference Room B of the Solano County Events Center at 601 Texas Street, Fairfield, California. The hearing utilized an open forum format, and six members of the public attended. One comment was submitted in writing during the hearing. Comments were taken into consideration during preparation of this final IS/EA document. Public participation is further described in **Chapter 3.0 Comments and Coordination**.

NECESSARY PERMITS AND APPROVALS

Table S-4 identifies the permits/approvals that would be required for project construction.

Table S-4 Permits and Approvals

Agency	Permit/Approval	Status
United States Army Corps of Engineers	Section 404 Permit – Nationwide	Issued during the Final Design Phase
United States Fish and Wildlife Service (USFWS)	Biological Opinion/ Concurrence with "no effect" determination	Biological Opinion issued August 17, 2015

Agency	Permit/Approval	Status
National Marine Fisheries Service (NMFS)	Concurrence with "no effect" determination	Concurred that project is covered under Category 3 of the Programmatic Biological Opinion on May 26, 2015
California Department of Fish and Game	1602 Agreement	Issued during the Final Design Phase
State Water Resources Control Board	NPDES Permit	Statewide general permit adopted September 19, 2012; effective July 1, 2013
Regional Water Quality Control Board	Section 401 Certification	Issued during the Final Design Phase
Metropolitan Transportation Commission (MTC) Air Quality Conformity Task Force/ Federal Highway Administration (FHWA)	Regional Air Quality Conformity	MTC Determination September 24, 2014 FHWA Determination August 12, 2013
	Project-Level Air Quality Conformity	MTC Determination September 25, 2012/ FHWA Determination September 22, 2015
State Historic Preservation Officer (SHPO)	Concurrence on Eligibility Determinations/Finding of No Adverse Effect with Standard Conditions – Environmentally Sensitive Area (ESA)	Concurrence Requested January, 2015 Concurrence Received July 2, 2015

Source: Circlepoint, 2014

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LIST OF ACRONYMS

AADT	average annual daily traffic
AB 32	Assembly Bill 32
AB 1493	Assembly Bill 1493
ABAG	Association of Bay Area Governments
ACM	asbestos containing material
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
ADT	average daily trips
APCD	Air Pollution Control District
APE	area of potential effect
APN	assessor parcel number
ARB	California Air Resources Board
ARS	acceleration response spectrum
ASR	Archaeological Survey Report
BAAQMD	Bay Area Air Quality Management District
BMPs	Best Management Practices
BSA	biological study area
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CCR	California Code of Regulations
CCTV	closed circuit television
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CIA	Community Impact Assessment
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRHR	California Registry of Historical Resources
CRLF	California red-legged frog
CWA	Clean Water Act
CO	carbon monoxide

CO_2	carbon dioxide
CO-CAT	Costal Ocean Climate Action Team
CSA	construction staging area
CTC	California Transportation Commission
CTP	Solano Comprehensive Transportation Plan
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DBH	diameter at breast height
DI	De-Ionized
DMV	Department of Motor Vehicles
DPR	draft project report
DPS	distinct population segment
DSA	Disturbed Soil Area
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EOS	Edge of Shoulder
ESA	environmentally sensitive area
ESL	Environmental Screening Limits
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FSTIP	Federal Statewide Transportation Improvement Program
FTA	Federal Transit Administration
FY	fiscal year
GHGs	greenhouse gases
H_2S	Hydrogen Sulfide
HCP	Habitat Conservation Plan
HFC-134a	s, s, s, 2 –tetrafluoroethane
HFC-152a	difluoroethane
HFCs	hydrofluorocarbons
HFC-23	fluoroform
HMMP	Habitat Mitigation and Monitoring Plan
HOT	High Occupancy Toll
HOV	high occupancy vehicle

HPSR	Historic Property Survey Report
HRER	Historic Resources Evaluation Report
I-80	Interstate 80
I-505	Interstate 505
I-680	Interstate 680
ICP	I-80/I-680/SR 12 Interchange Project
IGR	Intergovernmental Review
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ISA	Initial site assessment
ITS	Intelligent Transportation System
Leq	The average A-weighted noise level during the measurement period
L_{max}	The maximum A-weighted noise level during the measurement period
LEDPA	least environmentally damaging practicable alternative
LOS	Levels of Service
LPR	license plate recognition
LT	long-term
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
Mmax	Maximum Credible Earthquake Magnitude
MLD	Most Likely Descendent
MMI	Modified Mercalli Intensity Scale
MOE	measure of effectiveness
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MPP	Mitigation Monitoring Plan
MRZ	Mineral resource zone
MS4s	Municipal Separate Storm Sewer Systems
MSAT	Mobile Source Air Toxics
MSL	mean sea level
MTC	Metropolitan Transportation Commission
MVDS	magnetometer vehicle detector station
MVP	maintenance vehicles pullout
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NADR	Noise Abatement Decision Report
NAHC	Native American Historic Commission
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act

NHTSA	National Highway Traffic Safety Administration
NO_x	nitrogren oxides
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
NOD	Notice of Determination
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act
OSPA	open space planning area
OSR	open space recreation
OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement
Pb	lead
PER	Paleontological Evaluation Report
PDT	Project Development Team
PF	public facility
PFCs	perfluorocarbons
PGA	peak ground acceleration
PG&E	Pacific Gas & Electric
PGR	Preliminary Geologic Report
PID	Project Initiation Document
PIR	Paleontological Identification Report
PM	particulate matter
PM	post mile
PMP	Paleontological Mitigation Plan
PMR	Paleontological Mitigation Report
POAQC	projects of air quality concern
PQS	Professionally Qualified Staff
PRC	Public Resources Code
PSR	project study report
PSS	Paleontological Stewardship Summary
PTZ	pan tilt zoom
R	receptors
RAP	Relocation Assistance Program
Resources Agency	California Natural Resources Agency

ROG	reactive organic gases
ROW	right-of-way
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
RWQCB GT	Regional Water Quality Control Board Geotracker
RCRA	Resource Conservation and Recovery Act of 1976
SCS	Sustainable Communities Strategy
SDC	Seismic Design Criteria
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SID	Solano Irrigation District
SIP	State Implementation Plan
SMP	Soil Management Plan
SO_2	sulfur dioxide
So_x	sulfur oxides
SR	state route
ST	short-term
STA	Solano Transportation Authority
STLC	Solubility Threshold Concentration Limit
SVOCs	semi-volatile organic compounds
SWDR	Storm Water Data Report
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis Systems
TCE	temporary construction easement
TDM	Transportation Demand Management
TIP	Transportation Improvement Plan
TMDL	Total Maximum Daily Loads
TMP	Traffic Management Plan
TOAR	Traffic Operation Analysis Report
TOPD	Traffic Operations Policy Directive
TOS	traffic operating system
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TSM	Transportation Management System
TTLC	Total Threshold Limit Concentrations
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency

USACE	Unites States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	Unites States Geological Survey
UST	Underground Storage Tank
VMT	vehicle miles traveled
VOCs	volatile organic compounds
VTMS	variable toll message sign
WDRs	Waste Discharge Requirements
WEAT	Worker environmental awareness training
WET	Waste Extraction Testing
WPCP	Water Pollution Control Plan
WWTP	wastewater treatment plant
YSAQMD	Yolo-Solano Air Quality Management District

1.0 PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Solano Transportation Authority (STA) and the Metropolitan Transportation Commission (MTC), propose to provide High Occupancy Vehicle/High Occupancy Toll lanes (HOV/ express lanes) in both the westbound and eastbound direction of Interstate 80 (I-80) from west of Red Top Road to east of Interstate 505 (I-505), within Solano County, California. The I-80 Express Lanes Project (project) would construct approximately 18 miles of express lanes in the I-80 corridor through conversion of existing HOV lanes and highway widening for new express lanes. The project limit is approximately 20 miles because of the need to install express lanes signs and equipment 1 mile in advance of the actual express lane entrance. **Figure 1-1** shows the general location of the proposed improvements extending along I-80 from post mile (PM) R10.4 to 30.2 and passing through the cities of Fairfield and Vacaville.

The project may be constructed under a single construction contract or in phases depending on available funding. If phasing occurs, the first phase of the project (West Segment) would include the conversion of the existing HOV lane to a new express lane facility along I-80 from the Red Top Road interchange to the Air Base Parkway interchange, including the area around the I-80/I-680 interchange. In the West Segment, existing HOV lanes in both the eastbound and westbound direction would be restriped and repurposed into express lanes. The second phase (East Segment) would construct a new express lane in both the eastbound and westbound directions of I-80 from the Air Base Parkway interchange through the I-80/I-505 interchange. **Figure 1-1** illustrates the limits of the two segments, and **Appendix D** shows the complete layout of both segments of the projects, including proposed improvements.

I-80 is a regional east-west corridor that connects San Francisco and Sacramento, passing through the counties of Contra Costa, Solano, and Yolo. I-80 is heavily-traveled by commuters living in Solano County, traffic to and from Sacramento, recreational travelers on weekends, and interstate travel including the movement of freight and goods.

Caltrans is the lead agency for preparing the environmental document in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1.2 STATE/REGIONAL/LOCAL PLANNING

In early 2006, MTC began study efforts to determine the feasibility of a regional express lane network in the San Francisco Bay Area. The study examined the institutional, financial, and technical merits of implementing an express lane network, including cost and revenue estimates, as

well as design approaches. The corridor analyses found that express lanes over the majority of the identified network were feasible if some flexibility was provided in the design approach for areas with significant physical, environmental, or financial challenges.

In 2009, the MTC adopted the Regional Transportation Plan (RTP), Transportation 2035 - Change in Motion for the San Francisco Bay Area. The RTP sets forth the agency's vision of "an integrated, market-based pricing system for the region's carpool lanes (via a regional express lane network)" to help manage the demand on mature transportation systems and, as a source of revenue, to fund infrastructure improvements. The MTC 2009 RTP identifies I-80 as a priority corridor and includes the West Segment portion of the project as part of the larger MTC Phase 1 Project.

The project is consistent with the MTC Transportation 2035 Plan for the San Francisco Bay Area, and is an element of MTC's 533-mile "backbone" network for express lanes in the San Francisco Bay Area, as described in MTC's Express Lane Backbone Network PSR (RTP ID 240581 and 230660).

The project is included in the MTC's 2013 Transportation Improvement Program (TIP) as project number SOL110001.[1] MTC approved the financially constrained TIP through Amendment No. 2013-16 on May 28, 2014. The Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) approved and incorporated the TIP in to the Federal Statewide Transportation Improvement Program (FSTIP) on June 12, 2014.

1.3 PURPOSE AND NEED

1.3.1 PURPOSE

The purpose of the project is to provide an immediate benefit to the traveling public by maximizing the use of the existing freeway infrastructure and expanding capacity in a limited/constrained right-of-way (ROW) to move vehicles through the corridor efficiently. The project would strive to meet the following objectives:

- Offer non-carpool eligible drivers a reliable travel time option;
- Improve public transit utilization by reducing public transit travel times in the corridor; and
- Increase vehicle and passenger throughput and decrease congestion through:
  - Better utilization of existing HOV lane capacity from Red Top Road to east of Air Base Parkway; and
  - Increasing capacity to meet existing and future travel demand from east of Air Base Parkway to I-505.

Legend

- West Segment - Fundable first phase (convert HOV lane to express lane)
- East Segment - Future phase (construct new express lane)

N

0 .5 1 2
MILES

Project Location

Figure 1-1

Source: Circlepoint, 2015

1.3.2 NEED

There are a number of existing deficiencies on I-80 that hinder the efficient movement of traffic. These deficiencies form the basis for the need for the project and are categorized below.

CAPACITY AND TRANSPORTATION DEMAND

Existing Capacity

During the weekday morning and evening peak commute hours, slowing occurs on both eastbound and westbound I-80. Factors that contribute to the slowing of I-80 traffic between the I-680 Interchange and the State Route 12 (SR 12) East (to Rio Vista) Interchange include closely spaced ramps, high vehicular volumes merging and diverging from the general purpose travel lanes, and truck movements to and from the Cordelia Truck Scales. Factors that contribute to slowing of traffic between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road include high traffic volumes associated with popular destinations such as Travis Air Force Base and retail areas within the Solano Mall; and the curvature and roadway grades near Lagoon Valley Road/Cherry Glen Road. The slowing of westbound I-80 traffic between the Jameson Canyon Road/SR 12 West Interchange and Red Top Road is also exasperated by the lane drop from five lanes to four lanes in this location.

Underutilized HOV Lanes

The existing HOV lanes between Red Top Road and Air Base Parkway are underutilized during peak commute periods. During 2011, passenger occupancy counts were performed. Utilization in the existing HOV lanes ranged from 12 to 24 percent during the morning peak hours and 18 to 34 percent during the evening peak hours.[2] This leaves 66 to 88 percent remaining available capacity that is not being utilized. These numbers indicate an unused capacity in the HOV lane where the potential exists to "sell" the available capacity to toll-paying drive-alone users. This underutilized capacity in the HOV lanes results in increased congestion and slower speeds in the general purpose lanes during peak commute periods. Available unused capacity in the existing HOV lane system needs to be utilized to increase vehicle throughput and decrease congestion.

Future No Build Conditions

Projections of future conditions on the I-80 corridor within the project limits indicate that the demand for travel is expected to be at capacity during peak periods, adversely affecting travel speeds and creating bottlenecks at constrained locations. It is projected that the number of vehicles using this segment of I-80 will increase by up to 35 percent by the year 2040. The forecasted conditions indicate a level of congestion that is also expected to cause minor increases in the amount of diversion of through traffic onto local streets, degrade air quality, reduce public transit service reliability, and increase the potential for congestion-related collisions.

[2] Utilization was based on HOV lane capacity of 1,650 vehicles per hour per lane (vphpl), which is the typical acceptable flow rate for an HOV lane.

Level of Service (LOS) is a measure of traffic conditions and the perception of such conditions by motorists. There are six LOS ratings, ranging from LOS A (free traffic flow with low volumes and high speeds, resulting in low vehicle densities) to LOS F (traffic volumes exceeding the capacity of the infrastructure, resulting in forced flow operations, slow speeds, and high vehicle densities). LOS E or F is typically considered unacceptable by Caltrans, and indicates a need for improvement.

Currently slowing occurs on both eastbound and westbound I-80 during weekday morning and evening peak periods, due to factors such as closely spaced ramps, high vehicular volumes merging and diverging, truck movements to and from the Cordelia Truck Scales, and roadway grades and curvature. Areas of slowing include I-80 between the I-680 Interchange and the SR 12 East (to Rio Vista) Interchange, I-80 between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road, and I-80 between the Jameson Canyon Road/SR 12 West Interchange and Red Top Road. Traffic conditions will continue to worsen in both the westbound and eastbound direction of I-80 in the near term (2020) and long-term (2040) in certain segments within the project corridor.

The following locations will operate at LOS D on westbound I-80 during the morning peak period (2020):

- I-80 between Mason Street and Davis Street
- I-80 between Davis Street and Alamo Drive
- I-80 between Alamo Drive and Cherry Glen Road
- I-80 between Cherry Glen Road and Pena Adobe Road/Rivera Road/Pleasant Valley Road
- I-80 between Pena Adobe Road/Rivera Road/Pleasant Valley Road and Lagoon Valley Road/Cherry Glen Road
- I-80 between Lagoon Valley Road/Cherry Glen Road and Manuel Campos Parkway/North Texas Street
- I-80 between Manuel Campos Parkway/North Texas Street and Air Base Parkway/Waterman Boulevard
- I-80 between Air Base Parkway/Waterman Boulevard and Travis Boulevard
- I-80 between West Texas Street/Rockville Road and Abernathy Road
- I-80 between Abernathy Road and SR 12 East
- I-80 between SR 12 East and truck scale

I-80 between the truck scale and Suisun Valley Road/Pittman Road will decrease to LOS E.

Near-term (2020) traffic conditions would operate at LOS D at the following locations on westbound I-80 during the PM peak hour:

- I-80 between Mason Street and Davis Street
- I-80 between Cherry Glen Road and Pena Adobe Road/Rivera Road/Pleasant Valley
- I-80 between Truck Scale and Suisun Valley Road/Pittman Road

Generally, all segments of westbound I-80 operate at a LOS D or better except for I-80 between the truck scale and Suisun Valley Road/Pittman Road which operates at a LOS E. This segment experiences congestion and queuing because of some merging issues experienced by trucks trying to merge from the westbound truck scale on-ramp.

LOS at the following locations will operate at LOS D on eastbound I-80 during the evening peak period in year 2020:

- I-80 between SR-12 West and I-680
- I-80 between I-680 and Suisun Valley Road/Pittman Road
- I-80 between Suisun Valley Road/Pittman Road and Truck Scales
- I-80 between SR-12 East and Abernathy Road
- I-80 between Abernathy Road and West Texas Street
- I-80 between West Texas Street and Beck Avenue
- I-80 between Beck Avenue and Travis Boulevard
- I-80 between Travis Boulevard and Air Base Parkway/Waterman Boulevard
- I-80 between Air Base Parkway/Waterman Boulevard and Manuel Campos Parkway/North Texas Street
- I-80 between Manuel Campos Parkway /North Texas Street and Lagoon Valley Road/Cherry Glen Road
- I-80 between Lagoon Valley Road/Cherry Glen Road and Pena Adobe Road/Rivera Road/Cherry Glen Road
- I-80 between Pena Adobe Road/Rivera Road/Cherry Glen Road and Alamo Drive
- I-80 between Alamo Drive and Davis Street
- I-80 between Davis Street and Peabody Road
- I-80 between Peabody Road and Monte Vista Avenue/Allison Drive/Nut Tree Parkway

Future traffic conditions will worsen in the westbound direction of I-80 in the long term (2040) in certain segments within the project corridor, specifically in the morning peak hour. The LOS at the following locations will operate at LOS D or LOS E:

- I-80 between I-505 and E. Monte Vista Avenue (LOS D)
- I-80 between E. Monte Vista Avenue and Mason Street (LOS D)
- I-80 between Mason Street and Davis Street (LOS E)
- I-80 between Davis Street and Alamo Drive (LOS E)
- I-80 between Alamo Drive and Cherry Glen Road (LOS E)
- I-80 between Cherry Glen Road and Pena Adobe Road/Rivera Road/Pleasant Valley Road (LOS D)
- I-80 between Pena Adobe Road/Rivera Road/Pleasant Valley Road and Lagoon Valley Road/Cherry Glen Road (LOS D)
- I-80 between Lagoon Valley Road/Cherry Glen Road and Manuel Campos Parkway/North Texas Street (LOS D)
- I-80 between Manuel Campos Parkway/North Texas Street and Air Base Parkway/Waterman Boulevard (LOS D)
- I-80 between Air Base Parkway/Waterman Boulevard and Travis Boulevard (LOS D)
- I-80 between Travis Boulevard and West Texas Street/Rockville Road (LOS D)
- I-80 between West Texas Street/Rockville Road and Abernathy Road (LOS E)
- I-80 between Abernathy Road and SR 12 East (LOS D)
- I-80 between SR 12 East and Truck Scale (LOS E)
- I-80 between Truck Scale and Suisun Valley Road/Pittman Road (LOS E)
- I-80 between Suisun Valley Road/Pittman Road and Green Valley (LOS D)
- I-80 between Red Top Road and American Canyon Road (LOS D)

Long-term (2040) traffic conditions would operate at LOS D or LOS E on westbound I-80 at the following locations during the PM peak hours:

- I-80 between Leisure Town Road and I-505 (LOS D)
- I-80 between I-505 and E. Monte Vista Avenue (LOS D)
- I-80 between E. Monte Vista Avenue and Mason Street (LOS D)

- I-80 between Mason Street and Davis Street (LOS E)
- I-80 between Davis Street and Alamo Drive (LOS E)
- I-80 between Alamo Drive and Cherry Glen Road (LOS E)
- I-80 between Cherry Glen Road and Pena Adobe Road/Rivera Road/Pleasant Valley (LOS D)
- I-80 between Pena Adobe Road/Rivera Road/Pleasant Valley and Lagoon Valley Road/Cherry Glen Road (LOS D)
- I-80 between Lagoon Valley Road/Cherry Glen Road and Manual Campos Parkway/N. Texas Street (LOS D)
- I-80 between Manuel Campos Parkway/N. Texas Street and Air Base Parkway/Waterman Boulevard (LOS D)
- I-80 between Air Base Parkway/Waterman Boulevard and Travis Boulevard (LOS D)
- I-80 between W Texas Street/Rockville Road and Abernathy Road (LOS D)
- I-80 between Abernathy Road and SR-12 East (LOS D)
- I-80 between SR 12 East and Truck Scale (LOS D)
- I-80 between Truck Scale and Suisun Valley Road/Pittman Road (LOS E)
- I-80 between Red Top Road and American Canyon Road (LOS D)

Long-term (2040) traffic conditions would operate at LOS D or LOS E on eastbound I-80 at the following locations during the PM peak hours:

- I-80 west of American Canyon Road (LOS D)
- I-80 between American Canyon Road and Red Top Road (LOS D)
- I-80 between Route 680/SR 12 and Green Valley/Lopes Road (LOS D)
- I-80 between Green Valley/Lopes Road and Suisun Valley Road/Pittman Road (LOS D)
- I-80 between Suisun Valley Road/Pittman Road and Truck Scales (LOS D)
- I-80 between SR-12 East and Abernathy Road (LOS D)
- I-80 between Abernathy Drive and West Texas Street (LOS D)
- I-80 between West Texas Street and Beck Avenue (LOS D)
- I-80 between Beck Avenue and Travis Boulevard (LOS E)

- I-80 between Travis Boulevard and Air Base Parkway/Waterman Boulevard (LOS D)
- I-80 between Air Base Parkway/Waterman Boulevard and Manuel Campos Parkway/North Texas Street (LOS D)
- I-80 between Manuel Campos Parkway/North Texas Street and Lagoon Valley Road/Cherry Glen Road (LOS E)
- I-80 between Lagoon Valley Road/Cherry Glen Road and Pena Adobe Road/Rivera Road/Cherry Glen (LOS E)
- I-80 between Pena Adobe Road/Rivera Road/Cherry Glen and Alamo Drive (LOS E)
- I-80 between Alamo Drive and Davis Street (LOS D)
- I-80 between Davis Street and Peabody Road (LOS E)
- I-80 between Peabody Road and Monte Vista Avenue/Allison Drive/Nut Tree Parkway (LOS D)
- I-80 between I-505/Orange Drive and Leisure Town Road (LOS D)

PUBLIC TRANSIT UTILIZATION

Fairfield and Suisun Transit, Rio Vista Delta Breeze, Vallejo Transit and Yolo Bus operate public bus systems within the project limits. In addition, Fairfield and Suisun Transit operates Solano Express regional routes, Americans with Disabilities Act (ADA) paratransit service and reduced fare taxi program. Bus routes utilizing the corridor within the project limits include:

- Fairfield-Suisun Transit Express Bus Routes 20, 30, 40, and 90
- Delta Breeze Routes 50 and 52
- Vallejo Transit Bus Route 85
- Yolo Bus Route 220

Additionally, private transit services, such as recreational buses to the Lake Tahoe region and the University of California Intercampus Bus between Davis and Berkeley, must also travel in the general purpose lanes along the I-80 corridor between Fairfield and Vacaville. By having to travel in the general purpose lanes of the East Segment, transit vehicles do not provide a significant travel time savings over single-occupant vehicles in this portion of the corridor. This reduces the incentive for commuters and other travelers to utilize transit options along the I-80 corridor.

1.3.3 INDEPENDENT UTILITY AND LOGICAL TERMINI

Logical termini for a project are defined as rational end points for transportation improvements. These rational end points should facilitate a thorough review of the environmental impacts. A

project with independent utility is defined as improvements that are usable and provide a reasonable expenditure even if no additional transportation improvements are made in the area.

As part of the traffic operations analysis conducted for this project, several configurations of the express lanes beginning and end points were evaluated (see **Alternatives Considered but Eliminated from Further Discussion**). The current project limits west of Red Top Road to east of I-505 showed the most significant benefits in traffic operations along I-80. The current project limits therefore reflect the most logical termini for the I-80 corridor.

The project would reduce traffic congestion without additional improvements, other than what is being proposed, within or adjacent to the project limits. Although the project would contribute to the furtherance of the regional express lane network described **in Section 1.2, State/Regional/Local Planning**, it would be useable and require a reasonable expenditure even if no additional transportation improvements in the area are made; the construction or conversion of other express lanes are not necessary for this project to meet the goals noted above. The I-80 express lanes from west of Red Top Road to east of I-505 would provide the same benefit regardless of whether or not other projects in the area, such as those listed in the *No Build (No Action) Alternative* section, move forward. Moreover, the project has its own funding and is not dependent on any other projects for such funding.

As such, the project is considered to have independent utility. Furthermore, the project would not restrict considerations of alternatives for other reasonably foreseeable transportation improvements in the area. Finally, the projects listed in the *No Build (No Action) Alternative* section could proceed without the conversion of HOV lanes to express lanes in the project area.

WEST SEGMENT – FUNDABLE FIRST PHASE

The project may be constructed under a single construction contract or in multiple phases depending on funding. If phasing occurs, the first phase would consist of the West Segment and would include the conversion of existing HOV lanes into new express lanes along I-80 from the Red Top Road interchange to the Air Base Parkway interchange, including the area around the I-80/I-680 interchange. In the West Segment, existing HOV lanes in both the eastbound and westbound direction would be restriped and repurposed into express lanes. In the opening year (year 2020) condition, the West Segment improvements are forecasted to result in overall travel time savings, and increased overall travel speeds when compared to the No-Build condition, while also providing LOS B conditions or better in the new express lane (see **Section 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities**). This indicates that the West Segment has logical termini and independent utility in providing near-term operational benefits to travelers using the I-80 corridor.

1.4 PROJECT DESCRIPTION

This section describes the proposed action and the design alternative that was developed to meet the purpose and need of the project: the "Build Alternative" and the "No-Build Alternative." The project would provide express lanes in both westbound and eastbound direction of I-80 from west

of Red Top Road to the east of I-505, within Solano County, California. The project would construct approximately 18 miles of express lanes in the I-80 corridor through conversion of existing HOV lanes and highway widening for new express lanes. The project limit is approximately 20 miles because of the need to install express lanes signs and equipment 1 mile in advance of the actual express lane entrance. The general location of the proposed improvements extends along I-80 from post mile (PM) R10.4 to 30.2 and passing through the cities of Fairfield and Vacaville. The purpose of the project is to provide an immediate benefit to the traveling public by maximizing the use of the existing freeway infrastructure in a limited/constrained right-of-way to move vehicles through the corridor efficiently. **Figure 1-1** shows the general location of the proposed improvements.

1.4.1 PROJECT COST AND FUNDING

CONSTRUCTION COST

The estimated construction cost of the proposed improvements, in 2014 dollars, for the Build Alternative is $166,800,000. Construction of the West Segment is $41, 900,000. The breakdown of the cost is provided in **Table 1-1**.

Table 1-1 Construction Cost Estimate Summary

	Build Alternative (West and East Segments)	West Segment (Fundable First Phase)
Construction	$107,500,000	$24,700,000
Right-of-Way	$1,500,000	$100,000
Tolling System Integration (design, installation, and maintenance)	$21,100,000	$9,100,000
Capital Outlay Support	$35,000,000	$7,200,000
Utility Service	$1,500,000	$600,000
Total Cost	**$166,600,000**	**$41,700,000**

Note: Cost estimates are in 2014 dollars.
Source: Draft Project Report, 2015

FUNDING

The current estimated total project cost is $166.6 million ($41.7 million for the West Segment), which includes project development, engineering, right of way acquisition, utility relocation, construction capital, and construction support. Currently, the project has $236.8 million committed in MTC's 2015 TIP. Funds allocated in the 2015 TIP include federal, state, and local sources.

1.4.2 ALTERNATIVES

BUILD ALTERNATIVE

The Build Alternative would allow for express lanes in both the westbound and eastbound direction of I-80 from west of Red Top Road to east of I-505, a distance of approximately 18 miles through

conversion of existing HOV lanes and highway widening for new express lanes. The project limits are approximately 20 miles because of the need to install express lanes signs and equipment 1 mile in advance of the actual express lane entrance. The Build Alternative would implement a continuous access design, and consist of the following primary improvements, discussed in detail further below:

- Installation of static or dynamic signs, electronic tolling equipment, and toll collection
- Retrofit of existing California Highway Patrol (CHP) observation areas
- Mainline restriping and widening
- Installation of ancillary components such as electrical power and communication conduits and any Caltrans required traffic control devices.

The Build Alternative may be constructed under a single construction contract or in phases depending on funding. If phasing occurs, the first phase of the project (West Segment) would include the conversion of existing HOV lanes into express lanes along I-80 from the Red Top Road interchange to the Air Base Parkway interchange, including the area around the I-80/I-680 interchange. The East Segment would construct a new express lane in both the eastbound and westbound directions of I-80 from the Air Base Parkway interchange through the I-80/I-505 interchange. Specific improvements that are physically located within the West Segment are identified where appropriate (i.e., auxiliary lanes, etc.).

For the West Segment, additional work includes the extension of the existing auxiliary lane along eastbound I-80 between Beck Avenue on-ramp and Travis Boulevard off-ramp. This improvement would increase the weaving area between the auxiliary lane and general purpose lanes. The existing off-ramp would be modified into two separate off-ramps. This work would require pavement widening; re-striping; sign and lighting installation; and drainage system improvements.

For the East Segment, the major work includes I-80 inside median pavement widening to provide room for the new express lanes which would require removal of existing median landscaping. The new express lanes require new pavement; concrete barriers; retaining walls; bridge widening at Ulatis and Horse Creeks; median widening at Davis Street and Mason Street undercrossings; new tie-back retaining walls at the eastbound I-80 and northbound I-505 Connector and Cherry Glen overcrossing; drainage culvert extensions; parcel acquisition; and utility/temporary construction easements.

Appendix D includes detailed exhibits of the improvements that would be constructed under the Build Alternative. **Chapter 2.0, Affected Environmental Consequences, Avoidance, Minimization, and/or Mitigation Measures,** of this environmental document evaluates the potential effects of the full Build Alternative, including the potential initial phase of construction (West Segment). The environmental consequences and avoidance, minimization and/or mitigation measures specific to the West Segment are identified where appropriate.

Express Lane Operations

Continuous Access and Lane Configuration

Access is one of the most important design features for express lanes due to impacts associated with operation, performance, enforcement, and tolling requirements. Consistent with other express lanes that are currently being planned and implemented in the Bay Area, the I-80 express lanes would allow continuous access between the express lane and the adjacent mixed-flow (general purpose) lane. The express lanes would be designated using a skip-striping pavement marking. The diamond markings on existing HOV lanes would be permanently removed. The express lane width would be 12-feet wide where feasible.

Under this configuration all eligible users, including HOVs, motorcycles, buses, decal vehicles as authorized by the California Air Resources Board, and toll-paying single occupant vehicles, will be able to access the express lane during the hours of operation. Eligible vehicles with HOV status will continue to use the I-80 express lanes for free. Solo users, for whom time saving is of a value, who want a more convenient and reliable trip can choose to use the new express lane for a dynamically charged fee. The toll that is charged will vary depending on the real-time traffic operating conditions in both the express lane and in the general purpose lanes. Two-axle, delivery-type trucks would also be allowed to use the new converted facility for a fee, but trucks with three or more axles would be excluded from the lane.

Bay Area HOV lanes currently operate during the morning and evening peak commute periods and serve as general purpose lanes during all other times. The existing HOV lanes within the West Segment currently operate Monday to Friday between 5 to 10 AM and 3 to 7 PM. The expected express lane hours of operations would maintain the existing HOV lane time periods.[3]

Enforcement

Per statutes (Streets and Highways Code, Section 149) HOVs are allowed to use express lanes free of charge. The proposed express lanes would operate with a two-or-more (2+) person per vehicle requirement, as determined by Caltrans. The express lanes would also provide solo drivers the choice to pay a toll electronically to use the lane.

Toll violation will be enforced through an automated violation process. License Plate Recognition (LPR) cameras would capture license plate images of vehicles that do not display a recognizable toll transponder.

Although the use of LPR and toll transponders would automate toll violation enforcement, CHP field personnel would still be required to perform occupancy enforcement. CHP enforcement responsibilities would focus on occupancy verification and other traffic violations (i.e., illegal access in restricted zones and speeding). To allow CHP enforcement of the express lanes, protected observation areas would be provided within the freeway median for the officers to safely park their

[3] State legislation requires that the express lane hours of operation be consistent with the operating hours of the HOV lane. Therefore, the final decision on operating hours will be recommended by the HOV Lane committee, which is comprised of representatives from Caltrans, CHP, and MTC.

vehicles to conduct occupancy verification and traffic observation. The CHP observation areas would be located within the 22 foot wide highway median. The center of the CHP area would accommodate a 25 feet long by 12 feet (face of barrier to face of barrier) wide CHP cruiser pad which would be elevated 18 inches above the roadway pavement elevation. The CHP pad would be protected by concrete barriers on both sides. A toll gantry would be located 85 feet from center of the CHP cruiser pad. The nonstandard inside shoulders adjacent to the CHP observations areas would require Caltrans approval. Potential CHP observation areas are identified in **Table 1-2**. There are two existing CHP observation areas within the West Segment that would be modified under the Build Alternative to conform to current CHP observation standards. All of the proposed CHP observation areas would provide directional access to eastbound I-80, with the majority providing bi-directional access to both eastbound and westbound travel lanes.

Table 1-2 Potential CHP Observation Areas

General Location Description	Direction	Post Mile
West Segment		
Existing area between WB SR 12 OC and Green Valley Road OC	EB	12.1
Existing area between Suisun Creek Bridge and EB SR 12 OC	WB & EB	15.2
East Segment		
Proposed between Air Base Parkway OC and North Texas Street	WB & EB	20.2
Proposed between Allison Drive OC and Nut Tree Road OC	WB & EB	27.4

Notes: SR = State Route; OC = overcrossing; EB = eastbound; WB = westbound
Source: Draft Project Report, 2014

Electronic Tolling

The toll rate for solo drivers who choose to use the express lane would change depending on the level of traffic congestion and distance traveled. During periods of lower traffic congestion, the toll will be lower. The lower toll rates encourage more single-occupant vehicles to pay the toll and make use of the additional capacity of the express lane. During the hours of operation when there is more traffic congestion on the freeway, the toll to access the express lane will be higher. The higher toll rates discourage more single-occupant vehicles from using the express lane, which frees up space within the express lane and allows for more free-flowing traffic conditions. The tolling operation will be fully electronic, collected from registered motorists who carry in-vehicle-mounted FasTrak® transponders, with no requirement to stop and make cash payments for a trip.

There are four proposed tolling zones, two within each segment of the project corridor. Each toll zone would include all subsystems relative to toll collection, photographic enforcement for violations, vehicle classification detection, enforcement personnel provision, and communication with the toll integrator's control center. Each toll zone would contain the following equipment serving the toll collection and violation enforcement systems: cantilevered gantry; antenna; toll

reader; vehicle sensor; rear-plate facing camera; rear-plate facing light and enforcement beacons; PTZ (pan tilt zoom) CCTV (closed circuit television) cameras; MVDS (magnetometer vehicle detector station) and related equipment would also be installed to monitor the congestion in the express lanes.

The first Variable Toll Message Sign (VTMS) would be installed approximately 0.5 to 1 mile before the start of the express lane. Subsequent VTMS would have an approximate spacing of 1.5 to 2 miles. The first toll reader would be located within 1,000 feet after the entrance sign. Subsequent toll readers will be placed downstream of their respective VTMS. Multiple read points may be installed for a single VTMS. The distance between a VTMS and its last read point pairing will be no more than 1 to1.5 miles. The factors which will affect the placement of VTMS and toll readers beyond system requirements include: spacing between interchanges, visibility of signs, spacing with existing overhead signs, conflicts with existing facilities, and environmental impacts. **Figure 1-2** illustrates the gantry/reader structure that would support the tolling equipment. The overhead sign structures would also include toll reader and toll enforcement equipment.

The tolling equipment would be mounted on a single 12-inch diameter post on a standard foundation, or attached to an overhead sign structure. It would be on a cast-in-drilled-hole pile foundation with an expected pile depth of 11 feet and maximum 36-inch diameter foundation. The expected barrier width adjacent to the electronic tolling equipment would be between 4 feet and 8 feet. In constrained areas, steel plates would be used to minimize impact along the inside shoulder resulting in a barrier width of 3 feet-8 inches. The 1 foot-7 inch diameter base plate would be located on top of the concrete barrier.

The PTZ, CCTV and MVDS equipment would be mounted on standard 40-foot round tapered steel pole. It would be on a cast-in-drilled-hole pile foundation with an expected maximum pile length of 8 feet 6-inches and maximum 2 feet-6 inches diameter foundation and located along the outside of the highway pavement.

Variable pricing would be the principal mechanism for access to the proposed express lanes. The price would be adjusted depending on the existing congestion and available capacity on the express lanes. By raising or lowering the toll in response to the level of demand, this dynamic pricing effectively manages the volume of traffic in the express lanes, ensuring that traffic flows smoothly. VTMS will communicate to drivers the toll to travel in the current zone as well as the toll to popular destinations at the end of the segment.

Signage

The express lanes would include several types of signs to provide graphic or text messages that inform motorists of pricing by toll zone, and operating rules. A total of 68 overhead sign structures have been proposed for this project:

- 39 new signs would be constructed in the East Segment
- 29 new signs would be constructed in the West Segment

A summary of the sign types is provided below.

- Static/Non-Electrical Signs
  - *Express Lane Entrance Signs* – 1-mile and 0.5-mile in advance of the express lane entrance, sign panels displaying the express lane operating rules and distance to the express lane entrance would be mounted on overhead sign structures.
  - *FasTrak® Signs and Toll Readers* – overhead sign structures indicating HOV and Fastrak® use only would be placed at intervals to alert new drivers merging to I-80 about the lane restriction. Toll readers will be placed at approximately 1 mile spacing. Wherever possible, the toll readers will be mounted on the proposed FastTrak® signs. In some cases, the toll readers will be mounted on a modified street light pole (gantry). In restricted conditions, the toll readers may be mounted on the proposed VTMS. For every toll reader, a set of toll enforcement equipment will be installed. Depending on site restrictions and design constraints, the enforcement equipment may either be mounted on the same overhead structure/gantry with the toll readers, or mounted separately on poles on existing median concrete barrier.
- Dynamic/Variable Signs
  - *Variable Toll Message Sign* – Dynamic electronic message signs would display the toll pricing for the current zone as well as the following zone. The price would change depending on the congestion level and available capacity in the express lanes. The panel size would vary depending on the sign type. The maximum panel size is 29 feet long by 13 feet high. **Figure 1-3** provides illustrations of the types of VTMS signs that would be installed along the I-80 express lanes.

Smaller signs would be post-mounted on the existing freeway concrete median barrier, while larger signs would be mounted on cantilevered overhead sign structures spanning above the express lane. The total height of the overhead sign structure (including the sign) would depend on the type of sign being mounted. All overhead sign structures would have a maximum height of approximately 35 feet and be either supported on a cast-in-drilled-hole pile foundation, or supported on a retaining wall structure.

The panel size would vary depending on the sign type, as illustrated in **Figure 1-3**. The static/non-electrical signs that would be the most common overhead sign type within the project corridor would be approximately 17 feet long by 6 to7 feet high. The maximum panel size would be associated with the VTMS signs, which are designed to be approximately 29 feet long by 13 feet high.

Auxiliary Lane Realignment (West Segment)

The existing auxiliary lane along eastbound I-80 between the Beck Avenue on-ramp and Travis Boulevard off-ramp would be extended by approximately 752 feet in order to increase the length of the weaving area between the auxiliary lane and general purpose lanes. The existing off-ramp

would be modified into two separate off-ramps. The proposed off-ramp to eastbound Travis Boulevard would be 17 feet east of the existing off-ramp, and would be constructed as a standard single exit ramp. The new off-ramp to westbound Travis Boulevard would be approximately 752 feet east of the existing off-ramp. This work would require pavement widening, re-striping, sign and lighting installation, and drainage system improvements.

Modified/Replaced Structures (East Segment)

Table 1-3 identifies the six overcrossing and undercrossing structures that would be widened or modified to accommodate widening of I-80 within the East Segment of the project limits. The conversion of the existing HOV lanes in the west segment of the project limits would not require the modification of existing structures along I-80.

Table 1-3 Modified/Replaced Structures (East Segment)

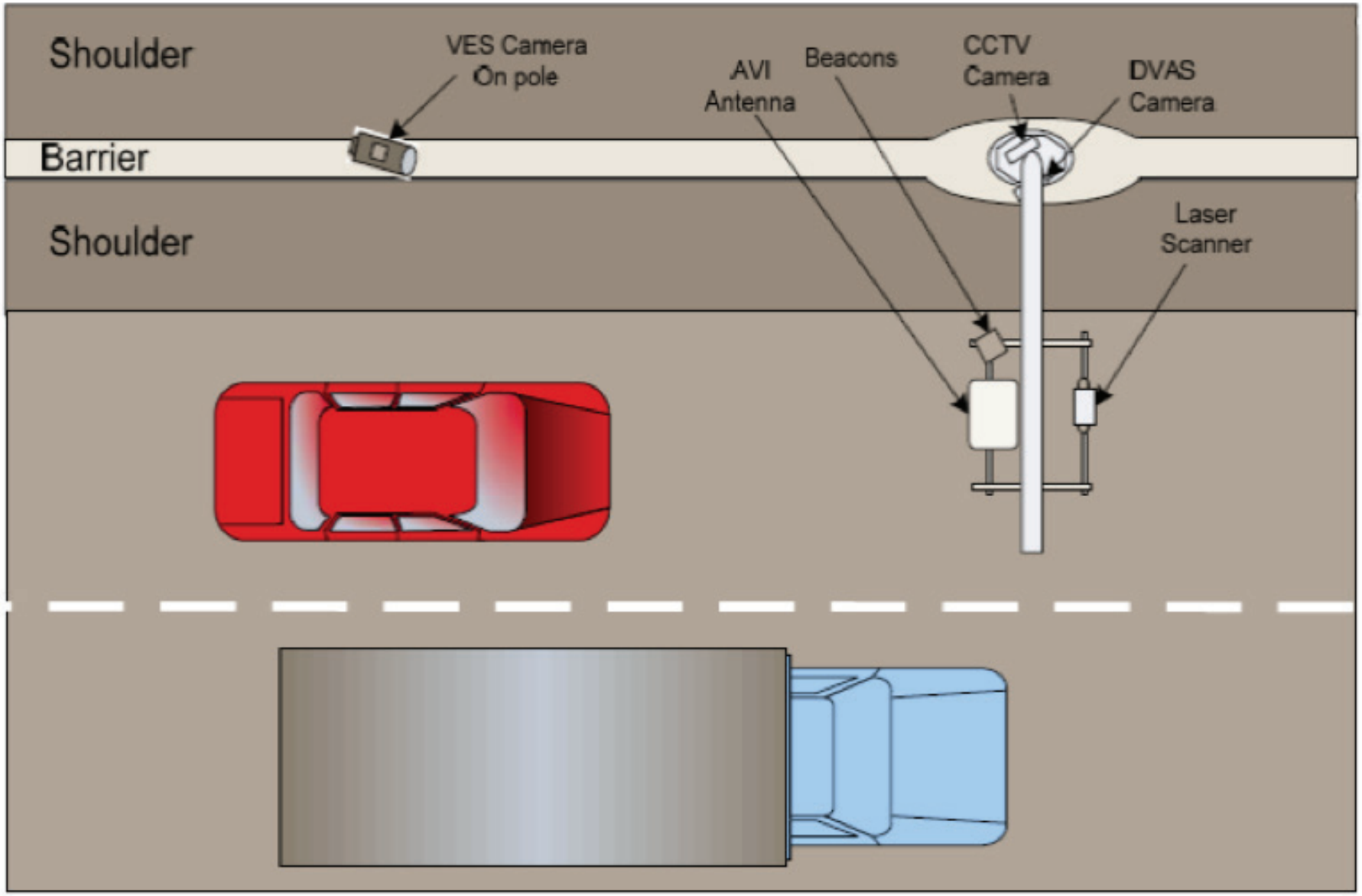
Structure	Post Mile	Modification	Description
Cherry Glen Road OC	23.13	Abutment Wall Modification	Tie-Back Retaining Wall
Davis Street UC	26.00	Deck Widening	Inside Widening
Mason St. UC	26.46	Deck Widening	Inside Widening
Ulatis Creek Bridge	26.61	Deck Widening	Inside Widening
EB I-80/NB I-505 Connector	28.36	Abutment Wall Modification	Tie-Back Retaining Wall
Horse Creek Bridge	R28.57	Deck Widening	Inside and Outside Widening

Table Notes: OC = overcrossing; UC = undercrossing; EB = eastbound; NB = northbound
Source: Draft Project Report, 2014

Retaining Walls and Proposed Sound Walls

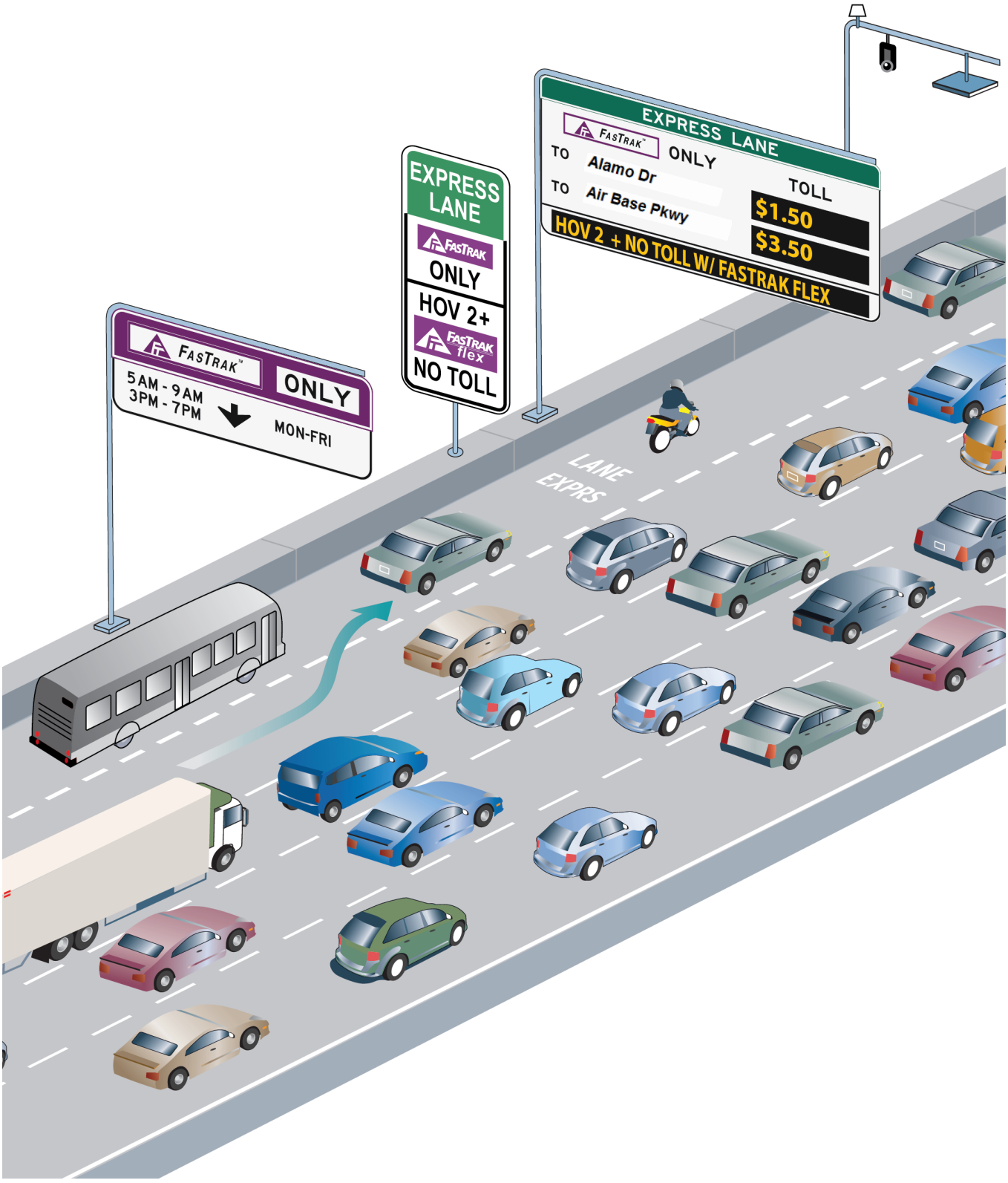
Extensive retaining walls would be constructed to address ROW and environmental constraints while accommodating the northbound I-80 widening associated with the East Segment of the Build Alternative. Three retaining earth systems are proposed along the outside and two in the median of eastbound and westbound I-80 within the East Segment. Retaining wall heights would vary from 1 to 15 feet (see **Table 1-4**). No retaining walls are proposed in the West Segment

The project would include construction of a sound wall in the East Segment along eastbound I-80 from the Ulatis Creek Bridge to the Allison Drive off-ramp (see **Section 2.2.7, Noise**). The final decision for sound wall construction would be made upon completion of the project design and the public involvement process. No sound walls are currently proposed in the West Segment.



Tolling System Design and Operations **Figure 1-2**

Source: Mark Thomas & Company, 2014



Variable Toll Message Sign (VTMS)

Figure 1-3

Source: MTC, 2014

Ancillary Project Components

Storm Water Treatment

Runoff from the freeway is generally conveyed to existing dikes and overside drains. The existing drainage patterns are not expected to change within the West Segment. The quantity of added impervious area would not be significant enough to change the drainage flow rate, and all storm water runoff would be properly conveyed through pipe, ditches, and bioretention swales in the West Segment. Minor modifications to these drainage systems would be required to accommodate the proposed freeway widening within the East Segment. Where feasible, dikes and overside drains would be constructed to replace existing systems. Locations where walls and barriers are installed, pipe and inlet drainage systems would be installed to convey water back to roadside systems. Existing depressed median drainage systems would be capped and abandoned.

Drainage crossing I-80 would be extended. Additional drainage structures would also be constructed to mitigate water quality and hydromodification impacts for the proposed improvements.

The proposed permanent storm water treatment facilities for the Build Alternative would include biofiltration strips, biofiltration swales, detention basins, and sand filters. Biofiltration strips are vegetated sections with a compost blanket and hydroseeding, where storm water sheet flows. Biofiltration swales are vegetated ditches with hydroseed on the side slopes, a layer of imported biofiltration soil underneath, and a layer of permeable material with an underdrain further below, where storm water is in concentrated flow. Detention basins temporarily detain storm water and reduce sediment and particulate loading by storing storm water in a basin and discharging through a water quality outlet/riser with openings. A typical sand filter system consists of two or three chambers, which remove floatables and heavy sediments. Treated filtrate is discharged through an underdrain system either to a storm drainage system or directly to surface waters. Sand filters take up little space and can be used on highly developed sites.

Electric Conduit

The variable signs and tolling equipment would be connected to electrical power and communication sources that are independent of existing Caltrans systems. Some static signs would require electrical power for lighting. The conduits and fiber would be extended from existing sources and would require trenching and/or horizontal directional drilling to bring these services to the service equipment enclosure, telephone demarcation cabinet, controllers, signs and tolling equipment. Trenching would be approximately 1-foot wide and 30 inches to 5-feet deep. The horizontal directional drilling may be as deep as 5 feet but the depth would depend on the location of existing utilities within the vicinity of the proposed drilling location. The boring and receiving pits may be up to 10 feet wide. Installation of pull boxes and electrical systems such as service equipment enclosures, telephone demarcation cabinets, controllers, and foundation pads would follow Caltrans standards. The maximum foundation pad footprint would be 3 feet by 4 feet with a maximum depth of 2 feet. In unpaved areas, a raised concrete pad in front of the controller cabinet would be required. Temporary construction access to power and communication sources may be

needed. Work associated with bringing electrical power and communication to service enclosure cabinets would be completed by the utility provider and would follow utility provider standards.

Safety Lighting

The Build Alternative would provide enhanced lighting to improve roadway visibility for drivers during nighttime hours. Lighting would be upgraded at ramp merges and diverges. Lighting would also be added to improve visibility at various locations including the express lane entrance and at toll zone boundaries, locations on the highway where visibility is restricted by barriers, locations where the median width is narrow and drivers may be subjected to headlight glare, and locations where concentrations of nighttime accidents are known to have occurred. **Table 1-5** summarizes the locations of new lighting proposed for both the West and East Segments.

Lighting will be provided in the following locations in both the eastbound and westbound direction:

- 1,000 feet approaching the beginning of the express lane
- 2,000 feet at the toll zone change (including 1,000 feet approaching and 1,000 feet departing the toll zone change)
- 1,000 feet departing the end of the express lane
- Mounted on VTMS
- Two lights in each direction (eastbound and westbound I-80) at all proposed CHP observation areas

Table 1-4 Location and Type of Retaining Walls (East Segment)

Retaining System No.	I-80 WB (Outside) (post miles)	I-80 Median (post miles)	I-80 EB (Outside) (post miles)	Retained Height (feet)	Retain Cut/Fill	Ground Behind Proposed Wall	Recommended Retaining Wall System
1	N/A	N/A	20.03 - 20.09	0-1	Fill	Level	Caltrans Standard Retaining Wall
2		21.99 - 22.21	N/A	3-7	Fill	Level	Caltrans Standard Retaining Wall
3		22.34 - 23.14		3-9	Fill	Level	Caltrans Standard Retaining Wall
Cherry Glen Road OC							
4	23.14 - 23.16	N/A	N/A	0-7	Cut	Sloping	Sub-Horizontal Ground Anchored Wall
EB I-80/NB I-505 Connector Separation							
5	N/A	N/A	28.29-28.33	0-15	Cut	Sloping	Sub-Horizontal Ground Anchored Wall

Notes: WB = westbound; EB = eastbound; NB = northbound; OC = overcrossing; post miles are approximate
Source: MTCo, 2014

Table 1-5 Summary of East and West Segment Lighting

I-80 Direction (EB/WB)	Post Miles	Description of Location
West Segment		
EB	11.26-11.45	Beginning of EB express lane near Red Top Road
WB	12.20-12.40	End of WB express lane near Green Valley Road
EB	13.15-13.27	Non-standard weave section near Pittman Road
EB	15.77-16.16	EB toll zone change near Abernathy Road
WB	17.29-17.51	WB toll zone change near West Texas Street
N/A	17.90	Modified Travis Boulevard off-ramp
EB	18.65-18.90	Express lane east of Waterman Boulevard (future phases only)
WB	19.21-19.53	Express lane west of Waterman Boulevard (future phases only)
EB	19.81-20.01	End of EB express lane west of North Texas Street
WB	20.01-20.20	Beginning of WB express lane west of North Texas Street
N/A	12.11 and 15.2	Four lights at CHP observation areas near the existing eastbound (east of SR 12) and westbound (west of Abernathy Road) CHP enforcement areas
East Segment		
EB & WB	20.16 – 20.54	EB toll zone change (butterfly lights in median) near North Texas Street
EB & WB	25.01 – 25.59	EB & WB toll zone change (butterfly lights in median) near Alamo Drive
EB	28.55 – 28.73	End of EB express lane east of I-505
EB	28.60 – 28.90	On-ramp lighting for I-505 and Orange Drive EB I-80 On-Ramps
WB	29.15 – 29.34	Beginning of WB express lane east of I-505
EB & WB	19.98 and 27.65	Four lights (butterfly lights in median) two lights at each proposed CHP observation area

Note: EB= eastbound; WB= westbound; Post miles are approximate
Source: Mark Thomas & Co., 2014, HDR Engineering, Inc. 2014

Right-of-Way Requirements

The existing ROW along I-80 generally accommodates the proposed improvements with a few minor exceptions associated with construction staging and/or utility easements. The majority of ROW requirements involve acquisition of portions (or slivers) of properties along the project corridor. For the West Segment, the ROW requirements involve acquisition of nine (9) utility easements, and minor temporary construction easements. The ROW requirements for the East Segment involve acquisition of a portion of one parcel (from the City of Vacaville at Orange Drive on-ramp) within the project limits, eighteen (18) utility easements, and minor temporary construction easements. No acquisition of any residences or businesses would be required.

Construction

West Segment

The West Segment portion of the project may be constructed first. Construction of the West Segment is anticipated to commence in Spring 2017 and be operational by Fall 2018. In order to minimize delays and congestion caused by construction, it is anticipated that each segment would be constructed in multiple stages and/or multiple work crews. I-80 would generally be open during construction. However, some short-term lane closures may be required during critical construction periods, where freeway traffic cannot be permitted in the construction areas for safety reasons. Any closures would require advance approval by the Resident Engineer and would be allowed only during periods of low traffic defined through traffic studies made during the design phase of the project.

Construction for the West Segment would take approximately 14 months to complete. The work to install the overhead signs and electronic tolling equipment in the median would be coordinated between the civil infrastructure and toll systems work crews, completing the installation of sign structures prior to any tolling equipment being installed. At areas where the existing median is 8 feet wide or less, it is anticipated that the work would be performed during nighttime with temporary freeway and shoulder lanes closures. Where there is substantial space in the median to install temporary railing, work can be performed behind the railing during the daytime and nighttime hours. The remaining activities such as mainline restriping, work adjacent to the outside shoulders and modification of eastbound Travis Boulevard off-ramp would be completed after the median work. These activities would also require temporary freeway lane, shoulder lane or off-ramp closure.

East Segment

Construction for the East Segment would be constructed in two major stages, and would take approximately two years to complete. The first stage would include the median widening and other activities within the median such as installation of overhead signs and electronic tolling equipment. These activities would require the removal of all existing vegetation from the median. This stage would be performed behind temporary railings. The second stage would include the outside pavement widening and other activities to be performed adjacent to the outside shoulder. These activities would require the removal of some roadside vegetation. Work would also be completed

behind temporary railing. The proposed minor ramp work would be accomplished during the second stage. Retaining walls and structure modifications would be constructed with the associated widening work in each stage. It is expected that majority of the work would be done during daytime hours. Some nighttime work may require temporary closures for tasks that could interfere with mainline traffic or create safety hazards such as the proposed pavement resurfacing and mainline restriping. Some temporary nighttime ramp closures may be necessary during paving and striping operations as well.

Transportation Management Plan will be developed, in cooperation with the cities of Fairfield and Vacaville, to provide advance notice to motorists and transportation and emergency service providers of information on construction activities and durations, detours, and access issues during each stage of construction. Specific construction staging requirements will be defined during the final design phase and an actual construction staging plan would be developed by the contractor.

Pavement modifications would typically entail 1 to 2 feet of excavation below the ground surface. Some improvements would entail deeper excavations from the placement of numerous structural pilings, and would be associated with the modification to the existing overcrossing and undercrossing structures in the East Segment, as previously described. Deeper excavations and the placement of numerous structural pilings would occur at depths of no more than 45 feet below ground surface. The majority of the open excavations throughout the Build Alternative improvement areas would vary from 4 to 20 feet below ground surface.

Utility Relocations

The following utility companies have known facilities within the project limits: AT&T, Comcast, City of Fairfield, City of Vacaville, Solano Irrigation District, the Bureau of Reclamation, and PG&E. The Build Alternative would include utility relocations, as necessary, to construct the above-described improvements.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) AND TRANSPORTATION DEMAND MANAGEMENT (TDM) ALTERNATIVES

System management strategies increase the efficiency of existing transportation facilities without increasing the number of through lanes. Examples of system management strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes and traffic signal coordination. System management also encourages a unified urban transportation system that integrates multiple forms of transportation modes such as pedestrian, bicycle, automobile, rail, ferry, and mass transit. Although TSM measures alone could not satisfy the purpose and need of the project, the following TSM measure has been incorporated into the Build Alternative (West Segment) for this project:

- Extending the existing auxiliary lane along eastbound I-80 between Beck Avenue on-ramp and Travis Boulevard off-ramp;

There are several TDM strategies within the San Francisco Bay Area that are used to reduce the number of vehicle trips within the I-80 corridor. Rideshare offers carpoolers reduced bridge tolls as well as access to carpool lanes. There are also vanpools for larger groups of commuters. TDM may also involve the provision of contract funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals. Increased vehicle occupancy reduces traffic volumes during peak commuting periods; however, without the construction of the improvements described above, successful implementation of a TDM alternative would not substantially improve the safety and operation of the freeway. TDM alternative by itself would not satisfy the purpose of the project.

PROPERTY ACQUISITIONS AND TEMPORARY CONSTRUCTION EASEMENTS

While the majority of the improvements can be constructed within the existing right-of-way, some easements and land acquisitions would be required. In the West Segment, the Build Alternative would require temporary construction easements and permanent utility easements. In the East Segment, the Build Alternative would require temporary construction easements, permanent utility easements, and require permanent, but minor slivers of land acquisitions for roadway widening. Generally, utility easements entail installation or connection to underground infrastructure. Once the utility infrastructure is installed and/or connected to, the land would return to its original use. **Tables 1-6** and **1-7** summarize the proposed property acquisitions, including easements.

In the West Segment, the proposed project would require 0.27 acres of land for temporary construction easements and 0.09 acres of land for permanent utility easements. Such easements would cover a small portion of 10 different parcels. In the East Segment, the proposed project would require 0.79 acres of land for temporary construction easements, 0.35 acres of land for permanent utility easements, and 1.62 acres of land for permanent fee/acquisition. Such easements would cover a small portion of 17 different parcels. Of these 17 parcels within the East Segment, utility easements would occur on 9 parcels, temporary construction easements would occur on 6 parcels, a fee acquisition and temporary construction easement would occur on 1 parcel, and temporary construction easement and a utility easement would occur on 1 parcel. One utility easement in the East Segment would require a 20 foot wide acquisition of approximately 30 private parking spaces from an auto repair and dealer commercial business (parcel number 0133120240). Upon completion of construction in this area, the affected portion of the parking lot will be restriped to restore parking spaces to their current number.

Table 1-6 West Segment Land Acquisitions

APN	Existing Use	Type	Area (Acre) TCE	Area (Acre) Utility Easement
Unknown	N/A	TCE	0.007	0.000
0044090450	Commercial	Utility Easement and TCE	0.013	0.002
0027350070	Commercial	Utility Easement and TCE	0.171	0.017
0150200100	Miscellaneous	Utility Easement and TCE	0.008	0.002

APN	Existing Use	Type	Area (Acre) TCE	Area (Acre) Utility Easement
0150200020	Service Station	Utility Easement and TCE	0.008	0.002
0152290020	Retail Trade	Utility Easement and TCE	0.016	0.004
0034011070	Multi Family Dwelling	Utility Easement and TCE	0.007	0.003
0156140050	Commercial	Utility Easement and TCE	0.014	0.007
0167130140	Commercial	Utility Easement and TCE	0.013	0.008
0167110170	Commercial	Utility Easement and TCE	0.014	0.004
		Total:	**0.270**	**0.086**

Source: Caltrans, 2014d
Note: Temporary Construction Easement (TCE)

Table 1-7 East Segment Land Acquisitions

APN	Existing Use	Type	Area	
			Sq.Ft.	Acre
167130140	Governmental & Miscellaneous	Utility Easement	381	0.01
167431020	Vacant Residential Land	Utility Easement	3,035	0.07
167090010	Governmental & Miscellaneous	Utility Easement	866	0.02
167010030	Taxable below min. value	Utility Easement	1,508	0.03
122130050	Governmental & Miscellaneous	Utility Easement	630	0.01
127030080	Vacant Commercial Land	Utility Easement	347	0.01
127040090	Vacant Commercial Land	Utility Easement	1,042	0.02
127040100	Taxable below min. value	Utility Easement	293	0.01
131020530	General Retail Commercial	TCE	48	0.00
131020470	Taxable below min. value	TCE	1,713	0.04
131420220	Commercial Sales & Services	TCE	2,043	0.05
131430090	Vacant Commercial Land	TCE	3,837	0.09

APN	Existing Use	Type	Area	
			Sq.Ft.	Acre
131430210	Commercial Sales & Services	TCE	2,235	0.05
134341010	Taxable below min value	Fee Acquisition and TCE	91,249	2.09
134351060	Commercial	TCE	1,929	0.04
133120240	Auto Repair & Dealers	TCE and Utility Easement	9,329	0.22
134480080	Commercial	Utility Easement	219	0.00
		Total:	**120,704**	**2.76**

Source: Caltrans, 2014d
Note: Temporary Construction Easement (TCE)

NO-BUILD (NO ACTION) ALTERNATIVE

Under the No-Build Alternative, none of the project features described above would be constructed. The freeway travel lanes along the I-80 corridor would remain as they currently exist. No bridge structures would be widened. Traffic volumes within the project corridor would continue to increase under the No-Build Alternative. Other planned and approved transportation improvements along local routes may be implemented by local agencies or under other projects. **Table 1-8** lists the projects assumed to be completed prior to construction of the project. The No-Build Alternative is considered the environmental baseline for comparing environmental impacts under the National Environmental Policy Act (NEPA).[4]

[4] Under the California Environmental Quality Act (CEQA), the baseline for environmental impact analysis consists of the existing conditions at the time the Notice of Preparation (NOP) is issued or at the time the environmental studies began. Near-term (2020) and long-term (2040) impacts are also considered under CEQA; similar to the No-Build baseline used for NEPA.

Table 1-8 Planned Improvements to be Completed Prior to Project Construction

Project Name (EA No.)	Project Limits and Description	Status
I-80/I-680/SR 12 Interchange Project Phase 1, Initial Construction Package (EA 04-0A5344)	**Limits**: From 0.7 mile west on SR-12 West to SR-12 West/I-80 and on WB I-80 from SR-12 West/I-80 to I-80/I-680. **Description**: Realignment of WB I-80 from east of the I-80/I-680 IC to SR-12 West connector, relocation of the Green Valley Road IC to the east and reconfiguration of the SR-12 West ramps and Green Valley Road on-ramp. The WB I-80 realignment to the north will provide for a wider median to accommodate the future I-680/I-80 HOV Lanes Connector (Package 6 of the I-80/I-680/SR-12 IC Project) and correct the nonstandard typical section on WB I-80 between the relocated Green Valley Road IC and the SR-12 West.	Anticipated Construction Completion 2016
I-80 Ramp Metering (EA O4-153504)	**Limits**: Along I-80 in Solano County, within the cities of Vallejo, Fairfield and Vacaville; from the Contra Costa County Line to I-505. **Description**: Install ramp metering, traffic operating systems, metal beam guardrail, and sign structures, and widen ramp	Completed 2014
Bridge Widening (EA 04-0A0904)	**Limits**: On I-80 in Solano County, in and near Vacaville from 0.2 mile west of Alamo Creek Bridge to 0.2 mile east of Alamo Creek Bridge. **Description**: Widen bridge and construction drainage	Anticipated Construction Completion 2016

The largest planned improvement project within the project limits is the I-80/I-680/SR-12 Interchange (ICP) – Phase 1 Project, which will be constructed with seven individual construction packages. The project report for the preferred alternative and the corresponding Phase 1, Initial Construction Package for the ICP was approved in October 2012. The Phase 1 of the ICP will include numerous improvements to address existing and future traffic operations and congestion, including relocation of the Cordelia Westbound Truck Inspection Facility. Proposed improvements are intended to add freeway capacity, reduce cut through traffic on local roads, improve local access to and from the freeway, accommodate current and future truck volumes, improve safety and increase the use of HOV lanes and ridesharing. The existing highway geometry on I-80, within the limits of the West Segment, has been adjusted in the design of this I-80 Express Lanes Project to include proposed improvements from Phase 1 of the ICP.

COMPARISON OF ALTERNATIVES

The Build Alternative would convert HOV lanes to express lanes along I-80 from west of Red Top Road to east of I-505, striving to meet the goals discussed in **Section 1.3.1, Purpose**. The No-Build Alternative would not include this conversion, but other planned improvements shown in **Table 1-8** may be implemented. The No-Build Alternative would not address the needs described in **Section 1.3.2, Need**, and therefore would not provide an immediate benefit to the traveling public by maximizing the use of existing freeway infrastructure and expanding capacity.

1.4.3 FINAL DECISION MAKING PROCESS

After the public circulation period, all comments were considered, and Caltrans selected a preferred alternative and made the final determination of the project's effect on the environment. As no immitigable significant adverse impacts are identified under CEQA, Caltrans prepared a Mitigated Negative Declaration in accordance with CEQA. . Similarly, Caltrans determined the action does not significantly impact the environment, so Caltrans, as assigned by the FHWA, has issued a Finding of No Significant Impact (FONSI) in accordance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372. A Notice of Determination (NOD) will be published for compliance with CEQA.

1.4.4 IDENTIFICATION OF A PREFERRED ALTERNATIVE

Within the existing project corridor, no other build alternatives were deemed viable (see **Section 1.4.5, Alternatives Considered but Eliminated from Further Discussion**). As such, the alternatives considered for the project include the Build Alternative and the No-Build Alternative. The Build Alternative has been identified as the preferred alternative. Final identification of the preferred alternative occurred after the public review and comment period, as described above.

The following summarizes the reasons for choosing the Build Alternative over the No Build Alternative:

- **Increase vehicle and passenger throughput and decrease congestion on the I-80.** Under existing conditions, during the weekday morning and evening peak commute hours, slowing occurs on both eastbound and westbound I-80. Factors that contribute to the slowing of I-80 traffic between the I 680 Interchange and the State Route 12 (SR 12) East (to Rio Vista) Interchange include closely spaced ramps, high vehicular volumes merging and diverging from the general purpose travel lanes, and truck movements to and from the Cordelia Truck Scales. Factors that contribute to slowing of traffic between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road include high traffic volumes associated with popular destinations such as Travis Air Force Base and retail areas within the Solano Mall; and the curvature and roadway grades near Lagoon Valley Road/Cherry Glen Road. The slowing of westbound I-80 traffic between the Jameson Canyon Road/SR 12 West Interchange and Red Top Road is also exasperated by the lane drop from five lanes to four lanes in this location.

Under the Build Alternative, a continuous access design will be implemented and consist of the following primary improvements; installation of static or dynamic signs, electronic tolling equipment, and toll collection, retrofit of existing California Highway Patrol (CHP) observation areas, mainline restriping and widening, and installation of ancillary components such as electrical power and communication conduits and any Caltrans required traffic control devices. Vehicle and passenger throughput will increase due to the associated improved utilization of existing HOV lane capacity from Red Top Road to east of Air Base Parkway. Additionally, the Build Alternative will result in increased capacity to meet existing and future travel demand from east of Air Base Parkway to I-505.

- **The Build Alternative will offer non-carpool eligible drivers a reliable travel time option**. Under existing conditions, travel time along the I-80 is unreliable due to slowing of traffic between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road, as well as the slowing of westbound I-80 traffic between the Jameson Canyon Road/SR 12 West Interchange. Under the Build Alternative all eligible users, including HOVs, motorcycles, buses, decal vehicles as authorized by the California Air Resources Board, and toll-paying single occupant vehicles, will be able to access the new express lane during the hours of operation. Eligible vehicles with HOV status will continue to use the I-80 express lanes for free. Solo users, for whom time saving is of a value, who want a more convenient and reliable trip can choose to use the new express lane for a dynamically charged fee. Two-axle, delivery-type trucks would also be allowed to use the new converted facility for a fee, but trucks with three or more axles would be excluded from the lane. The Build Alternative will therefore offer non-carpool eligible drivers a reliable travel time.

- **Improve public transit utilization by reducing public transit travel times in the corridor.** Under existing conditions transit vehicles do not provide significant travel time savings over single-occupant vehicles as they have to travel in the general purpose lanes of the East Segment of the corridor. This reduces the incentive for commuters and other travelers to utilize transit options along the I-80 corridor. With the implementation of the Build Alternative and the associated repurposing of the underutilized HOV lanes into express lanes, travel times will improve and thus encourage utilization of public transit. Additionally, toll rates for solo drivers who choose to use the express lane would change depending on the level of traffic congestion and distance traveled. During periods of lower traffic congestion, the toll will be lower. The lower toll rates encourage more single-occupant vehicles to pay the toll and make use of the additional capacity of the express lane. During the hours of operation when there is more traffic congestion on the freeway, the toll to access the express lane will be higher. The higher toll rates discourage more single-occupant vehicles from using the express lane, which frees up space within the express lane and allows for more free-flowing traffic conditions. The improved traffic conditions associated with the tolling system provides increased incentive to utilize public transit.

The Build Alternative is the preferred alternative because it meets the purpose and need of the project. The No-Build Alternative would not satisfy the purpose and need of the project.

1.4.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION PRIOR TO DRAFT ENVIRONMENTAL DOCUMENT

PROJECT STUDY REPORT-PROJECT DEVELOPMENT SUPPORT ALTERNATIVE

The Preliminary Study Report was prepared and approved for this project in 2012. Two build alternatives were considered:

- Alternative A would implement continuous access express lanes with minimal improvements to the existing facility; and
- Alternative B would implement 12-foot express lanes with ingress and egress access locations, 4-foot buffer, and improvements to the existing facility to meet current design standards. Improvements to meet current design standards included 36-foot paved median, concrete median barrier, correction for existing nonstandard sight distances, new auxiliary lanes, modification/relocation of 25 roadway and creek bridges, and the modification and construction of soundwalls and retaining walls.

Alternative B was determined to not be viable because it required significant impacts to over 100 urban and rural parcels including displacement of persons/businesses and major relocations of both high and low risks facilities. The project cost was estimated at $1.4 billion in 2015 dollars which included $990 million for construction capital, $75 million for right of way capital and $335 million for capital outlay support.

The current Build Alternative evaluated in this environmental document is comparable to Alternative A.

MANAGED LANE DESIGN, ACCESS CONSIDERATION

The adopted 2011 Traffic Operations Policy Directive (TOPD) for Managed Lane Design requires consideration for both limited-access design and continuous-access design to better assess the capital costs for construction and operating expenses and the freeway's performance and operations benefits. The TOPD also requires performance of an operational analysis and a safety analysis for any HOV conversion project. The studies would disclose the operational impact due to the proposed express lane and access openings on a limited-access design and safety impact on operating conditions and the potential for collision due to the proposed improvements.

STA prepared a Continuous Access White Paper and presented the findings to Caltrans and MTC on March 9, 2011. The white paper discussed standard design, completed and upcoming express lane projects, access options along the I-80 corridor through Fairfield and Vacaville, and issues influencing continuous access. The recommended access option for I-80 was continuous access since this approach would balance the need to closely match current HOV lane legacy access conditions, promote effective utilization of the express lanes, meet bus transit service requirements, provide the opportunity for monitoring and enforcement at toll zones, and achieve a

project operation and design that is able to be expeditiously implemented with minimal ROW and environmental impacts.

There was consensus to consider a continuous access with limited/restricted access where needed for safety and operations for I-80. The Final Traffic Operations Analysis Report (Caltrans, 2014q) indicated that a limited or restricted access at any location would not be required. With the above findings, a limited-access design alternative for I-80 would not be a viable alternative, and 100 percent continuous access is recommended for the I-80 corridor.

1.4.6 PERMITS AND APPROVALS NEEDED

Table 1-9 identifies the permits/approvals that would be required for project construction.

Table 1-9 Permits and Approvals

Agency	Permit/Approval	Status
United States Army Corps of Engineers	Section 404 Permit – Nationwide	Issued during the Final Design Phase
United States Fish and Wildlife Service (USFWS)	Biological Opinion	Biological Opinion Issued August 17, 2015
National Marine Fisheries Service (NMFS)	Concurrence with "no effect" determination	Concurred that project is covered under Category 3 of the Programmatic Biological Opinion on May 26, 2015
California Department of Fish and Wildlife	1602 Agreement	Issued during the Final Design Phase
	Incidental Take Permit	Issued during the Final Design Phase
California Water Resources Board	NPDES Permit	Issued during the Final Design Phase
Regional Water Quality Control Board	Section 401 Certification	Issued during the Final Design Phase
Metropolitan Transportation Commission (MTC) Air Quality Conformity Task Force/ Federal Highway Administration (FHWA)	Regional Air Quality Conformity	MTC Determination July 18, 2013 FHWA Determination August 12, 2013
	Project-Level Air Quality Conformity	MTC Determination September 25, 2012/ FHWA Determination September 22, 2015

Agency	Permit/Approval	Status
State Historic Preservation Officer (SHPO)	Concurrence on Eligibility Determinations/Finding of No Adverse Effect with Standard Conditions – Environmentally Sensitive Area (ESA)	Concurrence Requested January, 2015 Concurrence Received July 2, 2015

Source: Circlepoint, 2014

2.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As part of the scoping and environmental analysis conducted for the project, several environmental issues were considered but no adverse impacts were identified. The Resource topic with no adverse impacts and reason for no effect are identified in **Table 2-1**. Consequently, there is no further discussion regarding these issues in this document.

Table 2-1 Issues With No Adverse Impacts

Resource Topic	Reasons for No Effect
Coastal Zone	The Build Alternative is not located in the Coastal Zone. As such, no coastal resources would be directly affected by construction or operation of the Build Alternative.
Wild and Scenic Rivers	The Build Alternative is not located near any rivers designated as part of the National Wild and Scenic Rivers System. No wild or scenic rivers would be directly or indirectly affected by construction or operation of the Build Alternative.
Energy	The Build Alternative involves no planned use of natural resource beyond fuel and energy needed during construction activities and the power needed to operate the lighting and signage associated with the proposed high occupancy vehicle/express lane (express lane). The energy needed to power the operational aspects of the Build Alternative would be minimal, and would be adequately supplied by existing Pacific Gas & Electric (PG&E) electric power mix. Furthermore, the Build Alternative would help reduce wasteful energy consumption by improving operations and alleviating traffic congestion. When balancing energy used during construction and operation against energy saved by relieving traffic congestion and other transportation efficiencies, the Build Alternative would not have substantial energy impacts.

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2.1 HUMAN ENVIRONMENT

2.1.1 LAND USE

Information in this section is based on the Community Impact Assessment (CIA) prepared for the project (Caltrans, 2014d) and local and regional plans. As part of the CIA, an expansive review of state, regional, and local plans and policies was conducted to summarize the current and expected development trends in and around the project limits. Plans and policy documents that were reviewed include:

- *Plan Bay Area:* Includes the Regional Transportation Plan for the nine Bay Area counties; successor to *Regional Transportation Plan (RTP), Transportation 2035 - Change in Motion for the San Francisco Bay Area* [1]
- *Regional Transportation Plan (RTP), Transportation 2035 - Change in Motion for the San Francisco Bay Area:* Transportation plan guiding how transportation funds will be spent in the nine-county Bay Area through horizon year 2035[2]
- *Solano Comprehensive Transportation Plan (CTP)*: Transportation plan which envisions, directs, and prioritizes the transportation needs of Solano County through the year 2030[3]
- *Solano County General Plan*: General Plan for the unincorporated areas of County of Solano through horizon year 2030[4]
- *City of Fairfield General Plan*: General Plan for the City of Fairfield through horizon year 2020[5]
- *City of Vacaville General Plan*[6]*:* General Plan for the City of Vacaville through horizon year 2010
- *Suisun Valley Strategic Plan*: Strategic Plan for Suisun Valley to provide guidance to the County on its adopted agricultural vision[7]
- *Middle Green Valley Specific Plan*: Specific plan guiding development for largely undeveloped agricultural and open space land in a portion of unincorporated Solano County[8]

1 Association of Bay Area Governments & Metropolitan Transportation Commission. 2013. Plan Bay Area.
2 Metropolitan Transportation Commission. 2009 .Regional Transportation Plan (RTP), Transportation 2035Change in Motion for the San Francisco Bay Area.
3 Solano County. 2005, updated 2008. Solano Comprehensive Transportation Plan.
4 Solano County. 2008. Solano County General Plan.
5 City of Fairfield. 2002. City of Fairfield General Plan.
6 The City of Vacaville is in the process of preparing a General Plan Update at the time of this document preparation, but has not yet adopted the Update. Therefore, this analysis considers the 2008 General Plan Land Use element as the most recent planning document for the city.
7 Solano County. 2010. Suisun Valley Strategic Plan.
8 Solano County. 2010. Middle Green Valley Specific Plan.

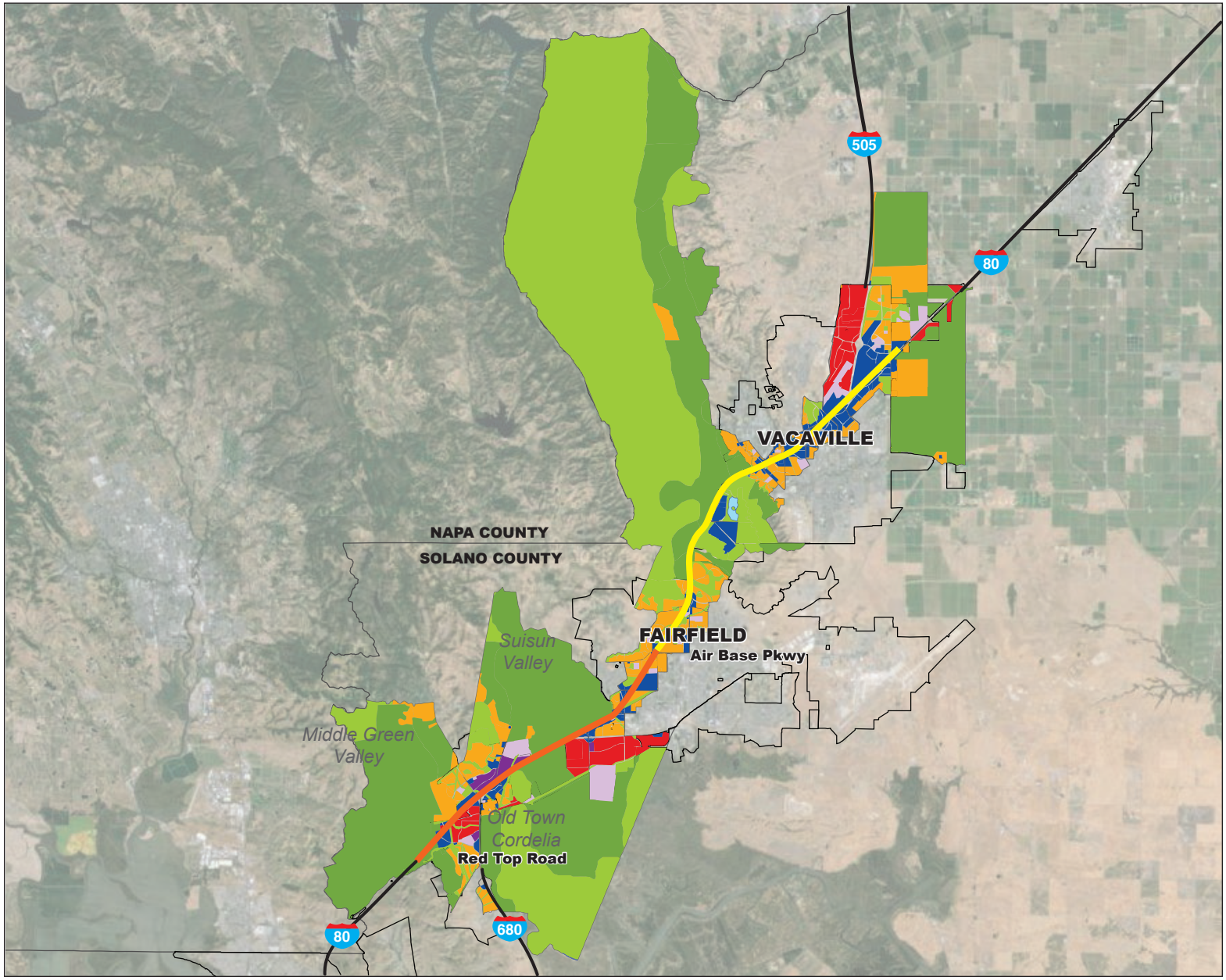
EXISTING AND FUTURE LAND USE

Existing Land Use Patterns

The project is located within a region that varies from urban to rural development patterns, with a diverse mixture of land uses that are visibly and functionally divided through the cities of Vacaville, Fairfield, and unincorporated Solano County. The land use study area is shown in **Figure 2.1-1**, which includes the proposed Build Alternative and surrounding land uses. I-80 runs west-east through the study area and serves both local and regional traffic in the area. In the West Segment, from the southern project limit to the SR 12/I-80 interchange, there is a mix of commercial, open space, industrial, agricultural, and residential land uses. From the SR 12/I-80 interchange traveling to the northern limit of the West Segment, land uses consist primarily of residential, with some commercial and open space. From the beginning of the East Segment, to the city limits of Fairfield, land uses consist primarily of residential, with some commercial and agricultural development. Continuing to travel north through unincorporated Solano County, to the southern limits of the City of Vacaville, land uses consist of agricultural, open space, and commercial development. Traveling north, through the City of Vacaville to the northern extent of the East Segment, land uses consist of residential, commercial with some open space, and education/public/semi-public development.

Planned Development

There are 70 planned developments within the land use study area, which are listed in **Table 2.1-1**. The predominant type of planned development in the study area is residential. Other development projects planned in the study area include several commercial and industrial land uses. Several transportation projects are planned within the study area, including I-80 truck scale relocations in Cordelia; I-80/I-680/SR 12 interchange improvements; SR 12 widening and operation and safety improvements; local roadway widening at Peabody Road, Leisure Town Road, and Foxboro Parkway; roadway extensions at Railroad Avenue and Manual Campos Parkway; and a new rail station at the Capitol Corridor Station. **Section 2.4, Cumulative Impacts** discusses the environmental effects related to the planned developments listed in **Table 2.1-1** and transportation projects noted in conjunction with the proposed project. **Figures 2.4-1a** and **2.4-1b** in **Section 2.4, Cumulative Impacts,** depict the respective locations of these projects.



Land Use Study Area

Figure 2.1-1

Source: Caltrans, 2014d

Table 2.1-1 Planned Developments

Name	Location	Acres	Units	Proposed Use	Status
Amber Hills	6928,6932,6950,6964 Browns Valley Road Vacaville	19.1	38	Residential	Tentative Map
Brighton Landing	SE of Elmira Road & Leisure Town Road Vacaville	125	769	Residential	Under Review
Cheyenne	Whispering Ridge Drive & W of Browns Valley Road & N of McMurty Lane Vacaville	86	221	Residential	Partially Constructed
Ivywood	201 Beard Street Vacaville	5.9	37	Residential	Partially Constructed
Knoll Creek	W. of Browns Valley Road & Whispering Ridge Drive Vacaville	10	38	Residential	Approved
Lagoon Valley	E. of I-80; S. of Lagoon Valley Road Vacaville	412	1025	Residential	Tentative Map
Montessa	1222 California Drive Vacaville	40	55	Residential	Tentative Map
Renaissance at North Village	Cresent Drive & North Village Parkway Vacaville	19.8	192	Residential	Under Construction
Casa Bella at North Village	Cresent Drive & North Village Parkway Vacaville	2.9	35	Residential	Under Construction
Sanctuary at North Village	Cresent Drive & North Village Parkway Vacaville	13.4	162	Residential	Under Construction
North Village Unit 5	Cresent Drive & North Village Parkway Vacaville	11	68	Residential	Under Review
North Village Unit 6	W. of North Village Parkway Vacaville	134.9	176	Residential	Under Review
Portofino Unit 2	S. of Tocia Avenue & Butcher Road Vacaville	1.26	7	Residential	Tentative Map

Name	Location	Acres	Units	Proposed Use	Status
Barrington Estates at Southtown	E. of Nut Tree; S. of Somerville Drive Vacaville	43.7	165	Residential	Partially Constructed
Carrington Manor at Southtown	E. of Nut Tree; S. of Somerville Drive	41.9	158	Residential	Partially Constructed
Southtown Phase 3	5709 Vanden Road Vacaville	47.9	37	Residential	Tentative Map
Southtown Commons	E. Side Leisure Town Road; & Cypresswood Drive Vacaville	39.4	215	Residential	Tentative Map
Rancho Rogelio	7019 Browns Valley Road Vacaville	20.9	40	Residential	Tentative Map
Sterling Chateau 4	SE Corner Alamo Vanden Road Vacaville	13.7	54	Residential	Tentative Map
Vanden Meadows	E. of Nut Tree Rd.; S. of Opal Way Vacaville	206	939	Residential	Under Review
Arroyo Vista	SW Corner of Fruitvale Road & Gibson Canyon Road Vacaville	3.87	8	Residential	Tentative Map
Canyon View	Gibson Canyon Road & Vine Court Vacaville	14.08	15	Residential	Approved Vesting
Cheyenne Estates	NW of Shelton Lane Vacaville	15	15	Residential	Approved Final Map
Gibson/Vine Estates	SE Corner of Gibson Canyon Road/Vine Street Vacaville	9.01	8	Residential	Approved Vesting
Golf Course Estates	White Sands Drive & Whitney Court Vacaville	16.8	3	Residential	Recorded Final Map
Hidden Valley	N. Alamo Drive & Hidden Valley Lane Vacaville	25.5	31	Residential	Recorded Final Map
Horkey Parcel Map	385 Vine Street Vacaville	3.5	2	Residential	Tentative Map

Name	Location	Acres	Units	Proposed Use	Status
Nob Hill Estates	End of Seneca Way Vacaville	12.17	9	Residential	Approved Final Map
North Vine Street Estates	N. end of Vine St.; E. of Gibson Canyon Road Vacaville	60.4	58	Residential	Approved Final Map
Rogers Ranch	N. of McMurtry Lane & Grace Feather Court Vacaville	35	28	Residential	Vesting Tentative Map
Spring Lane Unit 2	Spring Lane & Monte Verde Drive Vacaville	52.85	27	Residential	Tentative Map
Stratton Estates	607 Shady Glen Road Vacaville	4	10	Residential	Partially Constructed
Verona	190 Rice Lane Vacaville	4.72	4	Residential	Tentative Map
Villages on Vine Unit 2	E. of Vine Street & Gibson Canyon Road Vacaville	12.9	25	Residential	Under Construction
Vine Glen Estates	Bresee Ave/Vine Street Vacaville	6.3	19	Residential	Tentative Map
Nut Tree Apartments	Nut Tree Road & E Monte Vista Ave Vacaville	12	216	Residential	Approved
Quinn Crossing Apartments	9999 Quinn Road Vacaville	17.3	312	Residential	Pending Submittal
Southtown Apartments	W. of Leisure Town Road & Vanden Road Vacaville	10.7	223	Residential	Tentative Map
Southtown Townhouses	W. Side Vanden Road & Cogburn Circle Vacaville	6.3	60	Residential	Tentative Map
Vanden Meadows Apartments	W. of Vanden Road; N. of Newcastle Drive Vacaville	8.17	60	Residential	Approved Planned Development
Villas at North Village Apartments	North Village Parkway & Crescent Drive Vacaville	9.9	228	Residential	Approved

Name	Location	Acres	Units	Proposed Use	Status
Eastridge	Green Valley Road & Eastridge Drive Fairfield	N/A	217	Residential	Active
Garibaldi Ranch	Lopes Road & Gold Hill Road Fairfield	N/A	520	Residential	Active
Gold Ridge	Peabody Road & Chuck Hammond Drive Fairfield	N/A	1458	Residential	Active
Madison	Peabody Road & Gramercy Circle Fairfield	N/A	221	Residential	Active
Paradise Crest	Manuel Campos Parkway & Mystic Drive Fairfield	N/A	150	Residential	Active
Fieldcrest	Red Top Road & Oakbrook Drive Fairfield	N/A	384	Residential	Future
Train Station Specific Plan Area	Peabody Road & Cement Hill Road Fairfield	N/A	N/A	Residential	Future
Villages at Fairfield	Cement Hill Road & Walters Road Fairfield	N/A	1717-2159	Residential	Future
Villas at Havenhill	Red Top Road & Oakbrook Drive Fairfield	N/A	324	Residential	Future
Franklin-Tabor	Tabor Avenue & Pacific Avenue Fairfield	N/A	23	Residential	Inactive
Ivy Wreath	East Tabor Avenue & Walters Road Fairfield	N/A	73	Residential	Inactive
Paesino Verde	Business Center Drive & Suisun Valley Road Fairfield	N/A	284	Residential	Inactive
Strawberry Fields	East Tabor Avenue & Walters Road Fairfield	N/A	39	Residential	Inactive

Name	Location	Acres	Units	Proposed Use	Status
The Cottages	Union Avenue & Peach Tree Drive Fairfield	N/A	45	Residential	Inactive
Mercedes Benz	2950 Auto Mall Fairfield	77,914 square feet		Commercial	Under Construction
Lowes	N. Texas at Manuel Campos Fairfield	139,000 square feet		Commercial	Under Construction
Premium Auto Mall	Auto Plaza Court Fairfield	10,000 +/- square feet		Commercial	Under Construction
Sparkles Express Car Wash	3103 N. Texas Fairfield	3,000 square feet		Commercial	Approved
Laurel Creek Plaza	Air Base at Claybank Fairfield	110,186 square feet		Commercial	Approved
Green Valley Ranch	4455 Central Fairfield	N/A		Commercial	Future Phase
CarMax	2901/2955 Auto Mall Parkway Fairfield	64,000 square feet		Commercial	Approved. Awaiting Building Permit
Green Valley Plaza	200 Suisun Valley Road Fairfield	455,000 square feet		Commercial	Application Under Review
Frank Lin Distillers	2455 Huntington Drive Fairfield	N/A		Industrial	Completed
Verizon MSC	2555 N. Watney Way Fairfield	49,235 square feet		Industrial	Under Construction
Clorox Tank Farm 1 & 2	2600 Huntington Drive Fairfield	N/A		Industrial	Under Construction
Lincoln Cordelia Road	2901 Cordelia Road Fairfield	119,000 square feet		Industrial	Time Extension Field
Lopes-Fermi Industrial Flex Building	555 Lopes Road Fairfield	32,509 square feet		Industrial	Time Extension Field
JCM Industrial Park	Cordelia Road at Hale Ranch Road Fairfield	841,000 square feet		Industrial	On Hold

Source: Caltrans, 2014d

CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

The following analysis of the project's consistency with state, regional, and local plans and programs includes those planning documents that are relevant to the proposed improvements (i.e., Regional Transportation Plan (RTP), circulation elements, and conservation documents associated with resources the project could potentially affect.

Regional Transportation Plans and Transportation Improvement Program

Metropolitan Transportation Commission

In early 2006, the Metropolitan Transportation Commission (MTC) began study efforts to determine the feasibility of a regional express lane network in the San Francisco Bay Area. The study examined the institutional, financial, and technical merits of implementing an express lane network, including cost and revenue estimates, as well as design approaches. The corridor analyses found that express lanes over the majority of the identified network were feasible if some flexibility was provided in the design approach for areas with significant physical, environmental, or financial challenges.

In 2013, the MTC adopted the RTP, Plan Bay Area. The RTP sets forth the agency's vision of "an integrated, market-based pricing system for the region's carpool lanes (via a regional express lane network)" to help manage the demand on mature transportation systems and, as a source of revenue, to fund infrastructure improvements. The MTC 2013 RTP identifies I-80 as a priority corridor and includes the West Segment portion of the project as part of the larger MTC Regional Express Lanes System.

In November 2009, the I-80 HOV Lane Project from Red Top Road to Air Base Parkway, in the City of Fairfield, was completed. The project widened the existing I-80 median to add over 8 miles of HOV lanes in both directions and constructed new concrete median barrier. The West Segment of this project will convert these HOV lanes to express lanes.

STA started preliminary studies for the conversion (West Segment) and widening (East Segment) segments of the project in 2010. STA is the lead agency responsible for planning, design and construction of the express lanes on I-80 in Solano County.

On September 28, 2011, the MTC submitted the Bay Area Express Lanes Public Partnership Application for High Occupancy Toll Lanes to the California Transportation Commission (CTC). The application, submitted in cooperation with Caltrans, requests authority, pursuant to Section 149.7 of the Streets and Highways Code, to develop and implement 285 miles of express lanes within the Bay Area. The application was approved in October 2011 and included the approved program-level Project Study Report (PSR) To Support the Bay Area Express Lane Backbone Network. One of the two alternatives developed in the PSR is comparable to this project.

The project is therefore consistent with the MTC Plan Bay Area, and is an element of MTC's 533-mile "backbone" network for express lanes in the San Francisco Bay Area, as described in MTC's Express Lane Backbone Network PSR (RTP ID 240581 and 230660).

The project is included in the MTC's 2015 Transportation Improvement Program (TIP) as project number SOL110001.[9] MTC approved the financially constrained TIP through Amendment No. 2013-16 on May 28, 2014 The Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) approved and incorporated the TIP in to the Federal Statewide Transportation Improvement Program (FSTIP) on June 12, 2014.

Solano County Transportation Authority (STA) Comprehensive Transportation Plan 2030

The STA's Comprehensive Transportation Plan (CTP 2030) for Solano County envisions, directs, and prioritizes the transportation needs of Solano County through the year 2030. The plan identifies HOV lane construction on the I-80 corridor within the county.[10] Additionally, express lanes on I-80 are identified as an operational strategy to implement the identified needs as outlined in the I-80/I-680/I-780 Major Investment & Corridor Study prepared for the STA.

Conservation Plans

Proposed Solano Habitat Conservation Plan (HCP)

The purpose of the Solano HCP is to establish a framework for complying with state and federal endangered species regulations while accommodating future urban growth, including the development of public infrastructure over the next 30 years for participating agencies. Although the project is within the HCP limits, Caltrans is not a participant in the proposed Solano HCP nor is the document binding, or formally adopted. However, avoiding conflict with adopted habitat conservation plans and local ordinances are goals of NEPA and CEQA. The goals of the Solano HCP were shaped by many of the same environmental regulations that have influenced this project. Where applicable, the avoidance and minimization measures devised to reduce the adverse impacts of this project to special status resources have been crafted to complement those avoidance and minimization measures listed in the Solano HCP.

General and Specific Plans

Solano County General Plan

The Transportation and Circulation Element of the Solano County General Plan provides the following goal and policies for transportation and circulation within the county[11]:

Goal TC.G-2: Promote coordinated approaches to creating, maintaining and improving transportation corridors and facilities by working with other jurisdictions and transportation agencies in funding and implementing projects.

[9] The project was originally listed under the two TIP numbers SOL110001 and SOL110002 (relative to the East and West Segments). TIP Amendment No. 2013-16 combined the two segments under one TIP ID SOL110001, and reprogramed the funding sources and phases.

[10] Solano Transportation Authority Comprehensive Transportation Plan 2005, updates 2009; < http://www.sta.ca.gov/Content/10054/ComprehensivePlans.html#ahf>accessed on March 10, 2013.

[11] Solano County. 2005. Solano County General Plan, pg LU-31

Policy TC.P-1: Maintain and improve current transportation systems to remedy safety and congestion issues, and establish specific actions to address these issues when they occur.

Policy TC.P-11: Maintain and improve the current roadways and highway system to meet recommended design standards set forth by the County, including streets that also carry transit and non-motorized traffic.

City of Vacaville General Plan

The project limits are located, in part, within the City of Vacaville. The Land Use, Open Space and Transportation Elements of the City of Vacaville's General Plan include the following guiding polices related to transportation and circulation within the city

Policy 2.2-G 5: Plan for and carry out improvements to the City's infrastructure, consistent with the General Plan, to preserve economic vitality, accommodate new housing, increase the City's revenue base, enhance mobility and economic opportunity, and correct deficiencies.

Policy 6.2-G 1: Work with the California Department of Transportation (Caltrans) and Solano Transportation Authority (STA) to achieve timely construction of programmed freeway and interchange improvements.

Policy 6.2-G 2: Coordinate, to the extent feasible, transportation system improvements with neighboring jurisdictions.

Policy 6.2-I 3: Encourage Caltrans to widen and upgrade I-80 through Vacaville. In new development areas adjoining I-80 and I-505, require major building setbacks and require offers-of-dedication to permit the long-term planning and widening of the freeways.

City of Fairfield General Plan

The project limits are located, in part, within the City of Fairfield. The Circulation Element of the City of Fairfield's General Plan includes the following guiding polices related transportation and circulation within the city.

Policy CI 2.3: Work with Caltrans to identify needed improvements to its highway/interstate facilities in the City and implement necessary programs on the state highway system and its interchanges/intersections with local roadways.

Policy CI 2.4: Work with Caltrans and adjacent jurisdictions to improve the operational performance of I-80, I-680 and State Route 12 as regional facilities.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Table 2.1-2 summarizes the consistency of the alternatives with the applicable state, regional, and local land use plans and programs adopted for the area. Plans, programs, and policies that are applicable to the West Segment are identified.

Table 2.1-2 Consistency with State, Regional, and Local Plans and Programs

Policy	Build Alternative	No-Build Alternative
Plan Bay Area / Change in Motion: Transportation 2035		
Implement a regional express lane network and use a market-based pricing system to manage transportation demand and pay for system improvements.	Consistent The Build Alternative would construct an express lane, which would reduce traffic congestion and optimize roadway capacity. As a result, this segment of I-80 corridor would become part of the regional Bay Area Express Lane Network.	Not Consistent Under the No-Build Alternative, no changes to the existing roadways would occur within the project limits. This alternative would not incorporate this segment of I-80 into the regional Bay Area Express Lane Network.
Solano Comprehensive Transportation Plan 2030		
HOV lane construction on the I-80 corridor is an identified need of Solano County.	Consistent The Build Alternative would provide new express lanes within the East Segment, which is an operational strategy to meet identified traffic and circulation deficiencies.	Not Consistent Under the No-Build Alternative, no changes to the existing roadways would occur within the project limits, and no new HOV lanes would be constructed.
Express lanes on I-80 are identified as an operational strategy to implement the identified needs as outlined in the I-80/I-680/I-780 Major Investment & Corridor Study.	Consistent The Build Alternative would provide an express lane, which is an operational strategy to meet identified traffic and circulation deficiencies.	Not Consistent Under the No-Build Alternative, no changes to the existing roadways would occur within the project limits, and no express lanes would be constructed.
Proposed Solano County Water Authority Habitat Conservation Plan (HCP)		
Comply with state and federal endangered species regulations while accommodating future development of infrastructure.	Consistent Implementation of avoidance, minimization, and/or mitigations provided in **Section 2.3, Biological Environment** would ensure adherence to federal and endangered species regulations.	Consistent Under the No-Build Alternative, no improvements to existing conditions would occur within the project limits and no federal or endangered species would be impacted.
Solano County General Plan		
Goal TC.G-2: Promote coordinated approaches to creating, maintaining and improving transportation corridors and facilities by working with other jurisdictions and transportation agencies in funding and implementing projects.	Consistent Caltrans, in cooperation with the Solano Transportation Authority (STA), would implement the Build Alternative to improve the I-80 corridor. The Build Alternative would be funded from federal, state, and regional sources.	Not Consistent Under the No-Build Alternative, no improvements to the I-80 corridor would be constructed and future traffic volumes would further degrade freeway operations.

Policy	Build Alternative	No-Build Alternative
Policy TC.P-1: Maintain and improve current transportation systems to remedy safety and congestion issues, and establish specific actions to address these issues when they occur.	Consistent The Build Alternative would construct express lanes to address existing deficiencies on I-80 that hinder the safe and efficient movement of traffic.	Not Consistent Under the No-Build Alternative, no improvements would occur to the current transportation system, and safety and congestion issues would not be remedied.
Policy TC.P-11: Maintain and improve the current roadways and highway system to meet recommended design standards set forth by the County, including streets that also carry transit and non-motorized traffic.	Consistent During the design phase, the Build Alternative would be designed to meet industry standards.	Not Consistent Under the No-Build Alternative, no improvements to the current highway system would be constructed and existing design deficiencies would remain.
City of Vacaville General Plan		
Policy 2.2-G 5: Plan for and carry out improvements to the City's infrastructure, consistent with the General Plan, to preserve economic vitality, accommodate new housing, increase the City's revenue base, enhance mobility and economic opportunity, and correct deficiencies.	Consistent The Build Alternative would carry out improvements to the segment of the I-80 corridor within the City of Vacaville, correcting existing design deficiencies and enhancing mobility in the area.	Not Consistent Under the No-Build Alternative, no improvements to the I-80 corridor through the City of Vacaville would be constructed, and existing design deficiencies would remain.
Policy 6.2-G 1: Work with the California Department of Transportation (Caltrans) and Solano Transportation Authority (STA) to achieve timely construction of programmed freeway and interchange improvements.	Consistent The Build Alternative would construct express lanes programmed in State and Regional planning documents.	Not Consistent Under the No-Build Alternative, no construction of programmed improvements to the I-80 freeway would occur.
Policy 6.2-G 2: Coordinate, to the extent feasible, transportation system improvements with neighboring jurisdictions.	Consistent Development of the Build Alternative involves coordination with the neighboring jurisdictions of Fairfield and Solano County.	Not Consistent Under the No-Build Alternative, no construction of programmed improvements to the I-80 freeway would occur.
Policy 6.2-I 3: Encourage Caltrans to widen and upgrade I-80 through Vacaville. In new development areas adjoining I-80 and I-505, require major building setbacks and require offers-of-dedication to permit the long-term planning and widening of the freeways.	Consistent The segment of the Build Alternative that travels through Vacaville would be widened to accommodate new express lanes in both the eastbound and westbound directions of I-80.	Not Consistent Under the No-Build Alternative, no construction of programmed improvements to the I-80 freeway would occur.

Policy	Build Alternative	No-Build Alternative
City of Fairfield General Plan		
Policy CI 2.3: Work with Caltrans to identify needed improvements to its highway/interstate facilities in the City and implement necessary programs on the state highway system and its interchanges/intersections with local roadways.	Consistent The Build Alternative would construct express lanes on I-80, from west of Red Top Road to east of I-505, enhancing mobility in the area.	Not Consistent Under the No-Build Alternative, no upgrades to I-80 would occur.
Policy CI 2.4: Work with Caltrans and adjacent jurisdictions to improve the operational performance of I-80, I-680 and State Route 12 as regional facilities.	Consistent The Build Alternative would construct express lanes on I-80, from west of Red Top Road to east of I-505, enhancing mobility in the area.	Not Consistent Under the No-Build Alternative, no upgrades to I-80 would occur.

Sources: Caltrans, 2014d, County of Solano General Plan 2004, City of Vacaville General Plan, 2007; City of Fairfield General Plan, 2002, Google Maps

The MTC completed the program-level Project Study Report (PSR) *To Support the Bay Area Express Lane Backbone Network* in September 2011 and includes the development and implementation of 285 miles of express lanes within the Bay Area. One of the two alternatives developed in the PSR is comparable to this project.

The Build Alternative is consistent with the express lanes project described in the MTC Plan Bay Area, and would be part of MTC's "backbone" network of express lanes in the San Francisco Bay Area, as described in MTC's Express Lane Backbone Network PSR.

West Segment - Fundable First Phase

The West Segment is consistent with the plans, policies, and programs discussed above and outlined in **Table 2.1-2**.

No Build Alternative

Under the No-Build Alternative, there would be no changes to I-80 within the project limits. The freeway travel lanes along the I-80 corridor would remain as they currently exist and no express lanes would be constructed. As such, the No-Build Alternative is generally not consistent with the applicable local or regional planning documents described above in **Table 2.1-2**, which generally call for improvements to the state highway system.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Build Alternative is consistent with state, regional, and local planning goals and policies to improve traffic circulation and safety on the freeway network; therefore, no avoidance, minimization, or mitigation measures are required.

2.1.2 PARKS AND RECREATION FACILITIES

AFFECTED ENVIRONMENT

Information in this section is based on the CIA prepared for the project (Caltrans, 2014d). There are 42 parks and recreational facilities within 0.5 miles from the proposed Build Alternative improvements (see **Table 2.1-3** and **Figures 2.1-2a and 2.2-2b**). Few of these facilities are located immediately adjacent to the I-80 corridor. The Lagoon Valley Park/Pena Adobe Park and the Fairfield Linear Park Trail are closest to the I-80 corridor. The Lagoon Valley Park/Pena Adobe Park is located adjacent to the I-80 corridor, directly south of the Rivera Road/I-80 interchange in the East Segment. The park includes the historic Pena Adobe home, barbeque areas, multi-purpose fields, bike trails, and hiking trails.

Fairfield Linear Park is a Class I mixed-use/bicycle path and is located adjacent to the I-80 corridor in the West Segment from the I-80/SR 12 interchange to Rockville Road.[12,13] The park is a multi-use facility that provides opportunities for both active and passive outdoor recreation. Some of the more common activities that occur at the park include jogging, biking, and walking, all of which mostly take place on a concrete/asphalt path that spans the entire distance between the park's termini. The Fairfield City Council amended the General Plan designation of a portion of the Fairfield Linear Park Trail between Abernathy Road and Solano Community College (within the West Segment) from open space recreation (OSR) to public facility (PF) on September 16, 2008. As a result of the change in designation, an approximately 2-mile long segment of the Fairfield Linear Park was realigned as part of the North Connector Project (the Suisun Parkway Project). The realigned multi-use bike trail connects with the existing portions of the Fairfield Linear Park Trail at Suisun Creek to the west and at Abernathy Road to the east. This segment of the trail is between approximately 250 to 500 feet from I-80.

In addition, bike paths and bike lanes are present at several cross-street locations that intersect with the I-80 ramp termini within the project limits. Bike path (Class 1) and bike lane (Class 2, on-street striped bike lanes) intersections occur at Leisure Town Road, Nut Tree Road, Allison Drive, Elmira Road, Air Base Parkway/Waterman Boulevard, and Oliver Road. The Southside Bikeway begins at California Drive in the City of Vacaville, east of I-80. It travels northwest, and ends at Davis Street just before it reaches I-80. The Butcher Road Bike Path begins at Butcher Road on the east side of I-80, and travels south to its terminus at Pena Adobe Regional Park. A Class I bike path connects Nelson Road to Paradise Valley Road along the east side of I-80 in Fairfield.

12 A Class I path is a paved right-of-way completely separated from streets. These paths are typically shared between bicycles and pedestrians and are for mixed-uses.
13 Exhibit C1-2, Fairfield Circulation Element.

Table 2.1-3 Parks and Recreational Facilities

#	Name	Address
Vacaville		
1	Alamo Creek Park	Alamo Drive, Vacaville, CA 95688
2	Alamo School Park [1]	535 Edgewood Drive, Vacaville, CA 95688
3	Andrews Park[1]	Monte Vista Avenue and School St., Vacaville, CA 95688
4	Arbor Oaks Park	842 Arbor Oaks Drive, Vacaville, CA 95687
5	Centennial Park	270 Browns Valley Parkway, Vacaville, CA 95688
6	City Hall Park[1]	Walnut Avenue, Vacaville, CA 95688
7	Fairmont School Park	528 Tulare Drive, Vacaville, CA 95687
8	Fairmont/Beelard Park	1355 Marshall Road, Vacaville, CA 95687
9	Hawkins Park	300 Summerfield Drive, Vacaville, CA 95687
10	Hemlock School Park	498 Hemlock Street, Vacaville, CA 95688
11	Irene Larsen Park	1800 Alamo Drive, Vacaville, CA 95687
12	Keating Park	California Drive and Alamo Lane, Vacaville, CA 95688
13	Lagoon Valley Park/Pena Adobe Park[1]	1 Pena Adobe Road, Vacaville, CA 95688
14	McBride Senior Center	91 Town Square Place, Vacaville, CA 95688
15	Nelson Park	Nut Tree and Marshall Road, Vacaville, CA 95688
16	North Orchard Park[1]	N. Orchard Avenue and Crestview Drive, Vacaville, CA 95688
17	Padan Park	251 Padan School Road, Vacaville, CA 95687
18	Patwin Park	Elmira Road and Alamo Creek Bike Trail, Vacaville, CA 95867
19	Senior Center Park[1]	Ulatis Creek, Vacaville, CA 95688
20	Three Oaks Community Center[1]	1100 Alamo Drive, Vacaville, CA 95688
21	Trower Park	531 Markham Avenue, Vacaville, CA 95688
22	Ulatis Community Center[1]	1000 Ulatis Drive, Vacaville, CA 95688
23	Ulatis Gardens[1]	1000 Ulatis Drive, Vacaville, CA 95688
24	Willows Park[1]	Ogden Way and Marshall Road, Vacaville, CA 95687
Fairfield		
25	Allan Witt Community Park	1741 West Texas Street, Fairfield, CA 94533
26	City Hall & Civic Center Park	Civic Center Drive, Fairfield, CA 94533
27	Cordelia Community Park	1300 Gold Hill Road, Fairfield, CA 94533
28	Dunnell Property (project under design)[1]	3351 Hilborn Road, Fairfield, CA 94533
29	Hayes & Utah Street ~ Tot Lot[1]	1101 Hayes Street, Fairfield, CA 94533
30	Hillview Neighborhood Park[1]	300 Atlantic Avenue, Fairfield, CA 94533

#	Name	Address
31	Kentucky Street ~ Tot Lot[1]	1740 Kentucky Street, Fairfield, CA 94533
32	Linear Park Playground @ 2nd Street[1]	2nd St. & Linear Trail, Fairfield, CA 94533
33	Linear Park Playground @ 5th Street[1]	5th St. & Linear Trail, Fairfield, CA 94533
34	Mankas Neighborhood Park[1]	2800 Owens Street, Fairfield, CA 94533
35	Meadow Glen Neighborhood Park[1]	2800 Parkview Terrace, Fairfield, CA 94533
36	Meadow Neighborhood Park	1520 Meadowlark Drive, Fairfield, CA 94533
37	Rolling Hills Neighborhood Park	3520 Glenwood Drive, Fairfield, CA 94533
38	Rose Garden @ Linear Trail Park[1]	Travis Boulevard & Linear Trail, Fairfield, CA 94533
39	Sunrise Neighborhood Park	2920 Camrose Avenue, Fairfield, CA 94533
40	Veterans Memorial Park[1]	2050 Fairfield Avenue, Fairfield, CA 94533
41	Vintage Green Valley Neighborhood Park[1]	600 Vintage Valley Drive, Fairfield, CA 94533
42	Woodcreek Neighborhood Park[1]	1470 Astoria Drive, Fairfield, CA 94533

Note[1]: 4(f) properties, discussed in detail in **Appendix B**.
Source: Caltrans, 2014d

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Property of the nearby parks and recreational facilities identified in **Table 2.1-3** would not be acquired as part of the Build Alternative, thereby avoiding direct effects. Since the Build Alternative would not substantially alter the location of I-80, the distance between the parks and recreational facilities and the freeway corridor will not change when compared to existing conditions. The bike paths and bike lanes located adjacent to I-80, and at the various ramp termini intersections, would remain open during construction and would not be impacted as part of the Build Alternative. As part of the North Connector Project, the segment of the trail between Abernathy Road/I-80 interchange and Suisun Creek was realigned adjacent to the new Suisun Valley Parkway, approximately 250 to 500 feet north of the I-80 corridor. The new alignment would not overlap or preclude the proposed improvement areas of the project. The Build Alternative proposes roadway grading and widening at approximately 300 to 450 feet north of the Lagoon Valley Park/Pena Adobe Park. These improvements would occur within the Caltrans right-of-way and would be far enough away from these parks and recreational facilities that there would be no permanent effects.

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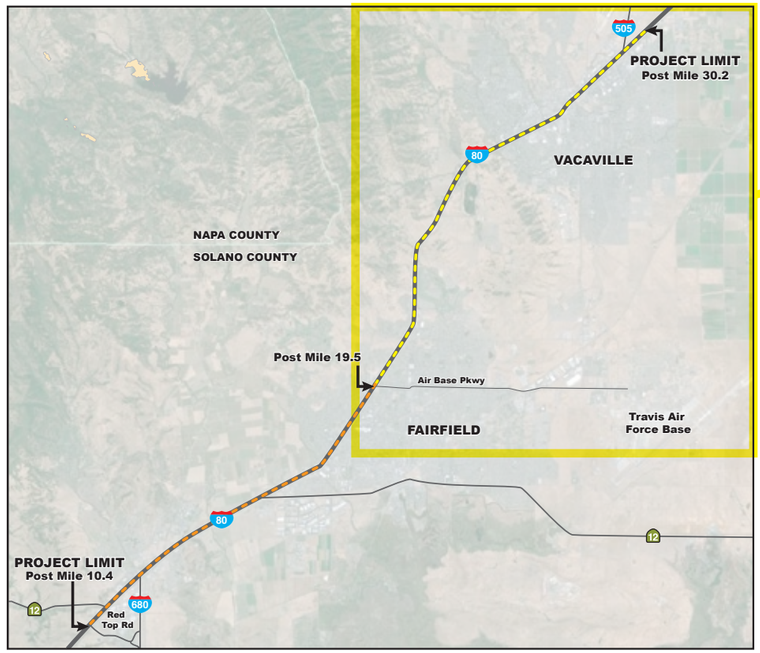
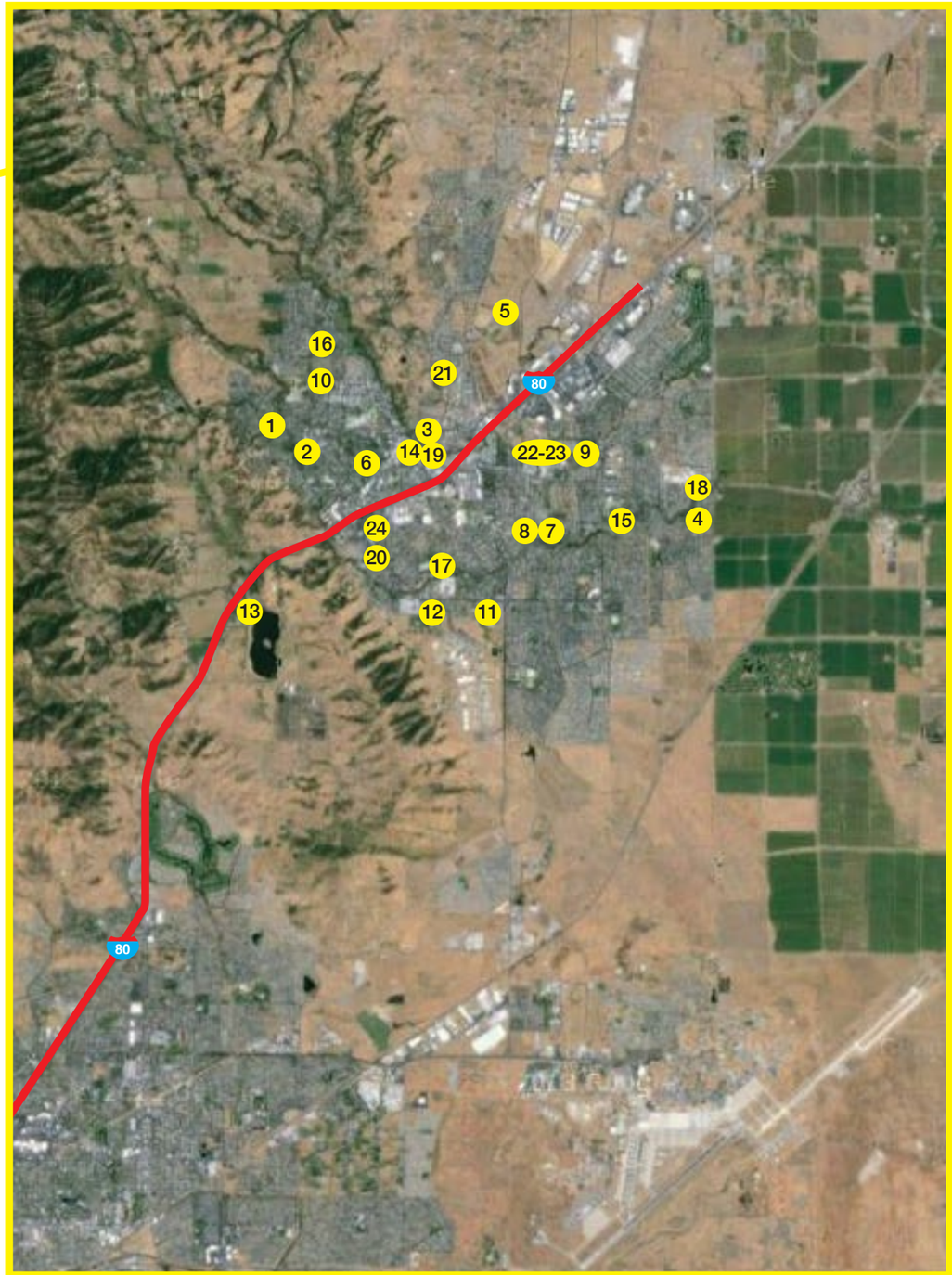


Legend

Project Study Limits



VACAVILLE PARKS AND RECREATIONS

1. Alamo Creek Park
2. Alamo School Park
3. Andrews Park
4. Arbor Oaks Park
5. Centennial Park
6. City Hall Park
7. Fairmont School Park
8. Fairmont/Beelard Park
9. Hawkins Park
10. Hemlock School Park
11. Irene Larsen Park
12. Keating Park
13. Lagoon Valley Park/Pena Adobe Park
14. McBride Senior Center
15. Nelson Park
16. North Orchard Park
17. Padan Park
18. Patwin Park
19. Senior Center Park
20. Three Oaks Community Center
21. Trower Park
22. Ulatis Community Center
23. Ulatis Gardens
24. Willows Park

Vacaville Parks and Recreation

Figure **2.1-2a**

Source: Circlepoint, 2015

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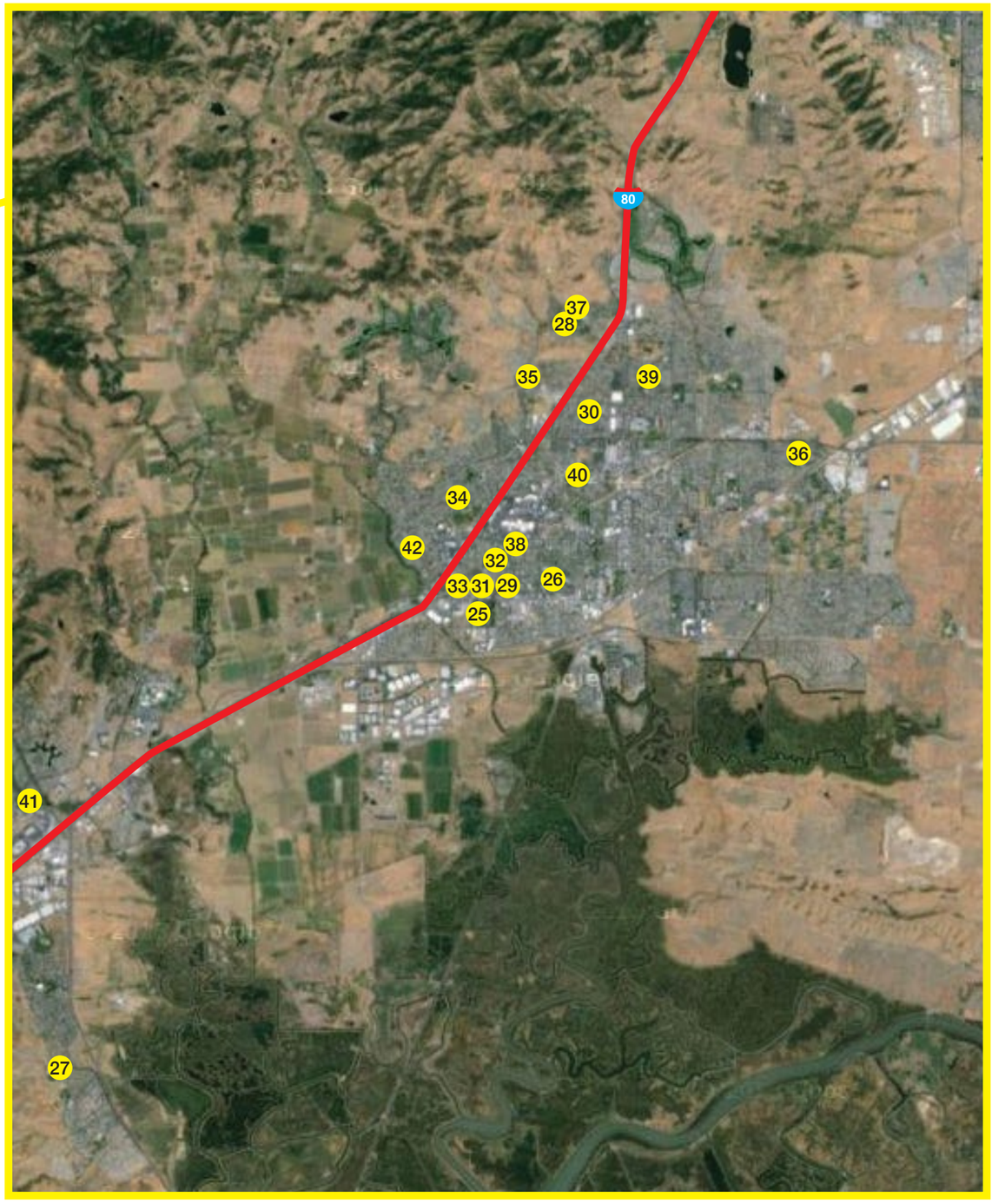
Legend

Project Study Limits



FAIRFIELD PARKS & RECREATION

25 Allan Witt Community Park
26 City Hall & Civic Center Park
27 Cordelia Community Park
28 Dunnell Property (project under design)
29 Hayes & Utah Street ~ Tot Lot
30 Hillview Neighborhood Park
31 Kentucky Street ~ Tot Lot
32 Linear Park Playground @ 2nd Street
33 Linear Park Playground @ 5th Street
34 Mankas Neighborhood Park
35 Meadow Glen Neighborhood Park
36 Meadow Neighborhood Park
37 Rolling Hills Neighborhood Park
38 Rose Garden @ Linear Trail Park
39 Sunrise Neighborhood Park
40 Veterans Memorial Park
41 Vintage Green Valley Neighborhood Park
42 Woodcreek Neighborhood Park

Fairfield Parks and Recreation

Figure 2.1-2b

Source: Circlepoint, 2015

Back of Figure 2.1-2b

The Build Alternative would not result in an increase in population in the areas surrounding the I-80 corridor (see **Section 2.1.3, Growth**); therefore, additional demand on the parks and recreational facilities is not anticipated. Potential air quality impacts are discussed in **Section 2.2.6, Air Quality**, which concludes that implementation of construction period minimization measures will reduce any air quality impacts resulting from construction activities. No substantial long-term air quality effects would result from the Build Alternative. Section 4(f) resources include publicly-owned parks, recreational areas, and wildlife refuges. Additionally, historic and archaeological sites on or eligible for the National Register of Historic Places, and that warrant preservation, are protected. These resources are further discussed in **Section 2.1.9, Cultural Resources,** and **Appendix B**.

West Segment – Fundable First Phase

As with the Build Alternative, the West Segment would not impact any park facilities. **Table 2.1-3** identifies the parks that are within 0.5-mile of the West Segment of the Build Alternative. The Build Alternative, including the West Segment, would have no impact on these resources.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on parks and recreational facilities.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, and/or mitigation measures are necessary because the Build Alternative would not impact parks and recreational facilities within the project limits.

2.1.3 GROWTH

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, requires evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, 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 environmentaldocuments 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.

AFFECTED ENVIRONMENT

Information in this section is based on the CIA prepared for the project (Caltrans, 2014d). The study area for the growth impacts discussion is defined by the census tract blocks that encompass or are adjacent to the I-80 corridor, within the project limits. This study area extends beyond the physical boundaries of the proposed Build Alternative improvements to include a diverse mix of land uses and communities that may be affected by the Build Alternative.

Population and Housing Trends in the Study Area

The study area for growth impacts has experienced stable development over the past several years. As previously discussed in **Section 2.1.1, Land Use**, there are a number of future land use development projects in close proximity to the I-80 corridor (see **Table 2.1-1**). **Table 2.1-4** summarizes existing and projected population and housing growth through 2040 for the county of Solano, cities of Vacaville and Fairfield, as well as the regional Bay Area.[14].

Table 2.1-4 2010-2040 Population and Household Growth

Geographic Area	Population			Households		
	2010	2040	Percent Change	2010	2040	Percent Change
Bay Area	7,150,739	9,299,100	30%	2,608,023	3,308,090	27%
Solano County	413,344	511,600	24%	141,758	168,700	19%
City of Vacaville	92,428	114,000	23%	31,092	35,860	15%
City of Fairfield	105,321	146,500	39%	34,484	46,430	35%

Source: Association of Bay Area Governments (ABAG), Projections 2013

To accompany the increased population described above, housing is also expected to grow rapidly in the study area. According to the 2013 ABAG Projections, the following gains are expected in total households by 2040:

- County of Solano – 26,942 additional households (27 percent increase)
- City of Vacaville – 4,768 additional households (19 percent increase)
- City of Fairfield – 11,946 additional households (35 percent increase)

[14] Association of Bay Area Governments jurisdiction for the "Bay Area" includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

Employment Trends in the Study Area

Employment throughout the Bay Area region declined during the recent economic downturn. However, employment growth is expected substantially grow over the next two decades, with a 18.0 percent increase in the region between 2010 and 2040. In particular, both Vacaville and Fairfield are two of the three cities in Solano County which will accommodate the most absolute number of jobs, together accounting for 77 percent of the county's projected growth. Throughout Solano County, the construction sector is projected to see the most percentage growth in employment, while nearly half the new jobs will be in the health and educational and professional management services[15]. Employment (job) trends and projections for Solano County, the City of Vacaville, and the City of Fairfield are shown in **Table 2.1-5**.

Table 2.1-5 2010-2040 Employment Growth

Geographic Area	Employment (Jobs)		
	2010	2040	% Change Between 2010 and 2040
Solano County	132,340	179,940	+36%
City of Vacaville	29,800	41,120	+38%
City of Fairfield	39,300	53,310	+36%

Source: Association of Bay Area Governments (ABAG), Projections 2013

ENVIRONMENTAL CONSEQUENCES

Caltrans' *Environmental Handbook Volume 4, Community Impact Assessment* states that "growth inducement is defined as the relationship between the proposed transportation project and growth within the project limits." Caltrans has developed guidance for determining if a project is considered to be growth-inducing, both directly and indirectly. Based on a "First-cut screening," it was determined that indirect project-related growth is reasonably foreseeable but not to the extent that it would impact resources of concern. The results of the first cut screening are documented below. No additional growth analysis is required.

Build Alternative

The purpose of the Build Alternative is to provide an immediate benefit to the traveling public by offering non-carpool eligible drivers a reliable travel time option, improving public transit utilization, increasing vehicle and passenger throughput, maximizing the use of the existing freeway infrastructure, relieving traffic congestion, and improving traffic flow on the regional highway network. The Build Alternative would optimize the under-utilized capacity in the existing HOV lane in the West Segment, as well as add capacity, through construction of new express lanes in the East Segment. By implementing these improvements, the Build Alternative would, to some extent, accommodate growth on a regional level.

[15] According to ABAG Projections 2013.

By improving access and highway capacity, the Build Alternative could indirectly result in the development and intensification of land uses in cities surrounding the project limits. There are several locations within the study area where housing and employment-generating land uses could be developed; however these areas are already planned for and forecasted in land use regulating documents (i.e., Solano County and cities of Vacaville and Fairfield General Plans). The surrounding areas are largely built out, and the majority of future development will generally involve redevelopment of existing areas or infill within urbanized areas (see **Section 2.1.1, Land Use**).

The Build Alternative does not propose any changes to the zoning or land use designations along the freeway. While the Build Alternative would improve the flow of traffic access to and from I-80, no new on- or off-ramps to the local roadways would be constructed. Existing access points to the areas surrounding the project limits would remain the same. The existing eastbound Travis Boulevard off-ramp would be modified into two separate off-ramps to accommodate increased weaving length for the auxiliary lane extension. Other off-ramp modifications involve reconstruction of existing ramps. These improvements do not constitute changes in the existing access points to the areas surrounding the project limits. For these reasons, the Build Alternative would not affect the rate, amount, or type of growth envisioned by the regulating documents and future planned developments in the area. The Build Alternative would not induce growth beyond forecasted development in Solano County, and would therefore not have a substantial effect on growth. As the Build Alternative would not encourage growth beyond what is already planned for and forecasted, it would not add to the cumulative effects on resources of concern. Therefore, no further growth analysis is necessary.

West Segment –Fundable First Phase

As in the Build Alternative, West Segment would, to some extent, accommodate growth on a regional level by improving access and highway capacity. By the year 2040, the conversion of the HOV lane to an express lane would lead to a 9 percent increase in the number of vehicles using the express lane, thereby decreasing the congestion in the general purpose lanes. The West Segment could indirectly contribute to the development and intensification of land uses in cities surrounding the project limits. However, reasonably foreseeable indirect growth that would be accommodated by the West Segment is already planned for and forecasted in land use regulating documents (i.e., county of Solano and cities of Vacaville and Fairfield General Plans). The West Segment would not change land use designations or provide new access to the areas surrounding the project limits, and would therefore not affect the rate, amount, or type of growth envisioned by the regulating documents. The West Segment would not induce growth beyond forecasted development in Solano County, and would therefore not have a substantial effect on growth. Because potential indirect growth resulting from the West Segment is already planned for and forecasted, it would not add to the cumulative effects on resources of concern. Therefore, no further growth analysis is necessary.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on growth.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, and/or mitigation measures are necessary because the Build Alternative would not induce growth beyond what has been planned for by the County of Solano, the City of Vacaville and the City of Fairfield.

2.1.4 FARMLANDS/TIMBERLANDS

REGULATORY SETTING

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, 7 United States Code [USC] 4201-4209; and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the 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 federal process for assessing farmland impacts is guided by the provisions of the Farmland Protection Policy Act, which calls for completion of Form NRCS-CPA-106.

The California Environmental Quality Act (CEQA) requires the review of projects that would convert Williamson Act contract land to non-agricultural 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. A review of farmland impacts, as they pertain to CEQA, is included in **Chapter 3.0, CEQA Evaluation** of this environmental document.

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) keeps track of changes in farmland use, including the conversion of farmland to urban use. This program is informational only, and does not regulate land uses.

The FMMP classifies farmland according to four types:

- Prime Farmland is considered land with the best physical and chemical features able to sustain long term production of crops.
- Farmland of Statewide Important is land that is similar to Prime Farmland, but has minor faults, such as slopes or limited ability to store soil moisture.
- Unique Farmland has lesser quality soils, used for the production of the state's leading crops, and may be irrigated or include non-irrigated orchards or vineyards. Together, these three farmland classifications constitute "Important Farmland."
- Grazing Land contains existing vegetation suitable for livestock.

SOLANO COUNTY GENERAL PLAN

The Solano County General Plan applies to all lands outside of the jurisdictional boundaries of the seven incorporated cities, which composes the unincorporated Solano County. The Solano County General Plan is the guide for both land development and conservation in the unincorporated portions of the county and contains policy framework necessary to fulfill the community's vision for Solano County in 2030; a sustainable place with a thriving environment and an economy that maintains social equity.[16]

The Solano County General Plan includes the following adopted policies related to agricultural land conversion within the Agriculture and Resources elements.

> *AG.P-1:* Ensure that agricultural parcels are maintained at a sufficient minimum parcel size so as to remain a farmable unit. Farmable units are defined as the size of parcels a farmer would consider viable for leasing or purchasing for different agricultural purposes. A farmable unit is not considered the sole economic function that will internally support a farm household.
>
> *AG.P-4:* Require farmland conversion mitigation for either of the following actions:
>
> a) General Plan amendment that changes the designation of any land from an agricultural to a nonagricultural use; or,
> b) an application for a development permit that changes the use of land from production agriculture to a nonagricultural use, regardless of the General Plan designation.
>
> *RS.P-62:* Retain community separators of sufficient size to ensure the continued economic sustainability of areas in productive agricultural use.

AFFECTED ENVIRONMENT

Information in this section is based on the CIA prepared for the project (Caltrans, 2014d) and the Solano County General Plan. The study area for the farmland impacts discussion is defined by the land use study area, which includes a one-mile radius around the project limits.

There is approximately 157,736 acres of FMMP designated Important Farmland in Solano County, mostly located in the northeastern portion of the county and a small amount just west of Fairfield.[17] Of this, 139,536 acres is designated as Prime Farmland, 11,036 acres are designated as Unique Farmland, and 7,164 acres are designated as Farmland of Statewide Importance. The lands within and immediately adjacent to the cities of Vacaville and Fairfield are predominantly urban and built-up land. Most of the Prime Farmland within the study area is located west of Fairfield, in Suisun Valley.

1616 Solano County General Plan, Introduction 2008
17 Solano County General Plan EIR (2008)

ENVIRONMENTAL CONSEQUENCES

The federal process for assessing farmland impacts is guided by the provisions of the Farmland Protection Policy Act, which calls for completion of the NRCS Form CPA-106. For purposes of NEPA analysis, the assessment rates the impact of a proposed project on the basis of a scoring system. Specific criteria related to agricultural viability are examined by both the NRCS and Caltrans, acting as the federal agency involved. Each criterion has a set number of points it may be awarded. If the Site Assessment points in Form CPA-106 total less than 60, Form CPA-106 does not need to be submitted to the NRCS. Instead, the completed Form CPA-106 should be placed in the project files and summarized in the NEPA document. The total Site Assessment points in Form CPA-106 were below 60. A draft of Form CPA-106 is included in **Appendix K**.

The Williamson Act includes a provision prohibiting a public agency from acquiring prime farmland covered under the Act; however, state highways are generally exempt from this provision. The Williamson Act property that would be affected by the Build Alternative is prime farmland. Government Code Section 51293(d) exempts acquisition of Williamson Act property for public utility improvements from the prohibition of public improvements if the land surface is returned to its previous condition and when agricultural use of the affected parcel is not significantly impaired by construction of the public utility. In addition, Government Code Section 51291(b) requires Caltrans to notify the Director of the California Department of Conservation and Solano County, as the local governing body responsible for the administration of the preserve, of the Williamson Act contracted land proposed for acquisition for a proposed project.

Build Alternative

The Build Alternative would result in the conversion of a small amount of farmland protected by the Solano County General Plan Policies AG.P-1, AG.P-4, and RS.P-62 and the NRCS' Farmland Protection Policy Act. The West Segment of the Build Alternative would convert a total of 0.01 acre of Prime Farmland for a utility easement (**Table 2.1-6**). Under NEPA, based on the results of the Farmland Conversion Impact Rating for Corridor Type Projects (Form CPA-106), the Build Alternative would not result in an adverse effect due to proposed conversion of Prime farmland. The 0.01 acre that would be converted to a utility easement is also under a Williamson Act contract.

Table 2.1-6 Farmland and Williamson Act Property Acquisition

Assessor Parcel Number (APN)	Property Owner	Partial ROW Take		Utility Easement	
		Square feet	Acre	Square feet	Acre
0027-510-180	Rowland Family Properties	0.0	0.0	437	0.01
	Total	**0.0**	**0.0**	**0.0**	**0.01**

Source: Caltrans, 2014d

Acquisition of Williamson Act property for public utility improvements is permitted under Government Code Section 51293(d), under the conditions that the land surface is returned to its previous condition and when agricultural use of the affected parcel is not significantly impaired by construction of the public utility. Acquisition of Williamson Act property for state highway projects is not considered adverse under NEPA.

West Segment –Fundable First Phase

All of the affected FMMP designated farmland and Williamson Act property are located within the West Segment. The environmental consequences identified above for the Build Alternative apply to the West Segment.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on existing farmlands.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Measure FRM-1: Caltrans will comply with Government Code Section 51293(d), ensuring that the land surface disturbed for the relocation of utilities will be restored to its original conditions.

West Segment –Fundable First Phase

Implementation of the West Segment would result in the same farmland conversion as the Build Alternative, and would be required to comply with **Measure FRM-1**.

2.1.5 COMMUNITY IMPACTS

Information in the community impacts section is based on the CIA prepared for the project (Caltrans, 2014d). The study area for community impacts was defined by available statistical data describing the thirty-six 2010 census block groups (within 19 census tracts) that encompass or are adjacent to the project limits.[18] The entire community impacts study area is within the City of Vacaville, the City of Fairfield, and unincorporated Solano County. **Figure 2.1-2** shows the boundary of each block group that comprises the community impact study area. **Table 2.1-7** lists each block group number and assigns a number to correspond with **Figure 2.1-3**.

[18] A census tract is a geographic region within a county. The census tract is broken into smaller block groups, which provide specific data for a more refined geography. Block groups are generally the size of several city blocks, and are therefore useful for representing the characteristics of a community.

COMMUNITY CHARACTER AND COHESION

Regulatory Setting

The National Environmental Policy Act of 1969 (NEPA), 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 [USC] 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 United States Code [USC] 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

Demographic Profile

According to the 2010 U.S. Census, the population of the community impact study area is 55,614. Based on the 2010 U.S. Census, the racial categories are as follows: White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Some Other Race, and Two or More Races. A person that is Hispanic or Latino is a person of Cuban, Mexican, or any Spanish cultural or origin. People who identify as Hispanic, Latino, or Spanish may be of any race.[19]

Table 2.1-8 shows the racial and ethnic composition of the community impact study area and associated jurisdictions. The minority population within the City of Vacaville represents 45 percent of the community; the City of Fairfield minority population represents 65 percent of the community; and the Solano County minority population represents 59 percent of the community.[20] Comparatively, 54 percent of the community impact study area is comprised of minority populations. **Table 2.1-8** summarizes the population distribution between each race.

Table 2.1-9 shows the median household income, poverty levels, and per capita income for the study area in comparison with the surrounding cities and the county. According to the 2000 Census, the median household income of the study area is $57,614, which is comparable to Solano County with a median household income of $54,099. The median household income of the City of

[19] US Census. 2012. About Hispanic Origin. Accessed from http://www.census.gov/topics/population/hispanic-origin.html on December 29, 2014.

20 According to Executive Order 12898, the term "minority" includes any individual who is American Indian or Alaskan Native, Asian or Pacific Islander (including Native Hawaiian), Black/African American (not of Hispanic Origin), or Hispanic/Latino.

Vacaville is similar to the study area at $57,667, but is slightly higher than the City of Fairfield median household income of $51,151.[21] Per capita income in the both the Cities of Vacaville and Fairfield, as well as the Solano County, are relatively similar to each other. Data is not available to assess per capita income in the study area. The percentage of population below the poverty level in the study area is lower than in Solano County and the City of Fairfield, but is slightly higher than in the City of Vacaville, as further described in under *Environmental Justice*.

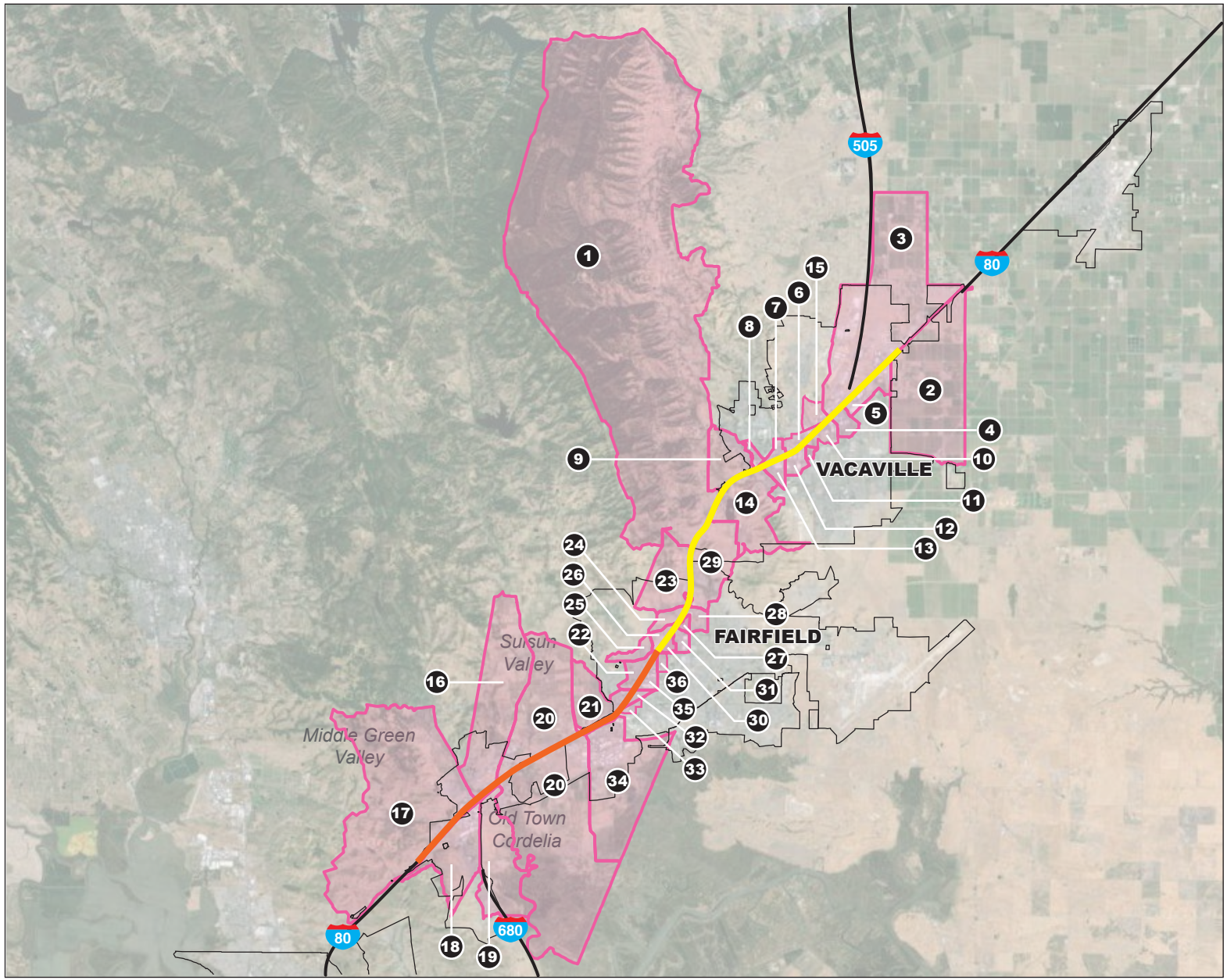
The management, professional sales, and office trade industries employ approximately 31 to 32 percent of the workforce within the cities of Vacaville and Fairfield. Likewise, the service, sales, and office industries employ 17.6 to 26 percent of the workforce. The farming, fishing, forestry, and construction-related industries represent the smallest employment sector for these cities and employ approximately 10.4 to 12.8 percent of the workforce. As of March 2013, Solano County's unemployment rate (8.1 percent) was above the City of Vacaville's (6 percent), and slightly below the City of Fairfield's (8.9 percent) unemployment averages.

The values and issues that are important to a community set the character and baseline context for how the proposed project would fit into the community's ideologies. The City of Fairfield considers itself to be one of the most desirable growth centers in the Bay Area with a central location between San Francisco and Sacramento. Community members can enjoy shopping at Solano Town Center, swimming at the new aquatics complex, and visiting the park and recreational areas in the community. Residents can access and gather various local volunteer opportunities, upcoming community events, parks and recreational resources on the city's website. Additionally, the local Solano County Library and community center offers programs and events for children, teenagers, and families in the community.

In a community survey conducted in Vacaville, 94 percent of residents consider Vacaville a "good" place to live, raise a family, and retire.[22] However, according to the city's outreach poll to community members, the most important issues to the community are the need to attract businesses and jobs to Vacaville, protect open space, crime prevention, and offer after-school programs for students.

21 Data for income was only available from the U.S. Census for the 2000 decennial census data at the time of this document preparation.

22 City of Vacaville. 2013. State of the City 2013. Accessed 2/20/2014 at http://www.cityofvacaville.com/index.aspx?page=29&recordid=443&returnURL=%2Findex.aspx%3Fpage%3D51



Study Area Block Groups

Figure 2.1-3

Source: Caltrans, 2014d

Table 2.1-7 Census Tracts and Block Groups

Solano County			
#	City of Vacaville		City of Fairfield
1	Block Group 4, Census Tract 2529.03	16	Block Group 1, Census Tract 2522.01
2	Block Group 3, Census Tract 2529.04	17	Block Group 4, Census Tract 2522.01
3	Block Group 2, Census Tract 2529.04	18	Block Group 2, Census Tract 2522.02
4	Block Group 1, Census Tract 2529.11	19	Block Group 3, Census Tract 2522.02
5	Block Group 2, Census Tract 2529.11	20	Block Group 1, Census Tract 2523.05
6	Block Group 1, Census Tract 2531.01	21	Block Group 2, Census Tract 2523.05
7	Block Group 2, Census Tract 2531.01	22	Block Group 2, Census Tract 2523.06
8	Block Group 5, Census Tract 2531.01	23	Block Group 2, Census Tract 2523.11
9	Block Group 6, Census Tract 2531.01	24	Block Group 3, Census Tract 2523.11
10	Block Group 1, Census Tract 2531.05	25	Block Group 1, Census Tract 2523.12
11	Block Group 5, Census Tract 2531.05	26	Block Group 2, Census Tract 2523.12
12	Block Group 1, Census Tract 2531.07	27	Block Group 1, Census Tract 2523.13
13	Block Group 1, Census Tract 2531.08	28	Block Group 2, Census Tract 2523.13
14	Block Group 3, Census Tract 2531.08	29	*Block Group 3, Census Tract 2523.13
15	Block Group 3, Census Tract 2532.05	30	Block Group 1, Census Tract 2523.14
		31	Block Group 2, Census Tract 2523.14
		32	Block Group 3, Census Tract 2524.01
		33	Block Group 4, Census Tract 2524.01
		34	Block Group 2, Census Tract 2524.02
		35	Block Group 1, Census Tract 2526.04
		36	Block Group 2, Census Tract 2526.04

Source: Caltrans, 2014d
*Note: Block group is located within both Fairfield and Vacaville city boundaries

Table 2.1-8 Racial and Ethnic Composition 2010

Population	Solano County	City of Vacaville	City of Fairfield	Study Area Tracts	Study Area Block Groups
Total Population	413,344 (100%)	92,428 (100%)	105,321 (100%)	95,238 (100%)	55,614 (100%)
Hispanic or Latino (of any race)	99,356 (24%)	21,121 (23%)	28,789 (27%)	22,634 (24%)	12,833 (23%)
Not Hispanic or Latino	313,988 (76%)	71,307 (77%)	76,532 (73%)	72,604 (76%)	42,781 (77%)
White	168,628 (41%)	50,811 (55%)	37,091 (35%)	45,544 (48%)	25,611 (46%)
Black or African American	58,743 (14%)	9,187 (10%)	15,979 (15%)	9,617 (10%)	6,042 (11%)
American Indian and Alaska Native	1,864 (<1%)	510 (1%)	462 (<1%)	516 (1%)	306 (1%)
Asian	59,027 (14%)	5,378 (6%)	15,265 (14%)	11,107 (12%)	7,279 (13%)
Native Hawaiian and Other Pacific Islander	3,243 (1%)	436 (<1%)	1,049 (1%)	702 (1%)	410 (1%)
Some Other Race	1,463 (<1%)	765 (1%)	231 (<1%)	161 (<1%)	110 (<1%)
Two or More Races	21,020 (5%)	4,220 (5%)	6,455 (6%)	4,957 (5%)	3,023 (5%)

Source: Caltrans, 2014d

Table 2.1-9 Household Income and Population Below Poverty Level (%), 2000

Geographic Area	Median Household Income	% Population Below Poverty Level	Per Capita Income
Study Area	$54,099	6.3%	N/A
Solano County	$54,099	8.3%	$21,731
City of Fairfield	$51,151	9.3%	$20,617
City of Vacaville	$57,667	6.1%	$21,557

Source: Caltrans, 2014d

The City passed Measures I and M that are general tax initiatives that support performing arts centers, libraries, parks and street maintenance. The city conducted general outreach to the community to educate residents on these measures and the majority of residents supported these efforts, demonstrating interest in enhancing public services.

The southern portion of the project limits, from Red Top Road to the SR 12/I-80 interchange, in Fairfield, contain a mix of commercial, open space, industrial, agricultural, and residential land uses located adjacent to the I-80 corridor. The project limits through the City of Fairfield to the City of Vacaville, are surrounded by residential, commercial, agricultural, and open space land uses. Similarly, land uses along the I-80 corridor in the City of Vacaville consist of residential, commercial, and some open space and education/public/semi-public. Refer to **Section 2.1.1, Land Use,** for a detailed discussion on the existing land use patterns surrounding the project limits.

Environmental Consequences

Build Alternative

Community impacts from transportation projects are generally related to the division of existing neighborhoods. According to *Caltrans' Environmental Handbook Volume 4 – Community Impact Assessment*, transportation projects may divide neighborhoods when they act as physical barriers or when they are perceived as psychological barriers by neighborhood residents. In addition, transportation projects perceived as physical or psychological barriers may isolate a portion of a neighborhood. Transportation projects may also increase cohesion within neighborhoods by diverting vehicular traffic to other roadways and increasing the desirability of pedestrian activity through a neighborhood.

Vacaville and Fairfield are well-established communities along the project corridor and contain closely-knit neighborhoods. As previously discussed, both cities organize community events, maintain parks and recreational resources, support public library services, etc. for the community. Such resources enhance the quality of life for residents and contribute to the community cohesiveness.

The Build Alternative's proposed roadway improvements are either on, or immediately adjacent to the existing I-80 corridor; therefore, no new physical or perceptual barriers would be created nor would access be modified that could potentially disrupt such activities. No division of existing neighborhoods or disruption of the communities' routines would result from implementation of the Build Alternative. Accordingly, the Build Alternative would not negatively affect community cohesion within adjacent communities.

West Segment –Fundable First Phase

As in the Build Alternative, the West Segment would not negatively affect community cohesion as all proposed roadway improvements are either on, or immediately adjacent to the I-80 corridor; therefore, no new physical or perceptual barriers would be created.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on community cohesion.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, and/or mitigation measures are necessary because the project alternatives would have no effect on community cohesion.

ENVIRONMENTAL JUSTICE

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (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 2014, this was $23,850 for a family of four[23].

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's 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

Per EO 12898, a population, as evaluated by U.S. census block groups, is subject to environmental justice analysis if it meets at least one of the following criteria:

- a low-income population that is greater than 25 percent of the total population of the community, or a minority population that is greater than 50 percent of the total population of the community; or
- a low-income and/or minority population that is more than 10 percentage points higher than the City or County average.

Demographic Data: Minority Populations

Table 2.1-8 (above) summarizes the racial and ethnic composition of the block groups located within the study area and the associated cities and counties. Based on the 2010 U.S. Census data, the minority population within the City of Vacaville represents 45 percent of the community; the

[23] Per the U.S. Department of Health and Human Services, http://aspe.hhs.gov/poverty/14poverty.cfm

City of Fairfield minority population represents 65 percent of the community; the Solano County minority population represents 59 percent of the community.[24] Comparatively, 54 percent of the community impact study area is comprised of minority populations.

Approximately 23 of the 36 block groups in the study area have minority populations greater than 50 percent. The study area contains five block groups with a minority population which exceeds their respective city average by more than 10 percentage points (shown in **Table 2.1-10**). Three of these block groups are located in the City of Vacaville and two in the City of Fairfield. Accordingly, each of these block groups are considered an environmental justice community based on race.

Table 2.1-10 Environmental Justice Block Groups – Minority Percent

City of Vacaville	Percent Minority	City of Fairfield	Percent Minority
Block Group 3, Census Tract 2532.05, Solano County, California	81%	Block Group 2, Census Tract 2526.04, Solano County, California	80%
Block Group 1, Census Tract 2531.05, Solano County, California	59%	Block Group 4, Census Tract 2524.01, Solano County, California	80%
Block Group 1, Census Tract 2531.01, Solano County, California	67%	--	--

Source: Caltrans, 2014d

Socioeconomic Data: Low-Income Populations

Table 2.1-11 presents the percentage of the population at or below the poverty level for the block groups located within the study area and the associated cities and county, according to the 2000 Census.[25] The percentage of population below the poverty level in the study area (6.3 percent) is lower than in Solano County (8.3 percent) and the City of Fairfield (9.3 percent), but is slightly higher than in the City of Vacaville (6.1 percent).

Table 2.1-11 Household Income and Population Below Poverty Level (%), 2000

Geographic Area	Median Household Income	Percent Population Below Poverty Level
Study Area	$57,614	6.3%
Solano County	$54,099	8.3%
City of Vacaville	$57,667	6.1%
City of Fairfield	$51,151	9.3%

Source: Caltrans, 2014d

24 According to Executive Order 12898, the term "minority" includes any individual who is American Indian or Alaskan Native, Asian or Pacific Islander (including Native Hawaiian), Black/African American (not of Hispanic Origin), or Hispanic/Latino.

25 Income and poverty level data is not available at the block group level for the 2010 Census; therefore, 2000 Census data is used for this analysis.

The study area contains five block groups in which the low-income population exceeds the city averages by more than 10 percent. These include three block groups in the City of Vacaville and two block groups in the City of Fairfield, as listed in **Table 2.1-12.**

Table 2.1-12 Environmental Justice Block Groups – Low Income

City of Vacaville	% Population Below Poverty Level	City of Fairfield	% Population Below Poverty Level
Block Group 1, Census Tract 2531.05	17.4%	Block Group 3, Census Tract 2524.02	30.1%
Block Group 2, Census Tract 2532.02	17.0%	Block Group 1, Census Tract 2526.05	21.2%
Block Group 3, Census Tract 2532.02	27.9%		

Source: Caltrans, 2014d

Environmental Consequences

Build Alternative

As previously discussed, 23 of the 36 block groups within the study area meet the criteria of an environmental justice community. The effects of the Build Alternative would be borne across a wide range of communities including both environmental justice and non-environmental justice communities. The Build Alternative would occur within an area with a high minority population and some low income populations, portions of which qualify as environmental justice communities. As such, the project's physical effects, including increased in noise levels and temporary construction-period emissions would be borne by these communities.

As the project's purpose is to relieve traffic congestion and improve traffic flow on I-80 within the project limits, the Build Alternative would directly benefit these same communities. These same effects of the Build Alternative, both negative and beneficial, would also occur in non-environmental justice communities along the corridor. Accordingly, the environmental effects of the project that would be borne by the environmental justice communities within the study area would not be more severe or greater in magnitude than the adverse effects that would be suffered by non- environmental justice communities.

The Build Alternative would not result in disproportionately high and adverse impacts to environmental justice communities, and would not cause the displacement of any minority or low-income residences, businesses, or employees. There would be no disruption or effect on the existing land uses or community features in the surrounding areas. The Build Alternative would reduce traffic congestion resulting in overall improvement and reduction in air pollutants compared to the No-Build Alternative, also resulting in benefit for adjacent land uses. None of the proposed right-of-way acquisitions would occur in block groups identified as environmental justice communities.

There are 9 census block groups in the community impact study area where minority and/or low-income populations exceed the city averages by more than 10 percent. **Table 2.1-13** summarizes these environmental justice block groups in the community impact study area. Because these environmental justice block groups have substantially higher minority/low-income populations than their respective city averages, additional review of the project's effects on these communities was conducted as part of this analysis. The review found that, like the rest of the study area, there are no project effects that would be more severe or greater in magnitude in these 9 block groups when compared to the rest of the adjacent communities.

Table 2.1-13 Environmental Justice Block Groups – Build Alternative

Environmental Justice Block Groups	Environmental Justice Qualification	Land Use Impact
Block Group 3, Census Tract 2532.05	Race	None
Block Group 1, Census Tract 2531.05	Race and Income	None
Block Group 1, Census Tract 2531.01	Race	None
Block Group 2, Census Tract 2526.04	Race	None
Block Group 4, Census Tract 2524.01	Race	None
Block Group 2, Census Tract 2532.02	Income	None
Block Group 3, Census Tract 2532.02	Income	None
Block Group 3, Census Tract 2524.02	Income	None
Block Group 1, Census Tract 2526.05	Income	None

Source: Caltrans, 2014d

West Segment –Fundable First Phase

There are two census tract block groups in the West Segment of the study area that qualify as environmental justice populations. The environmental justice block groups within the West Segment are listed in **Table 2.1-14** below.

Table 2.1-14 Environmental Justice Block Groups – West Segment

Environmental Justice Block Groups	Environmental Justice Qualification	Land Use Impact
Block Group 3, Census Tract 2524.02, City of Fairfield	Income	None
Block Group 1, Census Tract 2526.05, City of Fairfield	Income	None

Source: Caltrans, 2014d

As with the Build Alternative, the West Segment would not result in the displacement of any minority or low-income residences, businesses, or employees; and there would be no disruption or effect on the existing land uses or community features in the surrounding areas. The Build Alternative would reduce traffic congestion resulting in overall improvement and reduction in air pollutants compared to the No-Build Alternative, also resulting in a benefit for adjacent land uses.

None of the proposed right-of-way acquisitions are located in block groups identified as environmental justice communities.

No-Build Alternative

The No-Build Alternative would make no physical or operational improvements to I-80, within the project limits; therefore, there would be no direct effect on minority populations. However, worsening traffic congestion in the study area could hinder access to housing, businesses, community facilities, and the provision of emergency services for minority residents, as well as the overall community.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Build Alternative would not disproportionately high and adverse effects on any minority or low-income populations as per E.O. 12898 regarding environmental justice. No avoidance, minimization, and/or mitigation measures would be required.

2.1.6 UTILITIES/EMERGENCY SERVICES

AFFECTED ENVIRONMENT

Information in this section is based on the draft project report (DPR) and the CIA (Caltrans, 2014d) prepared for this project. Pacific Gas & Electric (PG&E) provides gas and electricity both regionally and to communities surrounding where project improvements would be constructed. The Fairfield Water and Sewer Department and Vacaville Water and Sewer provide local and regional water service. Wastewater collection, treatment, and disposal are provided by the Fairfield Suisun Sewer District and the City of Vacaville's Easterly Wastewater Treatment Plant (WWTP). Solid waste disposal and recycling services are provided by Solano Garbage Company/Republic Services and Recology Vacaville Solano.

Police protection and traffic enforcement services within the project limits are provided by the Fairfield Fire Department, Fairfield Police Department, Vacaville Fire Department, and Vacaville Police Department. The California Highway Patrol (CHP) has jurisdiction over the I-80 corridor for matters involving both traffic violations and emergency services. The closest CHP office to the project limits is located in Fairfield (on eastbound I-80 between the SR 12 and Green Valley Road overcrossings).

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Public Utilities

The Build Alternative would include toll collection on the proposed express lanes collected from registered motorists who carry in-vehicle-mounted FasTrak transponders. License Plate Recognition (LPR) cameras would capture license plate images of vehicles that do not display a recognizable toll transponder. There are four proposed tolling zones, two within each segment. Each toll zone would include all subsystems relative to toll collection, photographic enforcement for violations, vehicle classification detection, enforcement personnel provision, and communication with the toll integrator's control center. The tolling equipment includes static or variable mounted signage that inform motorists of the operating rules, pricing by toll zone, and where the express lanes begin and end.

To provide electrical power and communications to the electronic tolling equipment and signage for the express lane facility, electrical and communications conduits and fiber would be extended from existing sources along the outside edge of pavement. Extending electrical and communication conduit and fiber would require trenching and/or horizontal directional drilling to bring these services to the electronic tolling equipment, telephone demarcation cabinet, controllers, signs, and tolling equipment. Installation of pull boxes and electrical systems such as service equipment enclosure, telephone demarcation cabinet, controllers, and foundation pads would also be required and would follow Caltrans standards. Temporary construction access to power and communication sources may be needed. Work associated with bringing electrical power and communication to service enclosure cabinets would be completed by the utility provider and would follow utility provider standards.

Emergency Services

Potential short-term operational effects to police, fire, and emergency service providers may result from construction-related activities under the Build Alternative. Increased emergency response times within the project limits could be caused by traffic congestion during construction and temporary lane closures. Lane closures are expected to be of short duration and would occur in off-peak commute hours; the effect is expected to be minimal. The proposed improvements under the Build Alternative would ultimately reduce traffic congestion and potentially improve access and response times for emergency services utilizing I-80 corridor within the project limits.

West Segment –Fundable First Phase

The effects to utilities and emergency services described above for the Build Alternative are also applicable to the West Segment. There are no proposed improvements or conditions specific to the West Segment that would change the conclusions of the environmental consequences previously identified.

No-Build Alternative

The No-Build Alternative would make no physical or operational improvements to I-80 within the project limits, thereby avoiding the need to relocate utilities. Traffic congestion is expected to increase under the No-Build Alternative, which could in turn cause decreased access for emergency services.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Measure UTL-1: Detailed utility coordination and verification will be required during the final design phase of the project. The locations of the utilities will not be determined until final design, in coordination with the affected utility owner.

As described in the **Section 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities**, **Measure TRA-1**, a Traffic Management Plan (TMP) that specifies all timeframes for all lane closures would be prepared. Emergency response services such as fire and police would also be notified one to two weeks in advance of any lane or roadway closures and any proposed detours.

Implementation of the TMP would reduce short-term operational effects to police, fire, and emergency service providers that may result from construction-related activities under the Build Alternative.

West Segment –Fundable First Phase

Coordination with the affected public utility service providers and the preparation of a TMP would occur as part of the final design phase for the Build Alternative alignment, including the West Segment. No additional avoidance, minimization, or mitigation measures would be required for West Segment.

2.1.7 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

REGULATORY SETTING

Caltrans, as assigned by 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 the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). FHWA has enacted regulations for

the implementation of 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.

AFFECTED ENVIRONMENT

This section discusses the Build Alternative's effects on motor vehicle traffic and circulation. Information in this section is based on the Final Traffic Operations Analysis Report that was prepared for the project (Caltrans, 2014q).

The traffic study area is intended to capture the local and regional traffic effects of the Build Alternative. The traffic study area encompasses I-80 from American Canyon Road to Leisure Town Road, within Solano County, California. A map of the traffic study area is shown on **Figure 2.1-4**.

I-80 is a major transcontinental freeway extending between the San Francisco Bay Area and Ridgefield Park, New Jersey. Within the study area, I-80 serves as the primary freeway route from the San Francisco to the outlying communities of Fairfield, Suisun, and Vacaville; and recreational destinations such as Lake Tahoe and Reno, Nevada.

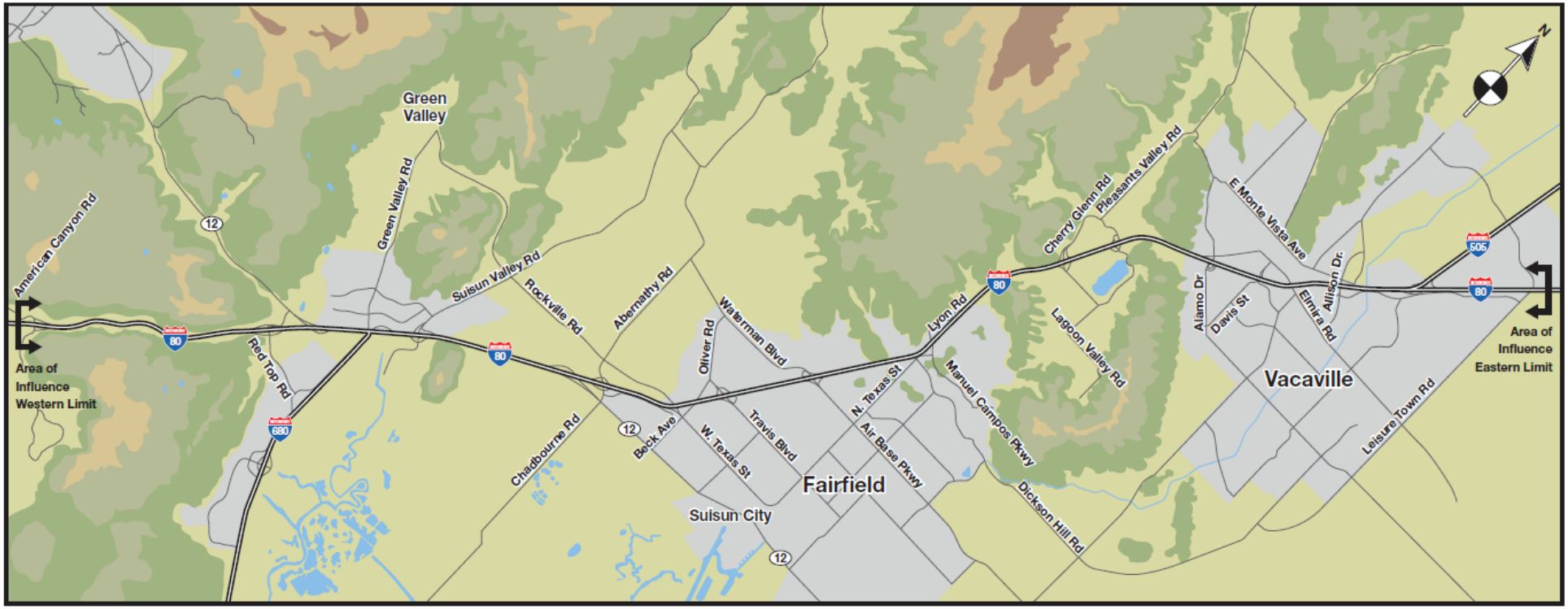
Current and Forecast Traffic Analysis and Methodology

The majority of data collection was undertaken between 2010 and 2012 to determine existing peak period travel times, mainline queuing characteristics, traffic volumes, vehicle occupancies, and truck percentages within the traffic study limits.[26] Additionally, mainline and ramp lane configurations were collected along the study segments.[27] Based on the collected data, it was determined that the weekday morning and evening peak periods are 6:00 AM to 9:00 AM, and 3:00 PM to 6:00 PM, respectively. The weekday morning (AM) peak hour is 7:00 AM to 8:00 AM, and the weekday evening (PM) peak hour is 4:00 PM to 5:00 PM. Traffic forecasts were based on applications of the Solano-Napa Travel Demand Model and developed in more detail for the traffic study limits using VISSIM software. To ensure accuracy, the VISSIM output volumes were compared to the input volumes, which are based on vehicular volume counts that were conducted by Caltrans. The VISSIM model output volumes are then calibrated.[28]

The traffic operations analysis evaluates three distinct timeframes:

- existing (2010)
- opening year (2020)
- horizon year (2040)

[26] Additional data was collected late 2008 through early 2009
[27] The freeway "mainline" refers to the general mixed-flow travel lanes
[28] Calibration is the adjustment of model parameters to improve the model's ability to reproduce local traffic conditions.



NOT TO SCALE

Traffic Study Area

Figure 2.1-4

Source: Caltrans, 2014q

Level of Service

Level of Service (LOS) is a measure of actual traffic conditions and the perception of such conditions by motorists. There are six LOS ratings, ranging from LOS A (free traffic flow with low traffic volumes and high speeds, resulting in low vehicle densities) to LOS F (traffic volumes exceeding the capacity of the infrastructure, resulting in forced flow traffic operations, slow speeds, and high vehicle densities). This traffic analysis evaluates traffic operations based on the LOS criteria for highway and weaving segments, highway ramp junctions, and peak commute hour vehicle densities, measured in vehicles per mile per lane (vpmpl). The criteria used in this traffic analysis are consistent with the procedures contained in the Highway Capacity Manual (see **Figure 2.1-5**).

It is often useful to supplement the individual segment analyses with system-wide performance measures such as vehicle miles of travel, average travel time, average travel speed, and vehicle hours of delay to obtain a better understanding of overall traffic operations. This information can be particularly useful when comparing project alternatives. Several Measures of Effectiveness (MOEs) computed with the VISSIM model was used to quantify traffic operations of the I-80 corridor.

- **Volume Served** – a measure of the vehicles that can be served by the I-80 corridor during the analysis period. For those locations that are over-capacity for a given time period, the volume served will be less than the demand volume.
- **Average Travel Speed** – the average speed of vehicles in the network. This measure depends both on the posted speed for a given segment and the level of traffic congestion.
- **Level of Service** – a measure of actual traffic conditions and the perception of such conditions by motorists.

Existing Traffic Operations

Field observations were conducted and found that during weekday morning and evening peak periods, slowing occurs on both eastbound and westbound I-80, including:

- **I-80 between the I-680 Interchange and the SR 12 East (to Rio Vista) Interchange** – due to closely spaced ramps, high vehicular volumes merging and diverging at the I-680 and SR 12 East Interchanges, and truck movements to and from the Cordelia Truck Scales.
- **I-80 between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road** – due to high traffic volumes, and the roadway grades and curvature near Lagoon Valley Road/Cherry Glen Road.
- **I-80 between the Jameson Canyon Road/SR 12 West Interchange and Red Top Road** – westbound exasperated by the lane drop from five lanes to four lanes in this location.

The portion of the I-80 corridor within the cities of Fairfield and Vacaville is the most heavily-traveled segment of the freeway corridor within Solano County, and is utilized by commuters, recreational travelers, public transit services, and for interstate and interregional goods

movements. As a result of this travel pattern, the I-80 corridor experiences high levels of weekday morning and evening travel demand. In 2009, the I-80 corridor was improved with HOV lanes in both directions from Red Top Road to Air Base Parkway, in the City of Fairfield.

Peak Hour Performance

I-80 Eastbound

Generally, vehicular speeds along eastbound I-80 average between 55 mph and 70 mph during both weekday AM and PM peak hours. Vehicles in the eastbound direction were observed to slow to between 55 and 60 mph at the I-680 Interchange, the SR 12 East Interchange, and between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road. Additional slowing occurs between Manuel Campos Parkway/North Texas Street and Lagoon Valley Road/Cherry Glen Road.

LOS D conditions occur on eastbound I-80 during the evening peak hour along an approximately 10-mile stretch from Air Base Parkway/Waterman Boulevard and Monte Vista Avenue/Allison Drive/Nut Tree Parkway (see **Table 2.1-15**). Travel time eastbound during both the AM peak hour and PM peak hour averaged approximately 20 minutes between American Canyon Road and Leisure Town Road. No significant bottlenecks or traffic congestion was observed in the eastbound direction during AM and PM weekday peak periods.

Along eastbound I-80, there is a significant increase in eastbound traffic using the on-ramp at Peabody Road and Alamo Drive during the weekday PM peak hour as compared to non-peak hours. There is also a sharp increase in traffic using the following ramps during both the weekday AM peak hour and PM peak hour:

- Off-ramp at Red Top Road
- Off-ramp at Suisun Valley Road/Pittman Road
- Off-ramp at Abernathy Road.
- Off-ramp at Air Base Parkway/Waterman Boulevard
- Off-ramp at Manuel Campos Parkway/North Texas Street
- Off-ramp at Lagoon Valley Road/Cherry Glen Road
- Off-ramp at Pena Adobe Road/Rivera Road/Cherry Glen Road
- Off-ramp at Davis Street
- Off-ramp at Peabody Road
- Off-ramp at Monte Vista Avenue/Allison Drive/Nut Tree Parkway
- Off-ramp at Leisure Town Road

I-80 Westbound

In the westbound direction, vehicles were observed to slow to between 55 and 60 mph between SR 12 West Interchange and American Canyon Road during the weekday AM peak hour and PM peak hour. Additional slowing occurs between SR 12 and Red Top Road during both the weekday AM peak hour and PM peak hour.

During the morning peak hour, LOS D conditions occur westbound along an approximately 6-mile stretch between Alamo Drive and Manuel Campos Parkway/North Texas Street, and between SR-12/Jameson Canyon Road and Red Top Road (see **Table 2.1-16**). Travel time on westbound I-80 during both the weekday AM peak hour and PM peak hour averaged approximately 20 minutes between Leisure Town Road and American Canyon Road. No significant bottlenecks or traffic congestion was observed in the westbound direction during weekday AM peak hour and PM peak hour.

Heading westbound on I-80, there is a significant increase in traffic using the Mason Street on-ramp during the weekday AM peak hour compared to non-peak hours. There is also a sharp increase in traffic using the following ramps during both weekday AM peak hour and PM peak hour:

- Off-ramp at East Monte Vista Avenue/Allison Drive
- Off-ramp at Mason Street
- Off-ramp at Davis Street
- Off-ramp at Pena Adobe Road/Rivera Road/Pleasant Valley Road
- Off-ramp at Manuel Campos Parkway/North Texas Street
- Off-ramp at Travis Boulevard
- Off-ramp at West Texas Street/Rockville Road.
- Off-ramp at Abernathy Road
- On-ramp at Green Valley Road
- Off-ramp at Red Top Road

LEVELS OF SERVICE
for Freeways

Level of Service	Flow Conditions	Density (vehicles/mile /lane)	Technical Descriptions
A		≤ 11	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		> 11-18	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		> 18-26	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		> 26-35	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		> 35-45	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		> 45	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

Levels of Service for Freeways **Figure 2.1-5**

Source: Caltrans Style Guide, 2014

Table 2.1-15 Weekday Eastbound AM and PM Peak Hour Level of Service and Speed in General Purpose Lanes

	Segment	Existing (2010) (LOS/mph)		Existing Plus Project (LOS/mph)		Opening Year (2020) (LOS/mph)						Horizon Year (2040) (LOS/mph)			
						No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
		AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density
1	I-80 between American Canyon Rd. and Red Top Rd.	B/61/13	C/60/20	B/54/13	C/60/20	B/63/14	C/61/24	B/63/14	C/61/24	B/63/14	C/60/24	C/62/20	D/58/33	C/62/20	D/58/33
2	I-80 between Red Top Rd. and SR-12	A/65/10	B/64/15	B/63/12	B/62/17	B/63/14	C/60/22	B/63/13	C/60/22	B/63/13	C/60/22	B/60/16	C/55/26	B/60/16	C/56/25
3	I-80 between SR-12 and I-680	B/61/11	C/52/20	B/58/13	C/50/22	B/59/14	D/43/34	B/59/14	D/45/21	B/58/14	D/48/31	C/62/18	D/58/29	B/63/15	C/60/24
4	I-80 between I-680 and Suisun Valley Rd./Pittman Rd.	B/62/13	C/55/23	B/60/14	C/52/26	B/61/16	D/52/30	B/61/16	D/54/29	B/61/16	D/53/29	C/62/18	C/60/24	B/62/18	D/55/32
5	I-80 between Suisun Valley Rd./Pittman Rd. and Truck Scale	B/63/15	C/59/25	B/62/15	C/57/26	B/61/15	D/53/30	B/61/15	D/55/28	B/61/15	D/55/29	C/60/20	D/53/34	C/60/20	D/54/33
6	I-80 between Truck Scale and SR-12	B/63/14	C/59/24	B/62/15	C/58/25	B/65/13	C/62/22	B/65/13	C/63/22	B/65/13	C/62/22	C/64/17	C/62/26	B/64/17	C/61/27
7	I-80 between SR-12 and Abernathy Rd.	B/65/13	C/62/22	B/63/14	C/61/25	B/61/15	D/55/28	B/61/15	D/55/28	B/61/15	D/55/28	B/59/21	D/49/35	C/58/20	D/50/34
8	I-80 between Abernathy Rd. and Magellan Rd.	B/63/11	C/50/25	B/61/12	C/49/27	B/61/14	D/51/28	B/61/14	C/55/26	B/62/14	C/54/26	C/61/17	D/53/30	B/61/17	D/54/29
9	I-80 between Magellan Rd. and Beck Ave.	B/64/12	C/61/22	B/63/13	C/60/24	B/62/15	D/57/29	B/62/15	D/58/28	B/62/15	D/58/28	B/61/20	D/56/32	C/61/19	D/57/32

	Segment	Existing (2010) (LOS/mph)		Existing Plus Project (LOS/mph)		Opening Year (2020) (LOS/mph)						Horizon Year (2040) (LOS/mph)			
						No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
		AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density
10	I-80 between Beck Ave. and Travis Blvd.	B/64/11	C/60/21	B/62/12	C/60/23	B/61/13	D/53/29	B/62/13	C/58/26	B/62/13	C/57/26	B/60/17	**E/47/36**	B/61/17	D/56/30
11	I-80 between Travis Blvd. and Air Base Pkwy./Waterman Blvd.	B/65/12	C/61/23	B/63/14	C/60/25	B/63/15	D/57/29	B/63/15	D/58/29	B/63/15	D/58/29	B/61/20	D/56/32	B/61/19	D/56/32
12	I-80 between Air Base Pkwy./Waterman Blvd. and Manuel Campos Pkwy./N. Texas St.	B/61/16	D/58/30	B/60/14	D/58/26	B/64/17	D/60/31	B/64/17	D/59/33	B/63/15	D/59/28	C/61/21	D/56/33	B/62/19	D/57/32
13	I-80 between Manuel Campos Pkwy./N. Texas St. and Lagoon Valley Rd./Cherry Glen Rd.	B/60/17	D/57/30	B/60/14	D/58/26	C/62/18	D/58/32	C/62/19	D/58/33	B/62/17	D/59/28	C/60/25	**E/56/36**	C/61/22	D/57/32
14	I-80 between Lagoon Valley Rd./Cherry Glen Rd. and Pena Adobe Rd./Rivera Rd./Cherry Glen	B/59/18	D/58/30	B/59/16	C/58/25	C/61/19	D/58/32	C/62/19	D/57/33	B/62/17	D/58/29	C/59/25	**E/55/38**	C/60/22	D/57/21
15	I-80 between Pena Adobe Rd./Rivera Rd./Cherry Glen and Alamo Dr.	B/61/17	D/57/30	B/61/15	D/58/26	C/62/19	D/57/33	C/62/19	D/57/34	B/62/17	D/58/29	C/60/25	**E/56/36**	C/60/22	D/57/33
16	I-80 between Alamo Dr. and Davis St.	B/61/16	D/55/28	B/64/14	C/60/24	B/59/18	D/52/32	C/59/18	D/52/32	B/59/16	D/54/27	C/57/24	D/50/35	C/58/21	D/52/31

	Segment	Existing (2010) (LOS/mph)		Existing Plus Project (LOS/mph)		Opening Year (2020) (LOS/mph)						Horizon Year (2040) (LOS/mph)			
						No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
		AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density
17	I-80 between Davis St. and Peabody Rd.	B/61/16	D/57/26	B/61/14	C/57/23	B/59/18	D/53/32	B/59/18	D/53/30	B/59/16	D/55/26	C/56/25	**E/51/36**	C/58/22	D/52/32
18	I-80 between Peabody Rd. and Monte Vista Ave./Allison Dr./Nut Tree Pkwy.	B/63/17	D/57/27	B/62/15	C/58/23	C/61/19	D/55/30	C/61/19	D/56/29	B/61/17	C/58/26	C/59/24	D/54/33	C/60/21	D/55/29
19	I-80 between Monte Vista Ave./Allison Dr./Nut Tree Pkwy. and I-505/Orange Dr.	B/64/14	B/62/18	B/64/12	B/63/16	B/62/15	B/61/19	B/62/15	B/61/19	B/62/14	B/62/16	B/60/20	C/60/21	B/62/17	B/61/19
20	I-80 between I-505/Orange Dr. and Leisure Town Rd.	B/63/15	C/61/21	B/63/15	C/61/21	B/62/17	C/60/24	B/62/17	C/60/24	B/63/17	C/60/23	C/59/23	D/57/28	C/60/23	D/58/27

Source: Caltrans, 2014q

Table 2.1-16 Weekday Westbound AM and PM Peak Hour Level of Service and Speed in General Purpose Lanes

	Segment	Existing		Existing Plus Project		Opening Year (2020)						Horizon Year (2040)			
						No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
		AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density
1	I-80 between Leisure Town Rd. and I-505	B/63/16	C/62/18	B/63/16	C/62/18	B/62/18	C/61/20	B/62/18	C/61/20	B/62/17	C/61/20	C/61/21	D/59/26	C/61/21	D/58/26
2	I-80 between I-505 and E. Monte Vista Ave.	C/62/19	C/61/23	B/62/18	C/61/21	C/61/22	C/60/26	C/61/22	C/60/26	C/61/20	C/60/23	D/59/28	D/56/33	D/59/26	D/58/30
3	I-80 between E. Monte Vista Ave. and Mason St.	C/61/21	C/61/22	C/62/19	C/61/20	C/60/24	C/59/26	C/60/24	C/59/26	C/60/21	C/60/23	D/58/30	D/57/32	C/59/25	D/58/29
4	I-80 between Mason St. and Davis St.	C/56/24	C/58/22	C/57/21	C/59/19	D/53/29	D/55/26	D/52/29	C/56/26	C/55/24	C/57/22	**E/49/39**	**E/50/41**	D/53/29	D/53/32
5	I-80 between Davis St. and Alamo Dr.	C/59/23	C/60/22	C/60/21	C/60/19	D/56/28	C/58/25	D/57/28	C/58/25	C/58/24	C/59/22	**E/53/36**	**E/54/35**	D/55/29	D/56/30
6	I-80 between Alamo Dr. and Cherry Glen Rd.	D/52/32	C/57/23	D/54/27	C/58/21	D/59/27	C/59/26	D/55/30	D/55/29	C/56/26	C/57/24	**E/53/37**	**E/53/37**	D/54/32	D/52/35
7	I-80 between Cherry Glen Rd. and Pena Adobe Rd./Rivera Rd./Pleasant Valley	D/58/28	C/59/23	C/59/24	C/59/21	D/60/28	D/60/26	D/60/27	D/60/26	C/61/24	C/61/23	D/59/31	D/59/31	D/60/27	D/60/28
8	I-80 between Pena Adobe Rd./Rivera Rd./Pleasant Valley and Lagoon Valley Rd./Cherry Glen Rd.	D/57/27	C/58/23	C/58/24	C/58/20	D/58/27	C/59/25	D/59/27	C/59/25	C/59/23	C/60/22	D/57/30	D/56/31	D/58/27	D/57/28

	Segment	Existing		Existing Plus Project		Opening Year (2020)						Horizon Year (2040)			
						No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
		AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density
9	I-80 between Lagoon Valley Rd./Cherry Glen Rd. and Manuel Campos Pkwy./N. Texas St.	D/57/29	C/58/23	C/58/25	C/59/20	D/59/28	C/60/26	D/59/28	D/60/26	C/60/24	C/61/22	D/57/34	D/57/32	D/59/28	D/58/29
10	I-80 between and Manuel Campos Pkwy/N. Texas St. and Air Base Pkwy./Waterman Blvd.	C/62/22	B/63/17	C/61/24	C/62/19	D/59/28	C/60/24	D/59/28	C/60/24	C/59/25	C/61/21	D/58/32	D/59/28	D/58/29	D/59/26
11	I-80 between Air Base Pkwy./Waterman Blvd. and Travis Blvd.	C/60/22	B/62/16	C/59/25	C/61/18	D/58/27	C/59/22	D/57/27	C/60/22	D/58/26	C/60/21	D/57/29	D/58/27	D/57/28	D/58/27
12	I-80 between Travis Blvd. and W. Texas St./Rockville Rd.	C/56/21	B/59/15	C/55/23	B/59/17	C/55/24	C/57/20	C/55/24	C/58/19	C/56/24	C/59/19	D/48/32	C/54/25	D/50/30	D/54/26
13	I-80 between W. Texas St./Rockville Rd. and Abernathy Rd.	C/60/25	B/62/18	D/59/28	C/61/20	D/57/31	C/59/25	D/57/31	C/59/25	D/57/31	C/60/24	**E/55/35**	D/58/30	D/56/33	D/58/29
14	I-80 between Abernathy Rd. and SR 12	C/59/23	B/61/17	D/58/26	C/60/20	D/59/27	C/60/24	D/59/27	C/60/23	D/59/27	C/60/23	D/58/30	D/59/28	D/58/28	D/59/27
15	I-80 between SR 12 and Truck Scale	C/60/24	B/63/18	C/53/22	B/55/16	D/58/29	C/60/24	D/58/29	C/60/24	D/58/29	C/60/24	**E/53/37**	D/57/31	D/57/32	D/58/30
16	I-80 between Truck Scale and Suisun Valley Rd./Pittman Rd.	C/57/25	B/61/18	D/56/28	C/59/20	**E/49/35**	D/54/26	D/52/33	C/55/26	D/51/32	C/56/26	**E/51/36**	**E/50/36**	D/53/34	D/51/34

	Segment	Existing		Existing Plus Project		Opening Year (2020)						Horizon Year (2040)			
						No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
		AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density	AM LOS/ Speed/Density	PM LOS/ Speed/Density
17	I-80 between Suisun Valley Rd./Pittman Rd. and I-680	C/62/21	B/64/15	C/61/24	B/63/17	C/61/25	C/61/21	C/61/25	C/61/20	C/60/25	C/61/20	D/53/28	C/59/22	D/55/26	B/62/17
18	I-80 between I-680 and Green Valley Rd.	C/59/19	B/62/13	C/56/25	C/59/18	C/60/21	B/61/17	C/60/20	B/61/17	C/60 20	B/61/17				
19	I-80 between Green Valley Rd. and SR-12/Jameson Cyn. Rd.	C/58/23	B/61/16			C/62/22	B/63/17	C/62/21	B/63/17	C/61/22	B/63/17	C/59/22	B/62/18	C/59/21	D/59/30
20	I-80 between SR-12/Jameson Cyn. Rd. and Red Top Rd.	D/51/27	B/64/16	D/51/27	B/64/16	C/60/24	C/61/19	C/60/24	C/62/19	C/59/24	C/62/19	C/58/22	C/59/20	C/59/20	C/59/20
21	I-80 between Red Top Rd. and American Canyon Rd.	C/60/19	B/60/16	C/60/19	B/60/16	C/60/24	C/61/20	C/60/23	C/61/20	C/60/23	C/61/20	D/59/30	D/59/29	D/60/27	D/59/30

Source: Caltrans, 2014q

Vehicle Occupancy

Table 2.1-17 summarizes existing vehicle occupancy on I-80, within the project limits. HOV lanes were recently constructed in both directions from Red Top Road to Air Base Parkway in the City of Fairfield. As shown in **Table 2.1-17**, the majority of users of the I-80 corridor during AM peak hour and PM peak hour traveling in both directions are single occupancy vehicles. The unused capacity in the HOV lane ranges between 66 to 88 percent during the peak commute hours, which results in increased congestion and slower speeds in the general purpose lanes during peak commute hours. This available unused capacity in the existing HOV lane system should be utilized to enhance transportation system efficiency.

Table 2.1-17 Existing Vehicle Occupancy

Direction	Peak Hour	Single Occupancy (%)	2 Persons (%)	3+ Persons (%)
Eastbound	AM	90	9	1
	PM	81	17	2
Westbound	AM	86	13	1
	PM	77	21	2

Note: Vehicle occupancy numbers have been rounded to the nearest 1.
Source: Caltrans, 2014q

Pedestrian and Bicycle Facilities

Within the traffic study area, pedestrian and bicycle travel occurs at several cross street locations that intersect with the I-80 ramp termini. Bike path and bike lane intersections occur at Leisure Town Road, Nut Tree Road, Allison Drive, Elmira Road, Air Base Parkway/Waterman Boulevard, and Oliver Road. The Southside Bikeway begins at California Drive in the City of Vacaville, east of the I-80. It travels northwest, and ends at Davis St. just before it reaches I-80. The Butcher Road Bike Path begins at Butcher Road on the east side of I-80, and travels south to its terminus at Pena Adobe Regional Park. A Class I bike path connects Nelson Road to Paradise Valley Road along the east side of I-80 in Fairfield. Fairfield Linear Park Trail (a multi-use trail) begins at Travis Boulevard and travels south along the west side of I-80 to its terminus at Solano Community College off Suisan Valley Road. Parks within the project limits with bicycle and/or pedestrian facilities are described in **Section 2.1.2, Parks and Recreational Facilities**.

ENVIRONMENTAL CONSEQUENCES

Future Year Forecasts

Table 2.1-18 shows the overall level of traffic growth anticipated in the I-80 corridor under the 2020 and 2040 scenarios compared with existing conditions (2010). As expected, traffic entering the I-80 corridor is anticipated to increase substantially by the year 2040, largely as a result of local and regional residential and employment growth projected over that period. A comparison of the No-Build Alternative and Build Alternative conditions indicates the construction of the Build

Alternative would result in a substantial number of motorists using the express lanes within the traffic study area. This increase is to be expected given the nature of the project and the overall level of traffic growth anticipated over this time period.

Table 2.1-18 Future Traffic Growth Summary

Scenario	Percent Growth (compared to 2010)	Annualized Growth Rate
2020 No Project	10%	1.1% per year
2020 with Project	11%	1.2% per year
2040 No Project	32%	1.1% per year
2040 with Project	35%	1.2% per year

Source: Caltrans, 2014q

Express Lane Capacity

Tables 2.1-19 through **2.1-22** show the forecasted available capacity of the proposed express lanes within the traffic study area of the I-80 corridor under No-Build conditions. There is substantial potential to "sell" the available express lane capacity to toll-paying single occupant vehicles. It is expected that all of the traffic study area segments with express lanes along the I-80 corridor would have significant available capacity in the opening year (2020) and in the horizon year (2040) under the No-Build Scenario. Available express lanes capacity in the opening year (2020) varies between 51 and 95 percent, and varies between 39 and 95 percent by the horizon year (2040).

Table 2.1-19 Year 2020 AM and PM Eastbound Capacity in HOV Lanes

Freeway Segment	Available Capacity (percent)	
	AM	PM
I-80 between Red Top Rd. and SR-12/Jameson Canyon Rd.	95%	90%
I-80 between SR-12 and I-680	88%	77%
I-80 between I-680 and Suisan Valley Rd./Pittman Rd.	84%	65%
I-80 between Suisun Valley Rd./Pittman Rd. and Truck Scale	80%	57%
I-80 between Truck Scale and SR-12	80%	57%
I-80 between SR-12 and Abernathy Rd.	78%	63%
I-80 between Abernathy Rd. and Magellan Rd.	80%	62%
I-80 between Magellan Rd. and Beck Ave.	77%	56%
I-80 between Beck Ave. and Travis Blvd.	75%	55%
I-80 between Travis Blvd. and Air Base Pkwy./N. Texas St./Waterman Blvd.	75%	51%

Source: Caltrans, 2014q

Table 2.1-20 Year 2020 AM and PM Westbound Capacity in HOV Lanes

Freeway Segment	Available Capacity (percent)	
	AM	PM
I-80 between Manuel Campos Pkwy./N Texas St. and Air Base Pkwy./Waterman Blvd.	83%	95%
I-80 between Air Base Pkwy./Waterman Blvd. and Travis Blvd.	70%	72%
I-80 between Travis Blvd. and W. Texas St./Rockville Rd.	62%	65%
I-80 between W. Texas St./Rockville Rd. and Abernathy Rd.	58%	66%
I-80 between Abernathy Rd. and SR-12	62%	65%
I-80 between SR-12 and Truck Scale	60%	63%
I-80 between Truck Scale and Suisun Valley Rd./Pittman Rd.	56%	65%
I-80 between Suisun Valley Rd./Pittman Rd. and I-680	52%	63%
I-80 between I-680 and Green Valley Rd.	62%	71%

Source: Caltrans, 2014q

Table 2.1-21 Year 2040 AM and PM Eastbound Capacity in HOV Lanes

Freeway Segment	Available Capacity (percent)	
	AM	PM
I-80 between Red Top Rd. and SR-12/I-680	90%	80%
I-80 between SR-12/I-680 and Green Valley/Lopes Rd. Off	88%	74%
I-80 between SR-12/I-680 and Green Valley/Lopes Rd. On	62%	42%
I-80 between Green Valley/Lopes Rd. and Suisan Valley Rd./Pittman Rd.	62%	43%
I-80 between Suisun Valley Rd./Pittman Rd. and Truck Scale	65%	47%
I-80 between Truck Scale and SR-12	69%	51%
I-80 between SR-12 and Abernathy Rd.	70%	52%
I-80 between Abernathy Rd. and Magellan Rd.	68%	51%
I-80 between Magellan Rd. and Beck Ave.	66%	47%
I-80 between Beck Ave. and Travis Blvd.	66%	45%
I-80 between Travis Blvd. and Air Base Pkwy./Waterman Blvd.	67%	45%
I-80 between Air Base Pkwy./Waterman Blvd. and Manuel Campos Pkwy./N Texas St.	78%	64%

Source: Caltrans, 2014q

Table 2.1-22 Year 2040 AM and PM Westbound Capacity in HOV Lanes

Freeway Segment	Available Capacity (percent)	
	AM	PM
I-80 between Manuel Campos Pkwy./N Texas St. and Air Base Pkwy./Waterman Blvd.	94%	95%
I-80 between Air Base Pkwy./Waterman Blvd. and Travis Blvd.	67%	71%
I-80 between Travis Blvd. and W. Texas St./Rockville Rd.	64%	67%
I-80 between W. Texas St./Rockville Rd. and Abernathy Rd.	55%	60%
I-80 between Abernathy Rd. and SR-12	52%	59%
I-80 between SR-12 and Truck Scale	49%	57%
I-80 between Truck Scale and Suisun Valley Rd./Pittman Rd.	41%	50%
I-80 between Suisun Valley Rd./Pittman Rd. and Green Valley Off	39%	50%
I-80 between Green Valley Off and I-680	53%	61%
I-80 between I-680 and Green Valley On	64%	64%
I-80 between Green Valley On and SR-12/Jameson Canyon Rd.	65%	64%

Source: Caltrans, 2014q

Opening Year (2020) – Full Build Alternative

Peak Hour Performance

Tables 2.1-15 and **2.1-16** summarize future mainline and ramp operations along the I-80 corridor within the traffic study area. Under 2020 conditions, the Build Alternative would improve operations along segments of the I-80 corridor relative to the No-Build Alternative. As a result of additional capacity under the Build Alternative, the following segments are expected to operate at an improved LOS when compared to the 2020 No-Build Alternative.

AM Peak Hour Westbound I-80

- Mason Street to Air Base Parkway/Waterman Boulevard: LOS D to LOS C
- Truck Scale to Suisun Valley Road./Pittman Road: LOS E to LOS D

AM Peak Hour Eastbound I-80

- Manuel Campos Parkway/North Texas Street to Alamo Drive: LOS C to LOS B
- Peabody Road to Monte Vista venue/Allison Drive/Nut Tree Parkway: LOS C to LOS B

PM Peak Hour Westbound I-80

- Mason Street to Davis Street: LOS D to LOS C
- Cherry Glen Road to Pena Adobe Road/Rivera Road/Pleasant Valley: LOS D to LOS C
- Truck Scales to Suisun Valley Road/Pittman Road: LOS D to LOS C

PM Peak Hour Eastbound I-80

- Abernathy Road to Magellan Road: LOS D to LOS C
- Beck Avenue to Travis Boulevard: LOS D to LOS C
- Davis Street and Monte Vista Avenue/Allison Drive/Nut Tree Parkway: LOS D to LOS C

The remainder of the I-80 corridor would operate at LOS D or better.

Under the 2020 Build Alternative, I-80 traffic congestion would be less than expected under the No-Build Alternative. I-80 queuing and congestion experienced under the 2020 No-Build Alternative on westbound I-80 near the truck scales area would be relieved with implementation of the 2020 Build Alternative.

The conversion of the HOV lane to an express lane from Red Top Road to Air Base Parkway would result in a 6 percent increase in vehicles using the express lane, which would decrease congestion in the general purpose lanes. Overall, the new express lanes would accommodate approximately 35 percent more vehicles, providing better distribution of vehicles over all the lanes, which would relieve congestion and queuing along the entirety of the I-80 study corridor. No bottlenecks are expected with implementation of the Build Alternative in opening year 2020.

While the additional capacity provided by the Build Alternative would be the main contributor to improved traffic conditions, dynamic toll pricing would also ensure efficient operations of the express lane. Tolls for express lanes change periodically based on real-time traffic volumes. During periods of lower congestion, the toll will be lower. The lower toll rates encourage more single-occupant vehicles to pay the toll and make use the additional capacity of the express lane. During peak commute hours, when there is more traffic congestion on the freeway, the toll to access the express lane will be higher. The higher toll rates discourage more single-occupant vehicles from using the express lane and encourage carpooling, both of which free up at-capacity conditions within the facility. By raising or lowering the toll in response to the level of traffic congestion, and therefore demand, this dynamic pricing effectively manages the volume of traffic in the express lane. The express lane would be managed through dynamic pricing to operate at LOS C or better, with average travel speeds of 60 mph or faster.

Travel Time Comparison

Under the Build Alternative, I-80 traffic congestion and overall travel times in year 2020 would be less than expected under the No-Build Alternative. Overall, year 2020 travel times would be reduced by up to 30 seconds relative to the No-Build Alternative, as shown in **Table 2.1-23**. Furthermore, express lane travel times would be reduced by up to 1.9 minutes in the westbound

direction and up to 1.8 minutes in the eastbound direction during the AM peak hour, and up to 1.6 minutes in the westbound and up to 1.7 minutes in the eastbound direction in the PM peak hour (relative to the general purpose lanes).

Table 2.1-23 Year 2020 Travel Times Summary Along the I-80 Study Corridor

	Opening Year (2020) No Build			Opening Year (2020) West Segment			Opening Year (2020) Full Build		
	HOV Travel Time	GP Travel Time[1]	HOV Travel Time Savings	EL Travel Time	GP Travel Time[1]	EL Travel Time Savings	EL Travel Time	GP Travel Time[2]	EL Travel Time Savings
Eastbound									
AM Peak	0:06:49	0:07:48	0:00:59	0:06:48	0:07:48	0:01:00	0:13:37	0:15:23	0:01:46
PM Peak	0:07:20	0:08:56	0:01:36	0:07:20	0:08:41	0:01:21	0:14:44	0:16:38	0:01:54
Westbound									
AM Peak	0:06:39	0:07:38	0:00:59	0:06:38	0:07:38	0:01:00	0:14:00	0:15:38	0:01:38
PM Peak	0:06:29	0:07:23	0:00:54	0:06:29	0:07:20	0:00:51	0:13:52	0:15:14	0:01:22

Notes:
1. 1 GP travel times shown are within the limits of the existing HOV lane from Red Top Rd to Airbase Pkwy.
2. 2 GP travel times shown are within the limits of the Full Build from Red Top Rod to I-505.

Source: Caltrans, 2014q

Volume Served

Tables 2.1-24 and **2.1-25** show the volumes of vehicles served in the general purpose lanes along the I-80 traffic study area. Along eastbound I-80, a higher volume of vehicles would be served during both the AM peak hour and PM peak hour in 2020. Westbound I-80 is expected to accommodate similar volumes of vehicles as the No-Build Alternative, while also improving traffic operations as previously described under Peak Hour Performance.

Horizon Year (2040)

Peak Hour Performance

Tables 2.1-24 and **2.1-25** summarize future mainline operations along I-80 within the traffic study area. Under 2040 conditions, the Build Alternative would distribute the projected increases in traffic volumes along the I-80 corridor, reduce existing congestion (described below), provide additional capacity for use by HOVs and some toll-paying single occupant vehicles, and improve overall operations of the I-80 study corridor.

The entirety of the I-80 corridor would operate at LOS D or better, and no bottlenecks are expected under the 2040 Build Alternative. The following segments are expected to operate substantially better relative to the 2040 No-Build Alternative:

AM Peak Hour Westbound I-80

- East Monte Vista Avenue to Mason Street: LOS D to LOS C
- Mason Street and Cherry Glen Road: LOS E to LOS D
- West Texas Street/Rockville Road and Abernathy Road: LOS E to LOS D
- SR 12 to Suisun Valley Road/Pittman Road: LOS E to LOS D

AM Peak Hour Eastbound I-80

- Green Valley Road/Lopes Road and Suisun Valley Road/Pittman Road: LOS C to LOS B

PM Peak Hour Westbound I-80

- Mason Street to Cherry Glen Road: LOS E to LOS D
- Truck Scale to Suisun Valley Road/Pittman Road: LOS E to LOS D

PM Peak Hour Eastbound I-80

- Beck Avenue to Travis Boulevard: LOS E to LOS D
- Manuel Campos Parkway/North Texas Street to Alamo Drive: LOS E to LOS D
- Davis Street and Peabody Road: LOS E to LOS D

Under the 2040 Build Alternative, I-80 traffic congestion would be less when compared to the No-Build Alternative. During the AM peak hour, I-80 queuing and congestion would be relieved at the following locations:

- Westbound I-80 between Mason Street and Cherry Glen Road
- Westbound I-80 between Truck Scale and Suisun Valley Road/Pittman Road
- Westbound I-80 between West Texas Street/Rockville Road and Abernathy Road
- Westbound I-80 between SR-12 and Suisun Valley Road/Pittman Road

During the PM peak hour, I-80 queuing and congestion would be relieved at the following locations:

- Westbound I-80 between Mason Street and Cherry Glen Road
- Westbound I-80 between Truck Scale and Suisun Valley Road/Pittman Road
- Eastbound I-80 between Beck Avenue and Travis Boulevard
- Eastbound I-80 between Manuel Campos Parkway/North Texas Street and Alamo Drive
- Eastbound I-80 between Davis Street and Peabody Road

Table 2.1-24 Current and Forecasted Eastbound Mainline Volumes

	I-80 Eastbound Location	Existing Volumes (2010)		Opening Year Volumes (2020)				Horizon Year Volumes (2040)			
				No Build		Build		No Build		Build	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	I-80 at American Canyon Rd (On)	3199	4851	3349	5514	3337	5524	4685	7323	4676	7378
2	I-80 at Red Top Rd (Off)	2940	4599	3670	5822	3314	5442	5090	7695	4573	7185
3	I-80 at Red Top Rd (On)	3222	4804	3321	5432	3655	5866	4579	7086	4945	7643
4	I-80 at SR-12/Jameson Canyon Rd (On) (*2010-2020 location)	3881	5820	3660	5856	4435	7157	--	--	--	--
5	I-80 at Green Valley Rd/I-680 (Off) (*2010-2020 location)	3266	5085	4431	7142	3632	6216	--	--	--	--
6	I-80 at Green Valley Rd/I-680 (On) (*2010-2020 location)	5076	7940	3635	6182	5452	9070	--	--	--	--
7	I-80 at I-680/Lopes Rd (Off) (*2040 location)	--	--		--	--	--	4953	7551	4205	6650
8	I-80 at Lopes Rd (Off)	--	---	--	--	--	--	4205	6382	3709	5929
9	I-80 at SR-12/Jameson Canyon Rd (On) (*2040 location)	--	--	--	--	--	--	3706	5550	4644	7526
10	I-80 at I-680 (On) (*2040 location)	--	--	--	--	--	--	4640	7088	6752	10324
11	I-80 at Suisun Valley Rd/Pittman Rd (Off)	4579	7350	5431	9078	4960	8316	6743	9909	5998	9109
12	I-80 at Suisun Valley Rd/Pittman Rd (On)	5075	8103	4985	8346	5467	9203	5996	8640	6396	9376
13	I-80 at SR-12 (Off)	4126	6697	5472	9203	4410	7471	6406	8942	4886	6590
14	I-80 at Abernathy Rd (Off)	4035	6569	4422	7383	4312	7338	4911	6296	4783	6457
15	I-80 at Abernathy Rd (On)	4264	7193	4340	7249	4667	8169	5015	6426	5066	7475

	I-80 Eastbound Location	Existing Volumes (2010)		Opening Year Volumes (2020)				Horizon Year Volumes (2040)			
				No Build		Build		No Build		Build	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
16	I-80 at West Texas St (Off)	3884	6626	4636	8069	4166	7406	5285	7352	4565	6759
17	I-80 at Magellan Rd (On)	4324	7330	4147	7142	4230	7562	4783	6633	4637	6948
18	I-80 at Beck Ave (On)	4257	7433	4211	7485	4620	8446	4855	6818	5068	7927
19	I-80 at East/West Travis Blvd (Off)	3853	6316	4605	8359	4190	7237	5286	7759	4602	6577
20	I-80 at Travis Blvd (On)	4278	7320	4185	7097	4627	8269	4828	6331	5044	7540
21	I-80 at Air Base Pkwy/Waterman Blvd (Off)	3332	6044	4621	8093	3641	6919	5265	7236	3975	5990
22	I-80 at Air Base Pkwy/Waterman Blvd (On)	4017	6779	3641	6735	4292	7693	4161	5539	4576	6818
23	I-80 at Manuel Campos Pkwy (Off)	3804	6307	4273	7365	4064	7044	4731	6253	4272	6021
24	I-80 at Manuel Campos Pkwy (On)	4311	6907	4033	6844	4683	7713	4444	5621	5217	7022
25	I-80 at Lagoon Valley Rd/Cherry Glen Rd (Off)	4278	6814	4673	7663	4650	7622	5410	6559	5184	6705
26	I-80 at Lagoon Valley 24Rd/Cherry Glen Rd (On)	4384	6904	4622	7546	4756	7712	5377	6137	5290	6865
27	I-80 at Pena Adobe Rd/Rivera Rd (Off)	4379	6887	4728	7636	4734	7664	5483	6563	5231	6802
28	I-80 at Pena Adobe Rd/Rivera Rd (On)	4407	6933	4704	7599	4776	7761	5426	6514	5299	6987
29	I-80 at Alamo Dr (Off)	3711	5738	4746	7695	4046	6360	5494	6716	4463	5453
30	I-80 at Alamo Dr (On)	4209	6442	4014	6302	4563	7090	4657	5214	5105	6250
31	I-80 at Davis St (Off)	3919	5929	4531	7032	4265	6547	5309	5980	4778	5480
32	I-80 at Davis St (On)	4214	6298	4233	6489	4568	6929	4986	5263	5183	5990
33	I-80 at Peabody Rd (Off)	4003	5681	4536	6871	4354	6272	5391	5703	4962	5310
34	I-80 at Peabody Rd (On)	4400	6190	4322	6217	4793	6823	5178	5114	5179	5790

	I-80 Eastbound Location	Existing Volumes (2010)		Opening Year Volumes (2020)				Horizon Year Volumes (2040)			
				No Build		Build		No Build		Build	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
35	I-80 at Monte Vista Ave/Allison Dr/Nut Tree Pkwy (Off)	4181	4920	4760	6768	4544	5516	5390	5606	4876	4371
36	I-80 at Monte Vista Ave/Allison Dr/Nut Tree Pkwy (On1)	4395	5141	4523	5444	4728	5741	5090	4206	5260	4955
37	I-80 at Monte Vista Ave/Allison Dr/Nut Tree Pkwy (On2)	4502	5276	4712	5670	4912	5967	--	--	--	--
38	I-80 at I-505/Orange Dr (Off)	3720	4554	4901	5896	4120	5214	5482	4877	4446	4162
39	I-80 at I-505/Orange Dr (On)	3787	4706	4101	5156	4198	5408	4665	4131	4648	4508
40	I-80 at Nut Tree/Orange Dr (On)	3951	5087	4179	5350	4378	5851	4864	4568	4940	5056
41	I-80 at Leisure Town Rd (Off)	3633	4699	4359	5793	3910	5171	5157	5132	4160	4127

Source: Caltrans, 2014q

Table 2.1-25 Current and Forecasted Westbound Mainline Volumes

	I-80 Westbound Location	Existing Volumes (2010)		Opening Year Volumes (2020)				Horizon Year Volumes (2040)			
				No Build		Build		No Build		Build	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	I-80 at Leisure Town Rd. (On)	4012	4595	4204	4458	4204	4462	4792	5216	4843	5398
2	I-80 at I-505 (Off)	3992	4576	4462	5062	4442	5045	5218	6177	5246	6346
3	I-80 at I-505 (On)	4759	5539	4441	5040	5440	6136	5198	6158	6709	7633
4	I-80 at Monte Vista Ave/Allison Dr (Off)	4488	4985	5434	6131	5158	5580	6645	7429	6075	7041
5	I-80 at Monte Vista Ave/Allison Dr (On)	5251	5614	5157	5575	5913	6273	6326	6834	6828	7800
6	I-80 at Mason St (Off)	4740	4976	5913	6268	5364	5601	7140	7491	6136	7286
7	I-80 at Mason St (On)	5557	5445	5378	5596	6218	6104	6612	7086	6908	7789
8	I-80 at Davis St (Off)	5175	5091	6229	6100	5826	5738	7371	7595	6455	7298
9	I-80 at Davis St (On)	5604	5402	5827	5734	6384	6067	6920	7132	7300	7724
10	I-80 at Alamo Dr (Off)	5092	4812	6383	6062	5856	5464	7659	7542	6725	6985
11	I-80 at Alamo Dr (On)	6542	5542	5867	5459	7336	6295	7087	6849	8304	8008
12	I-80 at Cherry Glen Road (Off)	6533	5524	7345	6289	7318	6294	8595	7817	8304	8008
13	I-80 at Pena Adobe Rd/Rivera Rd (Off)	6518	5481	7344	6288	7283	6195	8595	7817	8201	7825
14	I-80 at Pena Adobe Rd/Rivera Rd (On)	6527	5509	7293	6188	7297	6233	8493	7637	8353	7907
15	I-80 at Cherry Glen Rd/Lagoon Valley Rd (Off)	6519	5487	7306	6226	7177	6046	8557	7729	8028	7442
16	I-80 at Cherry Glen Rd/Lagoon Valley Rd (On)	6657	5535	7191	6039	7398	6241	8234	7265	8418	7905
17	I-80 at Manuel Campos Pkwy (Off)	6087	4944	7412	6235	6844	5558	8759	7731	7586	6923

	I-80 Westbound Location	Existing Volumes (2010)		Opening Year Volumes (2020)				Horizon Year Volumes (2040)			
				No Build		Build		No Build		Build	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
18	I-80 at Manuel Campos Pkwy (On)	6630	5219	6710	5553	7508	5880	7846	6656	8463	7341
19	I-80 at Air Base Pkwy/Waterman Blvd (Off 1)	6353	4904	7354	5872	7213	5555	8478	7046	8161	6984
20	I-80 at Air Base Pkwy/Waterman Blvd (Off 2)	6102	4579	7071	5548	6853	5319	8191	6710	7881	6763
21	I-80 at Air Base Pkwy/Waterman Blvd (On)	7402	5612	6827	5315	8189	6410	8058	6664	9239	7970
22	I-80 at Travis Blvd (Off)	6852	4877	8159	6410	7410	5661	9534	7876	8696	7227
23	I-80 at Travis Blvd (On 1)	7247	5572	7411	5663	7869	6400	9065	7147	9328	8006
24	I-80 at Travis Blvd (On 2)	7650	5877	7853	6401	8339	6722	9757	7924	9853	8364
25	I-80 at West Texas St/Rockville Rd (Off)	7030	5383	8298	6722	7814	6337	10274	8283	9098	7755
26	I-80 at West Texas St/Rockville Rd (On)	7656	5777	7790	6337	8683	6771	9570	7674	9628	8200
27	I-80 at Abernathy Rd (Off)	6864	5456	8558	6771	7674	6387	10128	8107	8304	7623
28	I-80 at Abernathy Rd (On)	7029	5544	7583	6386	7851	6475	8841	7566	8586	7711
29	I-80 at SR-12 (On)	8662	6652	7755	6474	9734	7870	9121	7661	11307	9909
30	I-80 at Suisun Valley Rd/Pittman Rd (Off)	7880	5877	9666	7869	8875	6857	11878	9875	11066	8928
31	I-80 at Suisun Valley Rd/Pittman Rd (On)	--	--	--	--	--	--	11617	8901	11955	10069
32	I -80 at Green Valley Rd (Off)	--	--	--	--	6540	5142	12370	10031	11490	9761
33	I-80 at I-680 (Off) (*2010-2020 location)	5694	4268	8832	6855						
34	I-80 at I-680 (On) (*2010-2020	5845	4436	6533	5141						

	I-80 Westbound Location	Existing Volumes (2010)		Opening Year Volumes (2020)				Horizon Year Volumes (2040)			
				No Build		Build		No Build		Build	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	location)										
35	I-80 at Jameson Canyon Rd/SR-12 (Off) (*2020 location)	4904	4061	7078	5537						
36	I-80 at Green Valley Rd (On) (*2020-2040 location)	--	--	5454	4264	7052	5550	7056	6475	7162	7026
37	I-80 at Green Valley Rd/I-680 (Off)	--	--	--		5436	4277	--	--	--	--
38	I-80 at Jameson Canyon Rd/SR-12 (Off) (*2040 location)	--	--	--	--	--	--	11926	9725	9604	8642
39	I-80 at Jameson Canyon Rd/SR-12 (On)	--	--	--	--	6119	4989	--	--	--	--
40	I-80 at I-680 (Off) (*2040 location)	--	--	--	--	--	--	10030	8579	6630	6552
41	I-80 at I-680 (On) (*2040 location)	--	--	--	--	--	--	7665	6961	7455	7213
42	I-80 at Red Top Rd (Off)	4256	3852	6054	4976	5414	4725	7960	7140	6729	6703
43	I-80 at Red Top Rd (On)	4630	4070	5346	4712	5803	5041	7242	6630	7061	7166
44	I-80 at American Canyon Rd (Off)	4413	3771	5707	5023	5611	4711	7641	7103	6860	6784

Source: Parsons Brinckerhoff, 2014

By year 2040, the conversion of the HOV lane in the West Segment to an express lanes results in a 9 percent increase in vehicles using the express lane, which would decrease congestion in the general purpose lanes. The additional lane in the East Segment would accommodate approximately 35 percent more vehicles, resulting in increased capacity and decreased congestion along the I-80 study corridor.

Travel Time Comparison

Overall, travel times would be reduced by up to 27 seconds relative to the 2040 No-Build Alternative, as shown in **Table 2.1-26**. Relative to general purpose lanes, express lane travel times would be reduced by up to 1.5 minutes in the eastbound and westbound directions in the AM peak hour. During the PM peak hour, there would be a travel time savings of up to 1.3 minutes in the westbound direction and up to 1.9 minutes in the eastbound direction, relative to the general purpose lanes.

Table 2.1-26 Year 2040 Travel Times Summary Along the I-80 Study Corridor

	Horizon Year (2040) No Build			Horizon Year (2040) Full Build		
	HOV Travel Time	GP Travel Time[1]	HOV Travel Time Savings	EL Travel Time	GP Travel Time[2]	EL Travel Time Savings
Eastbound						
AM Peak	0:07:14	0:07:57	0:00:43	0:14:11	0:15:42	0:01:31
PM Peak	0:07:31	0:08:52	0:01:21	0:15:04	0:16:57	0:01:53
Westbound						
AM Peak	0:07:05	0:08:20	0:01:15	0:14:35	0:16:06	0:01:31
PM Peak	0:06:59	0:07:56	0:00:57	0:14:38	0:15:59	0:01:21

Notes:
1. 1 GP travel times shown are within the limits of the existing HOV lane from Red Top Rd to Airbase Pkwy.
2. 2 GP travel times shown are within the limits of the Full Build from Red Top Rod to I-505.

Source: Caltrans, 2014q

Volume Served

Tables 2.1-24 and **2.1-25** above summarize east and westbound traffic volumes for the weekday AM peak hour and PM peak hour. During the PM peak hour, the Build Alternative would accommodate increased volumes along both eastbound and westbound I-80 while also improving traffic operations in 2040. During the AM peak hour, eastbound and westbound I-80 would accommodate similar traffic volumes as the No-Build Alternative, but would improve traffic operations as previously discussed under *Peak Hour Performance*.

Bicycle and Pedestrian Facilities

The Build Alternative would not alter the existing bicycle and pedestrian facilities.

West Segment – First Fundable Phase

In general, the traffic conditions detailed above for the Build Alternative are applicable to the West Segment. Implementation of the West Segment, with or without the future phases of the Build Alternative, would result in more efficient operations of the I-80 corridor relative to the No-Build Alternative conditions.

Opening Year (2020) – West Segment

Peak Hour Performance

Under 2020 conditions, the implementation of the West Segment would have very similar effects on I-80 corridor-wide traffic operations when compared to the full Build Alternative (see **Table 2.1-23**). Under 2020 conditions, the West Segment would improve the operations along the I-80 study corridor when compared to the No-Build Alternative. The following I-80 segments would experience improved LOS operations relative to the 2020 No-Build Alternative:

AM Peak Hour Westbound I-80

- Truck Scale to Suisun Valley Road/Pittman Road: LOS E to LOS D

PM Peak Hour Westbound I-80

- Mason Street to Davis Street: LOS D to LOS C
- Truck Scale to Suisun Valley Road/Pittman Road: LOS D to LOS C

PM Peak Hour Eastbound I-80

- Abernathy Road to Magellan Road: LOS D to LOS C
- Beck Avenue to Travis Boulevard: LOS D to LOS C

Travel Time Comparison

The overall travel time savings with the construction of the West Segment are minimal, up to 14 seconds, when compared to the 2020 No Build Alternative. However, when compared to the general purpose lanes, there is expected to be an express lane travel saving of up to 1 minute in the westbound and eastbound directions during the AM peak hour. During the PM peak hour, there is anticipated to be travel time savings of up to 0.9 minutes westbound and 1.4 minutes in eastbound direction.

Volume Served

Westbound I-80 is expected to accommodate similar volumes of vehicles as the No-Build Alternative, while also improving traffic operations as previously described under *Peak Hour Performance*. Approximately 8 percent more vehicles are expected to use the express lane by year 2020 with the construction of the West Segment, enabling better distribution of vehicles throughout all freeway lanes and relieving congestion. The queuing and congestion experienced on westbound I-80 near the truck scales area would be relieved. .

Horizon Year (2040) – West Segment

By year 2040, both the West and East Segments are anticipated to be complete. For this reason, the West Segment was not further evaluated for 2040 conditions and construction of the West Segment would be identical to the Build Alternative.

Temporary Construction Impacts

As discussed in **Chapter 1.0**, **Proposed Project**, the Build Alternative would be constructed in multiple stages in order to minimize traffic delays and traffic congestion caused by construction activities. The exact staging of the construction phases would be determined during the final design process. It is anticipated that the proposed construction would require temporary roadway and shoulder closures. As further discussed in **Section 2.1.2, Parks and Recreation,** the bike paths and bike lanes located adjacent to I-80, and at the various ramp termini intersections, would remain open during construction and would not be impacted as part of the Build Alternative.

No-Build Alternative

As presented in the analyses above (see **Tables 2.1-24** and **2.1-25**), the forecasted increases in traffic volumes without capacity improvements would result in further deterioration in traffic congestion and slower vehicle speeds along I-80. By year 2020, average travel times along the I-80 study corridor are anticipated to increase by as much as almost 1.5 minutes (refer to **Table 2.1-23**).

Traffic congestion would continue to increase between the I-680 and SR 12 East Interchanges, between the SR 12 West Interchange and Red Top Road, and between Travis Boulevard and Lagoon Valley Road/Cherry Glen Road. Speeds in some segments would drop to as low as 49 mph.

By 2040 with no improvements, several segments of the I-80 corridor are expected to deteriorate to unacceptable LOS E conditions, with speeds as low as 47 mph in some locations. These segments would experience increased congestion in the general purpose lanes, particularly between Beck Avenue and Travis Boulevard, and from Manuel Campos Parkway to Peabody Road during the PM peak hour eastbound. Traffic would also worsen between Mason Street and Cherry Glen Road during both the AM peak hour and PM peak hour in the westbound direction, and between West Texas Street and Suisun Valley Road during the AM peak hour westbound. Under the No-Build Alternative, average travel times along the I-80 study corridor are anticipated to increase by over 1.5 minutes by 2040 (refer to **Table 2.1-26)**.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Measure TRA-1: A Traffic Management Plan (TMP) should be prepared during the detailed design phase for the Build Alternative, in accordance with Caltrans requirements and guidelines. The TMP should address traffic impacts from staged construction, detours, and specific traffic handling concerns during construction of the project.

The objective of the TMP is to minimize the impacts that construction activities would have on the traveling public. Traffic management strategies that require action by the construction contractor should be presented in detail in the Build Alternative's technical specifications of the bid contract, and should be considered part of the project.

In implementing the TMP, Caltrans should produce and disseminate press releases and other documents, as necessary, to adequately notify and inform motorists, business community groups, local entities, emergency services, and elected officials of upcoming road closures and detours. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. Caltrans construction staff should also submit weekly information regarding the daily traffic impacts to State facilities to the Caltrans District 4 Public Information Office. This information should be included in the Weekly Traffic Updates, which are dispersed to all news media outlets and other interested agencies.

West Segment –Fundable First Phase

No avoidance, minimization, or mitigation measures specific to the West Segment would be required beyond the implementation of the TMP, as described above under **Measure TRA-1**.

2.1.8 VISUAL/AESTHETICS

REGULATORY SETTING

The National Environmental Policy Act of 1969 as amended (NEPA) 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 [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 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]).

The Caltrans' Scenic Highway Program is intended to protect and enhance the natural scenic beauty of California's highways and adjacent corridors, through special conservation treatment. The program protects against encroachment of incompatible land uses, mitigates and minimizes development activities along the corridor, prohibits billboards, regulates grading activity, and other activities causing visual degradation.

Caltrans classified "Landscaped Freeways" are landscaped freeways with plantings that meet the State Outdoor Advertising Regulations criteria. Outdoor advertising displays are controlled and regulated along Classified Landscaped Freeways.

Criteria for Landscaped Freeways include freeways with plantings within the state right-of-way that are continuous (no gaps ≥ 200 feet), ornamental (not functional), a least 1,000 feet long, on at least one side of the freeway, and require reasonable maintenance. Outdoor advertising is limited in these locations.

STATE POLICIES AND GUIDELINES

No officially designated state scenic highways or highways eligible for such designation are within the project limits. The following segments of the project limits are classified Landscaped Freeways and are located within Fairfield (Caltrans, 2014r).[29]

- I-80 from PM 15.52 to 15.90
- I-80 from PM 16.04 to 16.27
- I-80 from PM 17.03 to 19.71

The designated Landscaped Freeway locations between PM 15.52 and 16.27 are located between the Cordelia Truck Scales and Abernathy Road overcrossing. The designated Landscaped Freeway location between 17.03 and 19.71 is located from just west of the West Texas Street undercrossing to the Air Base Parkway overcrossing.

LOCAL POLICIES AND GUIDELINES

Local city and county land use plans were reviewed to identify goals and policies, and to provide insight into viewer sensitivity concerning visual resources in the visual resources study area.

The Solano County General Plan Resources Element identifies the I-80 corridor as a scenic roadway and directs roadway corridors to be developed in a manner that respects and maintains the integrity of the viewsheds identified in the plan.[30] Guiding policies and implementation programs are established to implement this direction. Specifically, Guiding Policies RS.P-35 – 37 include

[29] Criteria for Landscaped Freeways include freeways with plantings within the state right-of-way that are continuous (no gaps ≥ 200 feet), ornamental (not functional), a least 1,000 feet long, on at least one side of the freeway, and require reasonable maintenance.

[30] *Solano County General Plan*, Chapter 4, Resources, 2008; RS-37-39, 50.

direction to protect the visual character and unique scenic features including roadways, hills, ridgelines, wetlands, and water bodies. Implementation programs RS.1-21, 22 and 36 provide design treatments to preserve the visual character of scenic roadways.

The Fairfield Scenic Vista and Roadway Plan identifies scenic vistas and establishes policies and guidelines to minimize the impact on scenic vistas and roadways. Different from a scenic roadway, a scenic vista is an attractive area that is visible from a number of places around Fairfield.[31] The plan incorporates concepts of vividness, intactness, and unity to identify natural features and built features that contribute to an area's scenic quality. The City of Fairfield utilizes Scenic Vistas policies in their development review.[32] Although the I-80 corridor is not identified as a scenic roadway, there are several scenic vista areas and scenic vista points have been identified in areas immediately adjacent to the project limits.

The Fairfield General Plan includes a combined open space, conservation, and recreation element. Many of the open space policies directly relate to policies in the Urban Design Element of the General Plan, which identifies objectives and policies to foster an attractive, orderly, and unique community while preserving the natural setting. Specifically, Objective OS 6 and associated Policies OS 6.1, 6.5, 66 and 6.9 within the Open Space, Conservation, and Recreation Element aim to enhance visual resources throughout the City. Within the Urban Design Element, Objectives UD 1, UD 4, UD 5 and UD 6 and their associated policies UD 1.4, UD 4.2, UD 5.1, UD 5.2 and UD 6.1 (respectively) provide development and landscaping design direction to cultivate Fairfield as a distinctive community, ensure high quality standards, and preserve the natural scenic quality of the surrounding setting. Fairfield has not designated any portion of the I-80 corridor (within city limits) as a scenic resource.

The City of Vacaville's General Plan includes an Open Space Element and a Conservation Element, both of which have guiding principles and implementing policies relating to visual resources within the project limits. The Open Space Element includes policies 3.5-G 2 and 3.5 I 5 which require retention of major ridgelines and hillsides designated as open space areas and minimization of construction disturbance activities of natural habitats and vegetation. The Conservation Element includes policies 8.1 G1 and 8.2 G1 which aims to preserve and enhance Vacaville's creeks and natural environments for their value as habitat, drainage, and visual amenities.

The City of Vacaville's City Gateways Plan was created with the intention to improve the visual appearance of the City from I-80 and the "gateways" into the community. The City Gateways Plan generally focuses on the area of I-80 between Lagoon Valley Road and Leisure Town Road, including 100 feet from the existing freeway right-of-way line. The City Gateways Plan also provides design elements with specific materials and guidance for landscaping, public art, interchanges and overcrossings, public signage, billboard removal, and undergrounding of utilities. The City Gateways Plan specifically recognizes the aesthetic importance of the oleanders in the I-80 highway median and calls for them to be maintained and enhanced whenever possible.

31 City of Fairfield Scenic Roadways and Vistas Plan, 1999
32 City of Fairfield, Scenic Vistas and Roadways Plan, 1999.

AFFECTED ENVIRONMENT

Information in this section is based on the Visual Impact Assessment prepared for this project (Caltrans 2014r). The visual impact assessment was prepared in accordance with the guidelines in the FHWA Visual Impact Assessment for Highway Projects (FHWA, 1981). The study area for visual resources (visual resources study area) encompasses the project's viewshed, which is defined as the immediate areas in which proposed improvements would occur as well as areas that are visible from the project limits and views from off-site locations toward the project limits. The visual resources study area is determined by topography, vegetation, and viewing distance. Visual resources are identified below under state and local policies and guidelines. The visual setting section describes visual assessment units, key views and the types of viewers in the visual resources study area.

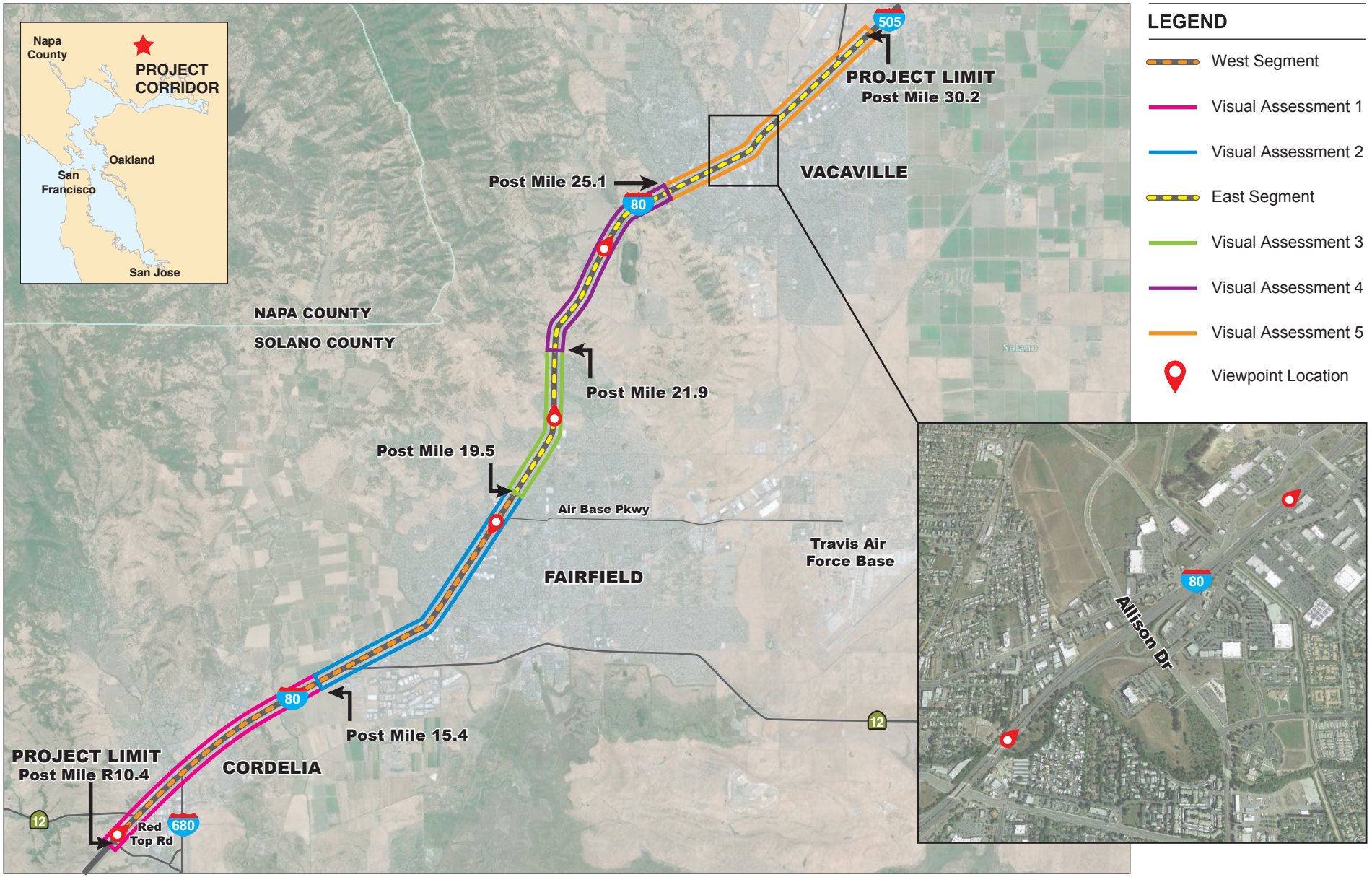
Visual Setting

The visual setting and visual quality of the study area can be described by five distinct visual assessment units. Visual assessment units are geographically discreet areas that are often separated by natural features such as bodies of water, ridges, or changes in vegetation. Each visual assessment unit has a certain visual character based upon its land uses and features. **Figure-2.1-6** depicts the location of these visual assessment units.

The immediate vicinity of the visual resources study area consists primarily of urban development through the cities of Fairfield and Vacaville and open hilly terrain in the unincorporated Solano County area. Urban development includes commercial and residential development, farms and farmhouses, and the I-80 freeway corridor. Landforms within the project limits are generally characterized by commercial and residential neighborhoods, farmland, and rural valley terrain. Natural land cover in the project area includes trees, shrubs, and grassland vegetation.

Visual Assessment Unit 1

Visual Assessment Unit 1 is located from the southwestern-most project limit, west of Red Top Road (PM R10.4) to the Rio Vista/SR 12 exit (PM 15.4). The character of Visual Assessment Unit 1 is a transportation corridor through mostly flat and open terrain with low hills in the western portion and farmland in the eastern portion. Low trees and vegetation line the valley and are scattered on the nearby hillsides which are crossed by power lines. Views of man-made development through the area of Cordelia generally consist of large-scale commercial buildings such as warehouses, retailers, and strip malls, and business parks with tall signs, and are softened by planted trees and landscaping. Eastbound traveler groups along this corridor experience views of rolling hills and layered mountain ranges in the distance in the undeveloped areas. Westbound traveler groups experience similar views as travelers in the eastbound direction, but with closer views of rolling hills. There are 23 existing overhead freeway signs in the eastbound direction, and 18 in the westbound direction within Visual Assessment Unit 1. Visual Assessment Unit 1 is part of the West Segment of the project.



Visual Assessment Units

Figure 2.1-6

Source: Caltrans, 2014x [VIA]

This mixture of natural landscape and man-made development creates a quality similar to other urban limits in the region and is of moderate, overall visual quality. This mixture degrades the intactness of the natural environment to moderately-low. The scattered developments geared toward freeway travelers are not particularly vivid. However, views of rolling hills and distant mountain ranges increase vividness to moderately high for viewers. While some developments intrude on the natural environment, others are in harmony with the rural landscape. Thus, the lack of any major visual intrusions results in moderate unity.

Visual Assessment Unit 2

Visual Assessment Unit 2 is located from the Rio Vista/SR 12 exit (PM 15.4) to just east of Air Base Parkway (PM 19.5). The character of Visual Assessment Unit 2 is a relatively flat transportation corridor shouldered by a concrete-median barrier, soundwalls, and trees that provide it lineal definition. It is surrounded by mostly low-density commercial and residential development partially screened by trees and landscaping, with some farmland in the western portion which creates diverse patterns and textures. The freeway corridor and open sky dominate the view in this unit, as mountains are distant and partially obscured. Eastbound traveler groups along this corridor experience intermittent long-range views of the Vaca Mountain range between developments and greenery partially obstructed by a tall median barrier and trees in some portions of the unit. Westbound traveler groups travel on a slight downslope and experience distant views of mountain ranges in the direction of travel surrounded by low-density commercial and residential developments broken up by greenery. There are 11 existing overhead signs in the eastbound direction, and 10 in the westbound direction. Visual Assessment Unit 2 is part of the West Segment of the project.

Visual Assessment Unit 2 includes a moderate amount of man-made development, with a mixture of residential, commercial, and industrial land uses. Near-range views consist of a variety of commercial developments surrounded by large parking lots, tall trees, and soundwalls with landscaping. With intermittent long-range views of mountains, vividness in this unit is moderate. The man-made developments are generally low-density and partially or completely screened by landscaping or soundwalls, allowing for some long-range views to remain. This results in relatively moderate visual continuity and moderate-high intactness and unity ratings. Visual Assessment Unit 2 represents a moderate-high visual quality rating.

Visual Assessment Unit 3

Visual Assessment Unit 3 is located just east of Air Base Parkway (PM 19.5) to the eastern edge of Paradise Valley Golf Course (PM 21.9). The character of Visual Assessment Unit 3 is a transportation corridor surrounded by rolling hills. Travelers pass by low-density residential development and some commercial development that is partially screened by trees and soundwalls. After Putah South Canal, the views are mostly open and natural and the median is planted with oleanders that bloom with pink and white flowers in the summer and are green in the winter. There is also a golf course on the south side of Visual Assessment Unit 3 that is lined with tall

evergreen trees. Traveler groups along this corridor experience scenic views of natural appearing hills and vegetation. There are no existing overhead signs in Visual Assessment Unit 3. Visual Assessment Unit 3 is within the East Segment of the project.

Visual Assessment Unit 3 is surrounded by rolling hills with some low-density residential and commercial development that is partially screened by trees and soundwalls. The hill passages and natural land cover are visually striking to travelers, resulting in moderate-high vividness. Oleanders planted in the freeway median provide colorful blooms in the summer and greenery in the winter; however, the white concrete safety barriers bordering the oleanders diminish the aesthetic of the plants. Depending on the scale, some of the development and landscaping blend well with the natural environment and others encroach on or obscure the scenery. Intactness and unity in Visual Assessment Unit 3 are moderate. Overall, Visual Assessment Unit 3 represents a moderate visual quality rating.

Visual Assessment Unit 4

Visual Assessment Unit 4 is located from the eastern edge of the Paradise Valley Golf Course (PM 21.9) to Alamo Creek (PM 25.1). The character of Visual Assessment Unit 4 is a transportation corridor through a natural setting of rolling hills, farmland, and intermittent median and shoulder oleander plantings. The Cement Hill Range Scenic Vista, agricultural lands, the Peña Adobe Park, and Lagoon Valley Lake can be viewed from certain areas within this visual assessment unit.

The Peña Adobe Park and Ranchotel Motel are the main highway neighbors in Visual Assessment Unit 4. There are currently no views of I-80 from the Peña Adobe Park and lightly screened views of I-80 from the Ranchotel Motel. Throughout most of Visual Assessment Unit 4, the westbound side of the freeway is at a higher grade separation than the eastbound side, thus screening views of the eastbound lanes from westbound travelers. Visual Assessment Unit 4 has one existing overhead sign in the eastbound direction and none in the westbound direction. All other freeway signs in this unit are smaller, post-mounted types. Existing trees and vegetation occur within the median and freeway shoulder which contribute to softening of the existing I-80 infrastructure. Visual Assessment Unit 4 is within the East Segment of the Project.

Visual Assessment Unit 4 is mostly rural with few man-made features that blend nicely with the natural environment, creating high vividness. Tall landscaping obscures the views in some locations and detracts slightly from the intactness and unity of the scenery. Oleanders planted in the freeway median provide colorful blooms in the summer and greenery in the winter; however, the white concrete safety barriers bordering the oleanders diminish the aesthetic of the plants.

Overall, the rural character and natural surroundings of the landscape is visually appealing to travelers, resulting in high intactness and unity. Overall, Visual Assessment Unit 4 represents a high visual quality rating.

Visual Assessment Unit 5

Visual Assessment Unit 5 is located from Alamo Creek (PM 25.1) to just past Leisure Town Road (PM 30.2). Visual Assessment Unit 5 is characterized as a relatively flat transportation corridor through the developed area of the City of Vacaville. Tall trees line much of the freeway, screening a considerable amount of the commercial and residential development. Eastbound traveler groups experience views of dense trees and landscaping and minimal long-range mountain views. Westbound traveler groups experience more long-range mountain views of the Cement Hill Range Scenic Vista and the Vaca Mountains. Tall commercial signs mark the landscape through the I-80 corridor. Median planted oleanders are generally tall and full in this area. There are 11 existing overhead signs in the eastbound direction of Visual Assessment Unit 5, and 7 overhead signs in the westbound direction. Visual Assessment Unit 5 is within the East Segment of the Project.

Visual Assessment Unit 5 is highly developed. This development is mostly screened by dense landscaping along the freeway corridor. Long-range views of the Vaca Mountain ranges are visible to westbound travelers. Planted trees and oleanders are colorful and pleasant, while tall signs detract from the visual quality, resulting in moderate vividness. Oleanders planted in the median provide colorful blooms in the summer and greenery in the winter; however, the white concrete safety barriers bordering oleanders diminish the aesthetic of the plants. Frequent signage and visual clutter obstructing long-range views results in moderate-low intactness. Relatively consistent lush roadside landscaping provides moderate unity. Overall, Visual Assessment Unit 5 represents a moderate visual quality rating.

Viewer Groups

Viewer groups within the visual resources study area include commuter traffic, local traffic, goods movement traffic, residents in the surrounding homes, and employees and patrons of the commercial and agricultural businesses along the project limits. These viewer groups fall into two major categories: highway neighbors and highway users. Highway neighbors are people who have views *to* the road and can be divided up into viewer groups by land use type. Highway users are people who have views *from* the road and can be divided by reason for travel. Each viewer group has their own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group that help to predict their responses to visual changes.[33]

Highway Neighbors

Highway neighbors for the visual resources study area include several residential neighborhoods, commercial/industrial uses including a number of hotels, businesses, restaurants, agricultural and farmlands and two recreational bicycle and pedestrian paths. All neighbors have a moderate

33 Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. Viewer sensitivity is a measure of the viewer's recognition of a particular object and has three attributes: activity, awareness, and local values.

viewer exposure and sensitivity; although within Visual Assessment Units 4 and 5 their sensitivity would be high due to the local value placed on the median oleanders outlined in the City of Vacaville's City Gateways Plan.

Residential highway neighbors along the visual resources study area have limited views of the freeway, and have very low visual exposure. For the majority of residential highway neighbors, views of I-80 are blocked by soundwalls, trees, and shrubs; while some residential highway neighbors are blocked from views of the freeway because they are situated at a lower topography than the freeway. Residential highway neighbors have higher viewer sensitivity due to prolonged and ongoing views.

Commercial and industrial highway neighbors have higher views of I-80 then the residential highway neighbors, due to a lesser amount of visual screening. Patrons of these commercial and industrial uses may have temporarily higher view exposure when using the associated parking lots which generally have the most exposed views to I-80. However, this in turn results in lower viewer sensitivity because views from the parking lots and/or hotel rooms do not occur over a prolonged duration.

Agricultural, farmlands, and recreational highway neighbors have moderate to high views and exposure. In areas without landscaping to screen views, these highway neighbors may have prolonged views of the I-80 corridor. Because agricultural viewers only have close views of the freeway when they are working in the areas near the I-80, sensitivity would be low.

Recreational bicycle and pedestrian trail viewers would have moderate-high sensitivity due to prolonged views and high values of the natural scenery. Viewers from the Scandia Family Fun Center, a commercial recreational use, are generally focusing on various activities that would take their awareness away from the freeway and would thus have moderate-low sensitivity.

Highway Users

Highway users for the visual resources study area include commuter, hauler, tourist and local resident travelers. There are a wide variety of views from the freeway throughout the visual resources study area, including open views of rolling hills with scattered low-density development, trees and soundwalls that enclose the freeway and screen travelers from views of residential and commercial developments, natural land cover and greenery, and frequent commercial and overhead roadway signs. Overall, highway users have a moderate-high viewer exposure and sensitivity; although within Visual Assessment Units 4 and 5 sensitivity would be high due to the local value placed on the median oleanders outlined in the City of Vacaville's City Gateways Plan.

There is a high quantity of highway users per day in this portion of the project limits with a general high visual exposure to non-peripheral, repetitive objects (i.e., signs and lane striping), and distant views. However, highway users that are commuting to and from work on a routine basis are less aware and have a lower sensitivity to visual resources than the highway users that are driving to

enjoy the scenic views. [34] Drivers traveling along at normal speeds typically focus their attention on long-range, non-peripheral views. Passengers would likely have a heightened awareness of a wide range of views while traveling, since they are not focused on the task of driving. Motorists traveling at normal highway speeds would have a much shorter duration of view than motorists driving slowly due to congested traffic. Motorists experiencing congested traffic conditions would be likely to focus on views of the existing highway and the traffic in front of them. Motorists and passengers are more aware of views when the landscape transitions and may have a higher sensitivity. Overall, highway users would have a moderate-high response to changes within the project limits; although within Visual Assessment Units 4 and 5 their response would be high due to high sensitivity associated with the median oleanders.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Six viewpoints were selected to represent existing views from the I-80 corridor. These viewpoints best represent the visual character and quality and/or the unique visual resources of each Visual Assessment Unit, respectively. Visual Assessment Unit 5 included two viewpoints. Visual simulations were prepared at three viewpoint locations to illustrate the future improvements under the Build Alternative.

The three visual simulations of the Build Alternative were prepared in locations where the project components are anticipated to result in a moderate level of change to the existing visual setting. The locations of the visual simulations are generally representative of the study area. The visual impact for each of the five viewpoints is determined by combining the viewer response and the resource change, as shown in **Table 2.1-27.**

Table 2.1-27 Summary of Visual Impacts

Visual Unit	Build Alternative			No Build Alternative		
	Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact
West Segment						
1	Low	Moderate	Moderate-Low	No Change	No Change	No Change
2	Low	Moderate-High	Moderate	No Change	No Change	No Change
East Segment						
3	Moderate-Low	Moderate-High	Moderate	No Change	No Change	No Change
4	Moderate-High	High	High	No Change	No Change	No Change

[34] Caltrans, Visual Character Lesson 10: Viewers, Accessed July 8, 2014 from http://www.dot.ca.gov/hq/LandArch/via_training/mod_2/mod_02_less_10.htm.

Visual Unit	Build Alternative			No Build Alternative		
	Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact
5	Moderate-High	High	High	No Change	No Change	No Change

Source: Caltrans, 2014r

Visual Assessment Unit 1

Viewpoint 1, looking east from the center northbound I-80 lane approximately 0.7 miles west of Red Top Road, represents the typical visual character of Visual Assessment Unit 1 as shown in **Figure 2.1-7**. The existing classified Landscaped Freeway in Visual Assessment Unit 1 begins in Fairfield from south end of the project limits (PM 15.52) and encroaches slightly into Visual Assessment Unit 2 to the north (PM 15.90). Implementation of the Build Alternative would not change the classified Landscaped Freeway status in these areas as the landscaping within the Caltrans right-of-way would generally remain continuous as only approximately twenty linear feet would be removed.

Under the Build Alternative, primary improvements within Visual Assessment Unit 1 would be of similar type and appearance to features of the existing I-80 corridor, resulting in a low resource change that would not substantially alter the existing moderate visual character and quality. New overhead signs would be located in the median which would occupy more of the central portion of a motorist's field of vision as compared to the existing roadside overhead signs. While highway users would have a moderate-high response to these resource changes, there are no highway neighbors with views of these changes. The moderate viewer response, coupled with a low resource change results in the Build Alternative having a moderate-low visual impact for Visual Assessment Unit 1.

The visual quality/resource change for Visual Assessment Unit 1 is summarized in **Table 2.1-28.**

Table 2.1-28 Visual Quality Change from Visual Assessment Unit 1

Alternative	Vividness	Intactness	Unity	Overall Visual Quality	Resource Change
Existing	Moderate-High	Moderate-Low	Moderate	Moderate	N/A
Build Alternative	Moderate-High	Moderate-Low	Moderate-Low	Moderate	Low
No-Build Alternative	No Change	No Change	No Change	No Change	No Change

Source: Caltrans, 2014r

Visual Assessment Unit 2

Viewpoint 2, looking west from the center northbound I-80 lane between Air Base Parkway and Travis Boulevard, represents the typical visual character of Visual Assessment Unit 2 as shown in **Figure 2.1-7**. Three sections of existing classified Landscaped Freeways occur in Visual Assessment Unit 2 and are located in Fairfield. A portion of a Landscaped Freeway (from PM 15.4 to 15.9) is included at the southern end of Visual Assessment Unit 2. An additional classified Landscaped Freeway also exists slightly north from PM 16.04 to 16.27. These Landscaped Freeways are located between the Cordelia Truck Scales and Abernathy Road overcrossing. Implementation of the Build Alternative would not change the classified Landscaped Freeway status in either area as the landscaping within the Caltrans right-of-way would remain substantially continuous; a total of only 20 lineal feet of tree removal is anticipated. The third portion of an existing Landscaped Freeway occurs at the northern boundary of Visual Assessment Unit 2 (PM 17.03) and encroaches slightly into Visual Assessment Unit 3 (PM 19.71) to the north. Implementation of the Build Alternative would not change the classified Landscaped Freeway status in this area as no vegetation or tree removal is anticipated that would create gaps in vegetation greater than 200 feet.

Under the Build Alternative, primary improvements within Visual Assessment Unit 2 would be of similar type and appearance to features of the existing I-80 corridor resulting in a low resource change that would not substantially alter the existing moderate visual character and quality.

New express lane signs would disrupt views of the landscape and intermittent long range views of the Vaca Mountain Range which contribute to a reduction in the overall visual quality from moderate-high to moderate in Visual Assessment Unit 2. Viewer response from highway neighbors would be moderate-high as existing views are generally limited. Viewer response from highway users would be moderate-high as regionally valued views would generally not be obstructed and new overhead signage would be similar to existing, visible overhead signage. The moderate-high viewer response, coupled with the low resource change results in the Build Alternative having a moderate visual impact for Visual Assessment Unit 2.

The visual quality/resource change for Visual Assessment Unit 2 is summarized in **Table 2.1-29.**

Viewpoint 1, Existing Condition Looking East

Viewpoint 2, Existing Condition Looking West

Viewpoint 3, Existing Condition Looking East

Viewpoints 1, 2, and 3

Figure 2.1-7

Source: Caltrans, 2014r

Table 2.1-29 Visual Quality Change from Visual Assessment Unit 2

Alternative	Vividness	Intactness	Unity	Overall Visual Quality	Resource Change
Existing	Moderate	Moderate-High	Moderate-High	Moderate-High	N/A
Build Alternative	Moderate	Moderate	Moderate-High	Moderate	Low
No-Build Alternative	No Change	No Change	No Change	No Change	No Change

Source: Caltrans, 2014r

Visual Assessment Unit 3

Viewpoint 3, looking east from the center southbound I-80 lane between Air Base Parkway and Manuel Campos Parkway, represents the typical visual character of Visual Assessment Unit 3 as shown in **Figure 2.1-7**. Under the Build Alternative, primary improvements within Visual Assessment Unit 3 would be of similar type and appearance to features of the existing I-80 corridor resulting in a moderate-low resource change that would not substantially alter the existing moderate visual character and quality. New express lane signs would disrupt views of the landscape and rolling hills and vegetation which contribute to a reduction in the overall visual quality from moderate to moderate-low in Visual Assessment Unit 3. Viewer response from highway neighbors would be moderate-high as some have direct views, particularly from second stories of buildings and bicycle and pedestrian paths. Viewer response from highway users would be moderate-high as regionally valued and intermittent hillside views would be maintained.

Roadway widening would require tree and shrub removal on both shoulders of I-80, as well as 100 percent (approximately 2 miles) of existing median oleander plantings. Removal of this vegetation would eliminate the elements of the existing lushly landscaped corridor that softens the visual intrusion of the I-80 infrastructure (i.e., roadway, median barrier, and signs) and cause visual exposure of travelers in the opposite direction. Existing roadside vegetation removed by the Build Alternative will be replaced where proper setback exists and where feasible per Caltrans policy. Median vegetation will be replaced as roadside landscaping. Due to the narrow width of highway right-of-way, it may not be possible to replace all vegetation. The moderate-high viewer response, coupled with the moderate-low resource change results in the Build Alternative having a moderate visual impact for Visual Assessment Unit 3.

The visual quality/resource change for Visual Assessment Unit 3 is summarized in **Table 2.1-30.**

Table 2.1-30 Visual Quality Change from Visual Assessment Unit 3

Alternative	Vividness	Intactness	Unity	Overall Visual Quality	Resource Change
Existing	Moderate-High	Moderate	Moderate	Moderate	N/A
Build Alternative	Moderate	Moderate-Low	Moderate-Low	Moderate-Low	Moderate-Low
No-Build Alternative	No Change	No Change	No Change	No Change	No Change

Source: Caltrans, 2014r

Visual Assessment Unit 4

Visual Assessment Unit 4 is located in the East Segment of the Build Alternative. Viewpoint 4, looking east from the center travel lane of eastbound I-80 between Lagoon Valley Road and Peña Adobe Road was one of the three viewpoints selected to represent the general character of visual resources study area. Within this unit, I-80 currently includes eight traveling lanes with shoulders on each side. The visual simulation depicted in **Figure 2.1-8** illustrates how the addition of travel lanes in this area would not substantially change the look and character of I-80.

Under the Build Alternative, improvements include widening within the existing depressed median and outside of the existing edge of pavement to accommodate new express lanes. These primary improvements within Visual Assessment Unit 4 would be of similar type and appearance to features of the existing I-80 corridor. However, the median oleander removal described below would result in a moderate-high resource change that would alter the existing moderate visual character and quality by decreasing vividness from moderate-high to moderate-low.

Roadway widening would require tree and shrub removal on both shoulders of I-80, as well as 100 percent (approximately 2 miles) of existing median oleander plantings. Removal of this vegetation would eliminate the elements of the existing lushly landscaped corridor that softens the visual intrusion of the I-80 infrastructure (i.e., roadway, median barrier, and signs) and cause visual exposure of travelers in the opposite direction. Existing roadside vegetation removed by the Build Alternative will be replaced where proper setback exists and where feasible per Caltrans policy. Median vegetation will be replaced as roadside landscaping. Due to the narrow width of highway right-of-way, it may not be possible to replace all vegetation. Replacing landscaping and roadside vegetation per Caltrans policy would reduce the potential for visual impacts as a result of vegetation removal in Visual Assessment Unit 4.

Viewpoint 4, Existing Condition Looking East

Visual Simulation of Viewpoint 4

Visual Simulation of Viewpoint 4

Figure 2.1-8

Source: Caltrans, 2014r

Twelve new express lane signs, including the replacement/relocation of four existing post-mounted exit signs, would be prominent, visible features in the relatively rural setting of this unit. Additional lighting infrastructure would introduce substantial new sources of light and would be more noticeable in this area, due to the rural nature of the unit. However, lighting would be incorporated in conformance with Caltrans design standards, which minimize night-time glare and sky glow to the extent feasible. Freeway lighting would be directed downward to the roadway surfaces, away from adjacent land uses or the sky. The sign elements of the Build Alternative would be designed per Caltrans *California Manual on Uniform Traffic Control Devices*.[35] Standard guide signs would use retroreflective paints and lettering, which work by reflecting light directly back from the point of origin. For example, the light emitted from cars' headlights hits the sign and is reflected directly towards the car. Similarly, any illumination of guide signs would be directed towards the sign, and would not affect the surrounding areas. Changeable message signs shall automatically adjust their brightness under varying light conditions to maintain legibility. Brighter illuminations of the changeable message signs during the day would not be used at night.

Roadway widening and vegetation removal are not likely to cause I-80 to be visible from the Peña Adobe Park. However, removal of trees between I-80 and Rivera Road and the complete removal of the oleander in the median would cause eastbound I-80 to be more visible from the Ranchotel Motel and would open up views of westbound I-80. The highway neighbor viewer response would therefore be moderate-low in Visual Assessment Unit 4. Under the Build Alternative, tourist and highway users traveling during congested traffic conditions and slower speeds would continue to experience views of a rural hilly natural landscape that is visually appealing to travelers. These highway users would notice wider views of the surrounding hills and horizon with removal of vegetation in the median and shoulders and would notice the additional express lane signs as the dominant features along the freeway that would disrupt the continuous line of the terrain. Median oleander removal and freeway widening would also be noticeable, but would not change the visually pleasing landscape of the surrounding hills.

Roadway widening and vegetation removal would reduce the vividness of the unit from high to moderate-low, and the intactness and unity from high to a moderate level. The visual quality for Visual Assessment Unit 4 is summarized in **Table 2.1-31.** The high viewer response, coupled with the moderate-high resource changes results in the Build Alternative having a high visual impact for Visual Assessment Unit 4.

[35] Caltrans, 2012. *California Manual on Uniform Traffic Control Devices*. Available online at: http://www.dot.ca.gov/hq/traffops/engineering/mutcd/ca_mutcd2012.htm; last accessed: June 3, 2014.

Table 2.1-31 Visual Quality Change from Visual Assessment Unit 4

Alternative	Vividness	Intactness	Unity	Overall Visual Quality	Resource Change
Existing	High	High	High	High	N/A
Build Alternative	Moderate-Low	Moderate	Moderate	Moderate	Moderate-High
No-Build Alternative	No Change	No Change	No Change	No Change	No Change

Source: Caltrans, 2014r

Visual Assessment Unit 5

Visual Assessment Unit 5 is located in the East Segment of the Build Alternative. Under the Build Alternative, improvements within Visual Assessment Unit 5 would include widening within the existing depressed median and outside of the existing edge of pavement to accommodate new express lanes. The Build Alternative would construct 34 overhead signs in this unit, including the replacement/relocation of nine existing signs and bridge structure modifications. Trees would be removed along the westbound I-80 shoulder, as well as 2.7 miles (100 percent) of oleander plantings within the median.

Viewpoint 5 is looking east from the center lane of east bound I-80 lane from Mason Street and Allison Drive. Viewpoint 6 is looking from eastbound I-80 from the center lane between Allison Drive and Nut Tree Road and includes the Nut Tree Road overcrossing. Viewpoints 5 and 6 were two of the three viewpoints selected to represent the general character of visual resources study area. Two visual simulations were prepared within this unit as depicted in **Figure 2.1-9** and **Figure 2.1-10,** which illustrate how the addition of travel lanes in this area would not substantially change the look and character of I-80. The figure illustrates a potential soundwall to be constructed and illustrates the typical appearance of an overhead sign. Both visual simulations illustrate the increased exposure to neighboring land uses and opposing traffic that would be created by tree removal along the shoulder and complete oleander removal in the median.

The visual character and quality of the Build Alternative would be generally compatible with the existing visual character and quality of Visual Assessment Unit 5, as the proposed improvements would be of similar type and appearance to features of the existing freeway corridor. However, the median oleander removal described below would result in a high viewer response. The added overhead signs would also impact the intactness of the area. Highway neighbors would have high sensitivity and a high viewer response to the proposed Build Alternative in Visual Assessment Unit 5 due to median oleander removal. The addition of express lane signs, toll reader equipment, and relocation of the existing exit sign would generally blend in with the views of existing signs and would not dominate over the tall trees to the south.

Viewpoint 5, Existing Condition Looking East

Visual Simulation of Viewpoint 5

Visual Simulation of Viewpoint 5

Figure 2.1-9

Source: Caltrans, 2014r

Viewpoint 6, Existing Condition Looking East

Visual Simulation of Viewpoint 6

Visual Simulation of Viewpoint 6

Figure 2.1-10

Source: Caltrans, 2014r

Removal of all vegetation in the median and some trees along the shoulders would eliminate the elements of the existing lushly landscaped corridor that soften the visual intrusion of the I-80 infrastructure. Removal of oleanders in the median would also cause greater visual exposure of travelers in the opposite direction. In addition, the oleanders planted in the median within Visual Assessment Unit 5 are considered to be a valuable aesthetic and safety resource by the City of Vacaville per the City Gateways Plan. With increased views of both commercial and industrial developments and distant mountain ranges, the overall vividness and unity of the viewpoint would be reduced to moderate-low. Tree and vegetation removal would disrupt the existing line of foliage causing intactness to decrease to a low rating. Existing roadside vegetation removed by the Build Alternative will be replaced where proper setback exists and where feasible per Caltrans policy. Median vegetation will be replaced as roadside landscaping. Due to the narrow width of highway right-of-way, it may not be possible to replace all vegetation. Replacing landscaping and roadside vegetation per Caltrans policy would reduce the potential for visual impacts as a result of vegetation removal in Visual Assessment Unit 5. Overall, highway users would have a high response to changes within Visual Assessment Unit 5.

The high response coupled with a moderate-high resource change would result in a high visual impact for Visual Assessment Unit 5. The visual quality/resource change for Visual Assessment Unit 5 is summarized in **Table 2.1-32.**

Summary of Visual Impacts

Table 2.1-33 summarizes the visual impacts for the Build and No-Build Alternatives and compares the narrative ratings for visual resource change and viewer response for each Visual Assessment Unit.

Table 2.1-32 Visual Quality Change from Visual Assessment Unit 5

Alternative	Vividness	Intactness	Unity	Overall Visual Quality	Resource Change
Existing	Moderate-High	Moderate-Low	Moderate	Moderate	N/A
Build Alternative	Moderate-Low	Low	Moderate-Low	Moderate-Low	Moderate-High
No-Build Alternative	No Change	No Change	No Change	No Change	No Change

Source: Caltrans, 2014r

Table 2.1-33 Summary of Visual Impacts

Visual Unit	Build Alternative			No-Build Alternative		
	Resource Change	View Response	Visual Impact	Resource Change	Viewer Response	Visual Impact
West Segment				No Change		
1	Low	Moderate	Moderate-Low			
2	Low	Moderate-High	Moderate			
East Segment						
3	Moderate-Low	Moderate-High	Moderate			
4	Moderate-High	High	High			
5	Moderate- High	High	High			

Source: Caltrans, 2014r

Design elements of the Build Alternative with the potential to add new sources of light and glare would be designed to minimize adverse effects to adjacent land uses. The sign elements of the Build Alternative would be designed per Caltrans *California Manual on Uniform Traffic Control Devices*. Proposed overhead express lane signs would have varying degrees of impact throughout the study area, depending on the existing scenery and backdrop. While the proposed signage would disrupt the unity of the landscape, the overall character and quality would remain relatively unchanged. None of the proposed signage would reflect light onto adjacent land uses. Additional lighting infrastructure would not substantially introduce new sources of light because there are existing street lights in the immediate area throughout most of the project study limits, consistent with major transportation corridors. Furthermore, commercial, industrial, and residential areas nearby also contribute to sources of light along the corridor. Existing lighting infrastructure is less prevalent within Visual Assessment Unit 4 and additional lighting infrastructure would increase the amount of visible light at nighttime for highway users. However, Visual Assessment Unit 4 contains little to no residential areas on adjacent sides of the corridor, and appropriate light and glare screening measures and use of downward cast lighting would avoid impacts.

No vegetation or tree removal is anticipated that would create gaps in vegetation greater than 200 linear feet when considering the vegetation on both sides of the freeway. The majority of the landscaped areas/ornamental plantings that would be removed as part of the Build Alternative are associated with 6.7 miles of median oleander removal within Visual Assessment Units 3, 4, and 5. Existing landscaping and other roadside vegetation removed by the Build Alternative, including the median oleander removal, will be replaced as roadside landscaping where proper setback exists and where feasible per Caltrans policy. Replacing landscaping and roadside vegetation per Caltrans policy would reduce the potential for visual impacts as a result of vegetation removal.

Overall, implementation of the Build Alternative would result in changes to the existing visual environment. The changes would be more evident in some areas of the study area than in others, particularly in East Segment where roadway widening and vegetation removal would be required to accommodate new express lanes. The West Segment would impact approximately 4,855 linear

feet of vegetation along the freeway shoulders. Overall, the magnitude of change would be notable, but would not substantially alter scenic vistas, scenic resources, or substantially degrade the existing character and quality of the study area. The Build Alternative would not create a substantial, new source of light or glare with appropriate avoidance and minimization measures. The visual impact for the entire Build Alternative would be moderate. The visual impact for the West Segment would be moderate-low, while the visual impact for the East Segment would be high.

Temporary Construction Impacts

Highway users could expect visual impacts as a result of construction for a temporary duration. Short-term impacts would add visual intrusion and disturbances to the continuous line of the corridor and would reduce the intactness and unity of the visual resources in the visual resources study area. As construction equipment and machinery would be stationed at any of the identified staging areas within the project limits, temporary sources of light and glare would be added to the Visual Assessment Units during the construction phase, however they would be minimized through use of standard construction equipment and protocol and appropriate light and glare screening measures. Temporary visual effects from the construction of the Build Alternative would be typical of any major corridor improvement project, and are not considered to be substantial.

West Segment –Fundable First Phase

Visual Assessment Units 1 and 2 of the visual resources study area are located within the West Segment of the Build Alternative. See to **Table 2.1-33** and the discussions above for a summary of the environmental consequences evaluated within the West Segment. Temporary construction impacts described under the Build Alternative would also apply to the West Segment.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on visual resources. Transportation projects planned and funded within Solano County would not be in the same viewshed as the Build Alternative and would avoid aesthetic and visual effects described in this section. The visual quality of the visual resources study area would remain the same.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Caltrans and the FHWA mandates that a qualitative/aesthetic approach should be taken to reduce visual quality loss in the visual resources study area. Offsetting adverse impacts addressed in visual assessment unit analyses and summarized in the previous section would consist of adhering to the following design requirements in cooperation with the Caltrans District Landscape Architect:

Measure VIS-1: Existing landscaping and other roadside vegetation removed by the Build Alternative will be replaced where proper setback exists and where feasible per Caltrans policy. Replacement planting would be accomplished as a separate contract, funded from the parent roadway contract, and would include a three-year plant establishment period. Landscape plans shall be developed during the final design phases and be approved by Caltrans.

Measure VIS-2: Replacement landscaping within the designated Landscaped Freeway location between post miles 15.52 and 16.27 (between the Cordelia Truck Scales and Abernathy Road overcrossing) and post miles 17.03 and 19.71 (from just west of the West Texas Street undercrossing to the Air Base Parkway overcrossing) will be designed such that the criteria for the Landscaped Freeway will be maintained. In these areas, planting must be continuous (no gaps ≥ 200 feet), ornamental (not functional), a least 1,000 feet long, on at least one side of the freeway, and require reasonable maintenance.

Measure VIS-3: To reduce the visual impact of new retaining walls, aesthetic treatments consisting of color, texture and/or patterning will be applied to reduce visual impacts. The aesthetic treatment shall be context sensitive to the location and be compatible with existing walls in the project area. If concrete drainage ditches are required along the top of and behind the retaining walls, the ditch should be stained to match the overall color of the wall. Necessary earthwork shall include slope rounding and contour grading where feasible. Aesthetic treatments shall be developed during the final design phases and be approved by Caltrans.

Measure VIS-4: Where required, retaining wall cable safety railing should have black or brown vinyl cladding to make them less obtrusive and help them blend with the setting.

Measure VIS-5: Concrete safety-shaped barriers should be sand blasted to a medium finish to minimize glare and deter graffiti. Barriers at the bottom of retaining walls should be stained to match the overall wall color if deemed appropriate by the Office of Landscape Architecture during the design phase.

Measure VIS-6: As directed by Caltrans, appropriate light and glare screening measures will be used at the Construction Staging Areas including the use of downward cast lighting.

West Segment –Fundable First Phase

The design requirements described above are applicable to the entire Build Alternative alignment, including the West Segment.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not have any effect on visual resources. Transportation projects planned and funded within Solano County would not be in the same viewshed as the Build Alternative and would avoid aesthetic and visual effects described in this section. The visual quality of the visual resources study area would remain the same.

2.1.9 CULTURAL RESOURCES

REGULATORY SETTING

The term cultural resources as used in this document refers to all built environment resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966 , as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (National Register). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation [36 Code of Federal Regulations (CFR) 800]. On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327). The First Amended Section 106 PA went into effect in 2014. The Historical Resources Evaluation Report (HRER) for this project, discussed further below, was completed in December 2013 under the previous Section 106 PA. The First Amended Section 106 PA (2014) does not change the findings made under the older Section 106 PA (2004).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as CA Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

AFFECTED ENVIRONMENT

The analysis in this section is based on the Historic Property Survey Report (HPSR) prepared for this project (Caltrans, 2014f). The HPSR incorporates the results of the Archaeological Survey Report (ASR), the Historical Resources Evaluation Report (HRER), the Environmentally Sensitive Area (ESA) Action Plan, and Testing/Treatment Plan completed in October 2014. The study area for cultural resources is identified by the archaeological and architectural area of potential effects

(APE), which encompasses all areas that fall within the physical footprint of the proposed improvements (i.e., the Build Alternative) and areas that may either be directly or indirectly affected by project-related construction activities. The majority of the archaeological and architectural APE is located within/along the existing Caltrans right-of-way along westbound and eastbound I-80; from Red Top Road in Cordelia to the I-505/I-80 intersection in the City of Vacaville. Several small areas of the APE extend beyond the existing right-of-way to include the areas that would be acquired as part of the project for utility conduits and construction staging. Two short sections of the APE at the easternmost project limits are discontinuous because they relate to required express lane entry signs one mile from the entrance and end of the proposed facility, with no construction work required between the signs and express lanes.

The APE covers 20 miles, encompassing approximately 920 acres. In addition to representing the full project footprint and the full horizontal extent of all potential project activities, the archaeological APE includes a vertical extent to encompass all project-related earthmoving construction activities. The vertical APE varies greatly within the project limits:

- Grading: range of 3-6 feet
- Conduit trenching and directional drilling: maximum of 5 feet
- Tolling equipment poles: 11 feet
- Sign posts: 45 feet
- Pile driving at bridge crossings: maximum of 50 feet

Archaeological Resources

An analysis of potential sensitivities for buried sites, based on landform age and environmental characteristics, was conducted for all areas within the archaeological APE. The results of this analysis show that 48.9 percent of the APE is categorized as having Very Low to Low potential for buried sites, 10.6 percent has Moderate potential, and approximately 40.5 percent has a High or Very High potential for buried sites. The most likely locations for buried sites are those lands in the High or Very High category. To the maximum extent possible, the project design was developed to avoid areas of High or Very High potential or to avoid impact depths that could potentially encounter buried deposits.

An archival records search for the APE was conducted as part of the ASR. No surface archaeological material was observed within the APE during the field surveys. Four archaeological sites are known to occur within the APE. One of the known sites within the APE will not be affected by the project. The remaining three sites will be considered eligible for the National Register and protected from inadvertent project impacts with ESAs.

Because the Build Alternative would involve construction activities near the archaeological sites, an ESA plan was prepared to protect known resources. Due to access issues, a testing/treatment plan was established to test for potential cultural resources during project construction. Consultation

with the SHPO will be ongoing throughout the testing phase. If cultural resources are identified, protocol as stipulated in the testing/treatment plan will be followed.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Caltrans' PQS Archaeologist so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Historic-era Built Environment

A records search in both archival and published records, review of historic and current maps, and field surveys were conducted to determine the presence of historical architectural resources within the APE. Seven resources, not previously identified in the Solano I-80 corridor study, required formal evaluation. Of these seven resources, none met criteria for listing in the National Register or California Register of Historical Resources (CRHR). In July 2013, letters were sent to interested parties, planning agencies, local governments, historical societies, and museums associated with the historic-era properties. No responses were received from these letters. Of the forty bridges in the APE, thirty two bridges are 45 years or older, and none were determined eligible for the NRHP.

One historic era property was previously evaluated in the Solano I-80 corridor study. The Peña Adobe site (adobe built 1842, annex built 1880) is located approximately two miles southwest of Vacaville, on the east side of I-80 within the City of Vacaville's Lagoon Valley / Peña Adobe Regional Park. It is designated as California Historical Landmark (Historical Landmark No. 534) and was listed in the NRHP in 1972. The Peña Adobe was found significant for its association with Solano County pioneer Juan Felipe Peña and is the only listed historic property in the APE. An August 2013 field check found that neither the adobe nor the annex appear to have undergone alterations that would warrant a change in its current National Register listing.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Based on the investigations conducted, there are four known archaeological sites and one built historicproperty within the APE.

The Build Alternative would not require any land acquisitions that would directly affect the Peña Adobe buildings. While some trees within the Caltrans right-of-way along the westbound shoulder are proposed for removal, they are not within the historic Peña Adobe site. The majority of trees between the Peña Adobe buildings and the freeway will not be affected by the Build Alternative, and will continue serving as existing visual screening for the site. The Build Alternative would not result in the use (direct or indirect) of a historic property qualifying for protection under Section 4(f) (see **Appendix B**).

As construction activities could potentially unearth previously identified and unidentified resources, provisions to address these circumstances are included in the Avoidance, Minimization, and/or Mitigation Measures section below. ESA and Testing/Treatment plans were established to protect known cultural resources within the APE. Consultation with the SHPO will be ongoing throughout the testing phase. If cultural resources are identified, protocol as stipulated in the testing/treatment plan will be followed.

Native American Consultation

Sacred Lands File searches by the NAHC conducted in January 2012 and April 2013 determined that no recorded resources are known within or near the project APE. At that time, letters were sent to interested Native American groups. In May 2013 additional consultation of the current project was sent to these same parties.

One response was received from Mr. James Sarmento, Cultural Resources Manager, Yocha Dehe Wintun Nation. Mr. Sarmento indicated in his response letter that the project is within the aboriginal territories of the Yocha Dehe Wintun Nation and that the tribe has concerns that the project may have the potential to impact undiscovered cultural concerns. A site visit with the tribe was requested to be scheduled prior to construction activities.

West Segment –Fundable First Phase

One buried archaeological resource is located within the West Segment of the Build Alternative, and considered eligible for the National Register. However, there is no proposed work at this location and ground disturbance in the general area is not expected to exceed 5 feet, well above the 13-foot depth of the buried site. There are four areas identified as Very High sensitivity locations. All known cultural resources will be avoided in these four sensitive areas. The West Segment would implement the same avoidance and minimization measures as in the Build Alternative.

No-Build Alternative

The No-Build Alternative would not change existing conditions; therefore, it would not affect any cultural resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Build Alternative

Measure CUL-1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. Additional study or survey will be needed if the project design changes or project limits are extended beyond the present survey limits.

Measure CUL-2: If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native

American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact District 4 Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Measure CUL-3: Per the ESA Action Plan, unintentional adverse effects on archaeological resources will be avoided by establishing ESAs around the known archaeological site boundaries within the APE. A summary of the ESA Action Plan tasks are outlined below. Caltrans shall inform interested Native Americans about the proposed project activities and the ESA Action Plan prior to construction.

- The Caltrans Archaeologist will review the final design package to ensure that the ESAs are appropriately included in the plans and specifications, and can clearly guide construction, and will notify the appropriate Native American group.
- At least three weeks in advance, the Caltrans Resident Engineer and Archaeologist will coordinate to clearly delineate and install the ESAs, as specified in the design package. The Caltrans Archaeologist will supervise and monitor ESA fence installation.
- Prior to construction workers shall be informed of the ESAs and expectations. The ESAs will be discussed during a pre-construction meeting. The importance of the ESAs will be discussed with construction personnel and it will be stressed that no construction activity (including storing or staging of equipment or materials) should occur within an ESA and that workers must remain outside of the ESAs at all times. Construction personnel will be informed of historic preservation laws that protect archaeological sites against any disturbance or removal of artifacts. The ESA boundaries, expected activities, and equipment should be defined. Workers should be educated about what cultural materials might be encountered, to stop work if any are encountered, and how to communicate with the Caltrans Archaeologist.
- The Caltrans Archaeologist will be notified when construction begins and will inspect the construction area on a periodic basis to ensure that the ESAs are not breached.
- The Resident Engineer will inform the Caltrans Archaeologist when construction is finished. The Contractor, under supervision of the Caltrans Archaeologist, will remove temporary ESA fencing at the conclusion of construction.

Measure CUL-4: Unintentional adverse effects on archaeological resource sites for which the physical boundaries have not been fully determined would be avoided by implementing the Testing/Treatment Plan prepared for the project that would include four steps:

1. *Resource identification (i.e., presence/absence)*; Prior to construction but after safe access to the freeway median is obtained, qualified archaeologists will examine subsurface deposits using a backhoe or coring device at the three site locations, focusing on the designated areas where construction activities would approach 5 feet below ground surface (i.e., conduit

trenching). If archaeological deposits are identified, additional exploration will determine their general nature and extent in the next phase.

2. *Test excavations for integrity and assemblage identification*; hand excavation units will be used to determine the content and character of cultural deposits identified during backhoe/coring work.

3. *Data recovery*; if resources are discovered, qualified archaeologists will obtain sufficient data to fully characterize function and systemic context from an intact deposit. Data recovery operations will be concentrated in areas where data potential is considered greatest (i.e., best preserved, highest artifact density, features, cultural stratigraphy).

4. *Report Preparation*; If Testing/Treatment Plan finds no intact cultural deposits, it will be documented in a report that will include appropriate maps, photo documentation, detailed trench and hand excavation data, and any site-record updates. If positive findings are made, the results will be documented in a draft technical report. Reports will be consistent with guidance provided in Caltrans Standard Environmental Reference.

Each phase is dependent upon findings from the prior phase, and will be continuous. Native American monitors will be present during all phases of excavation or ground disturbance to address their concerns; they will be required to maintain a daily monitoring log.

West Segment–Fundable First Phase

Measures CUL-1 and **CUL-2** described above for the Build Alternative will apply in the West Segment. There is one known archaeological site within the West Segment; however, no subsurface construction activities are proposed in the area of this site. Therefore, the measures in the ESA Action Plan (**Measure CUL-3**) would not apply. Because the Build Alternative is not anticipated to affect this one site within the West Segment, it is not included in the Testing/Treatment Plan established for the remaining known sites within the project limits (East Segment). **Measure CUL-4** would therefore not apply to the construction of the West Segment.

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