

## 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*<sup>1</sup>
- *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<sup>2</sup>
- *Solano Comprehensive Transportation Plan (CTP)*: Transportation plan which envisions, directs, and prioritizes the transportation needs of Solano County through the year 2030<sup>3</sup>
- *Solano County General Plan*: General Plan for the unincorporated areas of County of Solano through horizon year 2030<sup>4</sup>
- *City of Fairfield General Plan*: General Plan for the City of Fairfield through horizon year 2020<sup>5</sup>
- *City of Vacaville General Plan*<sup>6</sup>: 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<sup>7</sup>
- *Middle Green Valley Specific Plan*: Specific plan guiding development for largely undeveloped agricultural and open space land in a portion of unincorporated Solano County<sup>8</sup>

1 Association of Bay Area Governments & Metropolitan Transportation Commission. 2013. Plan Bay Area.

2 Metropolitan Transportation Commission. 2009. Regional Transportation Plan (RTP), Transportation 2035 Change 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.

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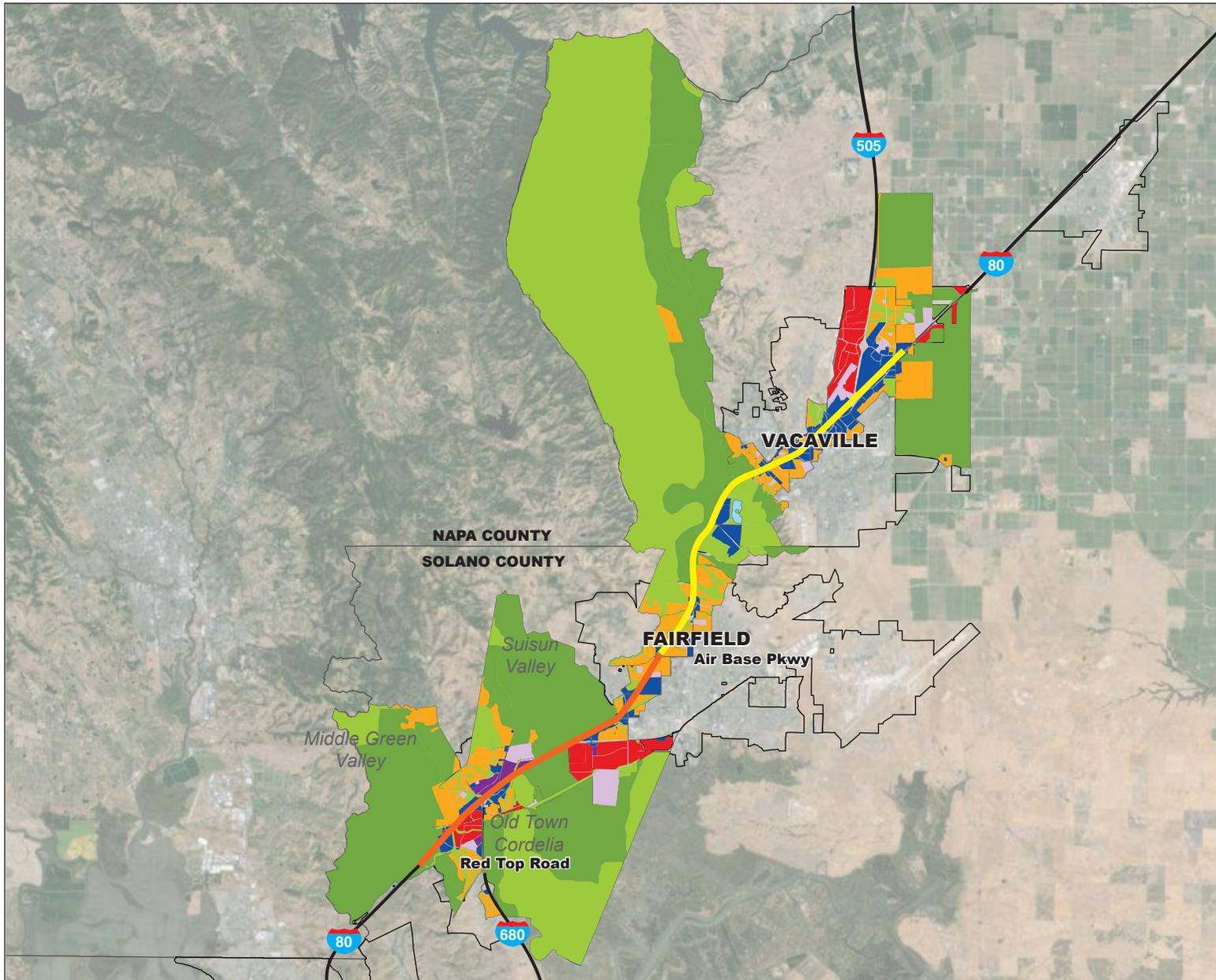
## EXISTING AND FUTURE LAND USE

### 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.

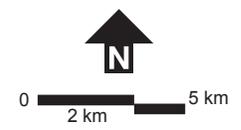


**LEGEND**

- West Segment
- East Segment

**General Land Uses**

- Agriculture/Resource Extraction
- Parks/Open Space
- Commercial
- Education/Public/Semi-Public
- Industrial
- Mixed Use: Commercial & Industrial
- Residential
- Water



Land Use Study Area

Figure 2.1-1

**Table 2.1-1 Planned Developments**

<b>Name</b>	<b>Location</b>	<b>Acres</b>	<b>Units</b>	<b>Proposed Use</b>	<b>Status</b>
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	Crescent Drive & North Village Parkway Vacaville	19.8	192	Residential	Under Construction
Casa Bella at North Village	Crescent Drive & North Village Parkway Vacaville	2.9	35	Residential	Under Construction
Sanctuary at North Village	Crescent Drive & North Village Parkway Vacaville	13.4	162	Residential	Under Construction
North Village Unit 5	Crescent 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 Developmen t
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
Lowe's	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.<sup>9</sup> 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 into 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.<sup>10</sup> 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<sup>11</sup>:

*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.

<sup>9</sup> 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 reprogrammed the funding sources and phases.

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

<sup>11</sup> 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 policies 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 policies 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**

<b>Policy</b>	<b>Build Alternative</b>	<b>No-Build Alternative</b>
<b><i>Plan Bay Area / Change in Motion: Transportation 2035</i></b>		
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.
<b><i>Solano Comprehensive Transportation Plan 2030</i></b>		
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.
<b><i>Proposed Solano County Water Authority Habitat Conservation Plan (HCP)</i></b>		
Comply with state and federal endangered species regulations while accommodating future development of infrastructure.	Consistent Implementation of avoidance, minimization, and/or mitigations provided in <b>Section 2.3, Biological Environment</b> 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.
<b><i>Solano County General Plan</i></b>		
<b>Goal TC.G-2:</b> 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.

<b>Policy</b>	<b>Build Alternative</b>	<b>No-Build Alternative</b>
<i>Policy TC.P-1:</i> 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.
<i>Policy TC.P-11:</i> 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.
<b>City of Vacaville General Plan</b>		
<i>Policy 2.2-G 5:</i> 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.
<i>Policy 6.2-G 1:</i> 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.
<i>Policy 6.2-G 2:</i> 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.
<i>Policy 6.2-I 3:</i> 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
<b>City of Fairfield General Plan</b>		
<i>Policy CI 2.3:</i> 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.
<i>Policy CI 2.4:</i> 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.<sup>12,13</sup> 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.

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<sup>12</sup> 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.

<sup>13</sup> Exhibit C1-2, Fairfield Circulation Element.

**Table 2.1-3 Parks and Recreational Facilities**

#	Name	Address
<b>Vacaville</b>		
1	Alamo Creek Park	Alamo Drive, Vacaville, CA 95688
2	Alamo School Park <sup>1</sup>	535 Edgewood Drive, Vacaville, CA 95688
3	Andrews Park <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	Ulatis Creek, Vacaville, CA 95688
20	Three Oaks Community Center <sup>1</sup>	1100 Alamo Drive, Vacaville, CA 95688
21	Trower Park	531 Markham Avenue, Vacaville, CA 95688
22	Ulatis Community Center <sup>1</sup>	1000 Ulatis Drive, Vacaville, CA 95688
23	Ulatis Gardens <sup>1</sup>	1000 Ulatis Drive, Vacaville, CA 95688
24	Willows Park <sup>1</sup>	Ogden Way and Marshall Road, Vacaville, CA 95687
<b>Fairfield</b>		
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) <sup>1</sup>	3351 Hilborn Road, Fairfield, CA 94533
29	Hayes & Utah Street ~ Tot Lot <sup>1</sup>	1101 Hayes Street, Fairfield, CA 94533
30	Hillview Neighborhood Park <sup>1</sup>	300 Atlantic Avenue, Fairfield, CA 94533

#	Name	Address
31	Kentucky Street ~ Tot Lot <sup>1</sup>	1740 Kentucky Street, Fairfield, CA 94533
32	Linear Park Playground @ 2 <sup>nd</sup> Street <sup>1</sup>	2nd St. & Linear Trail, Fairfield, CA 94533
33	Linear Park Playground @ 5th Street <sup>1</sup>	5th St. & Linear Trail, Fairfield, CA 94533
34	Mankas Neighborhood Park <sup>1</sup>	2800 Owens Street, Fairfield, CA 94533
35	Meadow Glen Neighborhood Park <sup>1</sup>	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 <sup>1</sup>	Travis Boulevard & Linear Trail, Fairfield, CA 94533
39	Sunrise Neighborhood Park	2920 Camrose Avenue, Fairfield, CA 94533
40	Veterans Memorial Park <sup>1</sup>	2050 Fairfield Avenue, Fairfield, CA 94533
41	Vintage Green Valley Neighborhood Park <sup>1</sup>	600 Vintage Valley Drive, Fairfield, CA 94533
42	Woodcreek Neighborhood Park <sup>1</sup>	1470 Astoria Drive, Fairfield, CA 94533

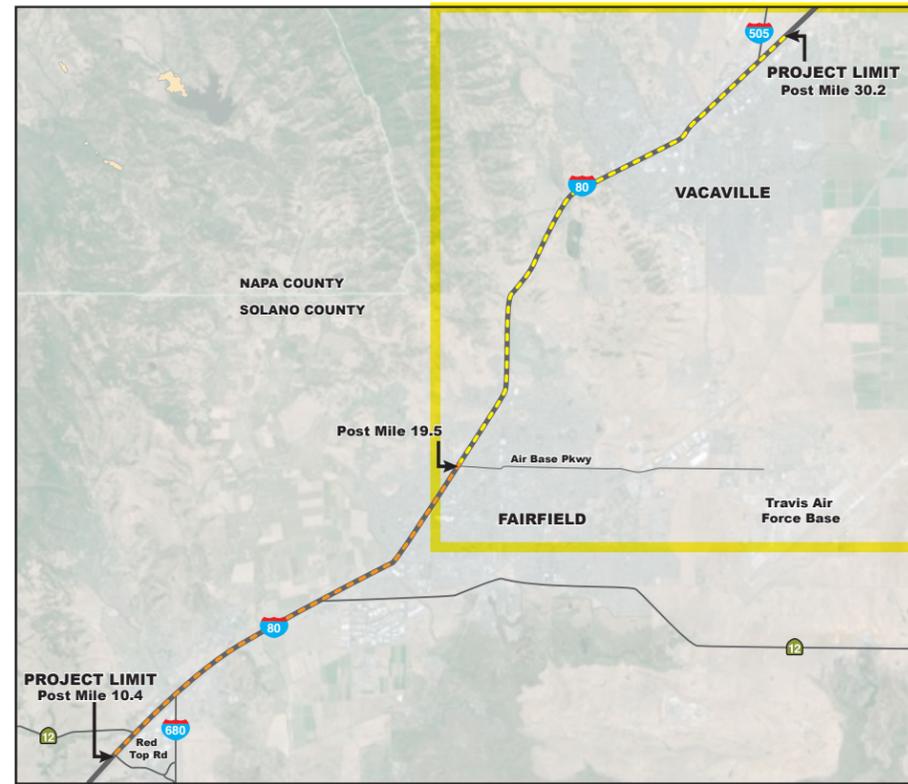
Note<sup>1</sup>: 4(f) properties, discussed in detail in **Appendix B**.  
Source: Caltrans, 2014d

## ENVIRONMENTAL CONSEQUENCES

### Build Alternative

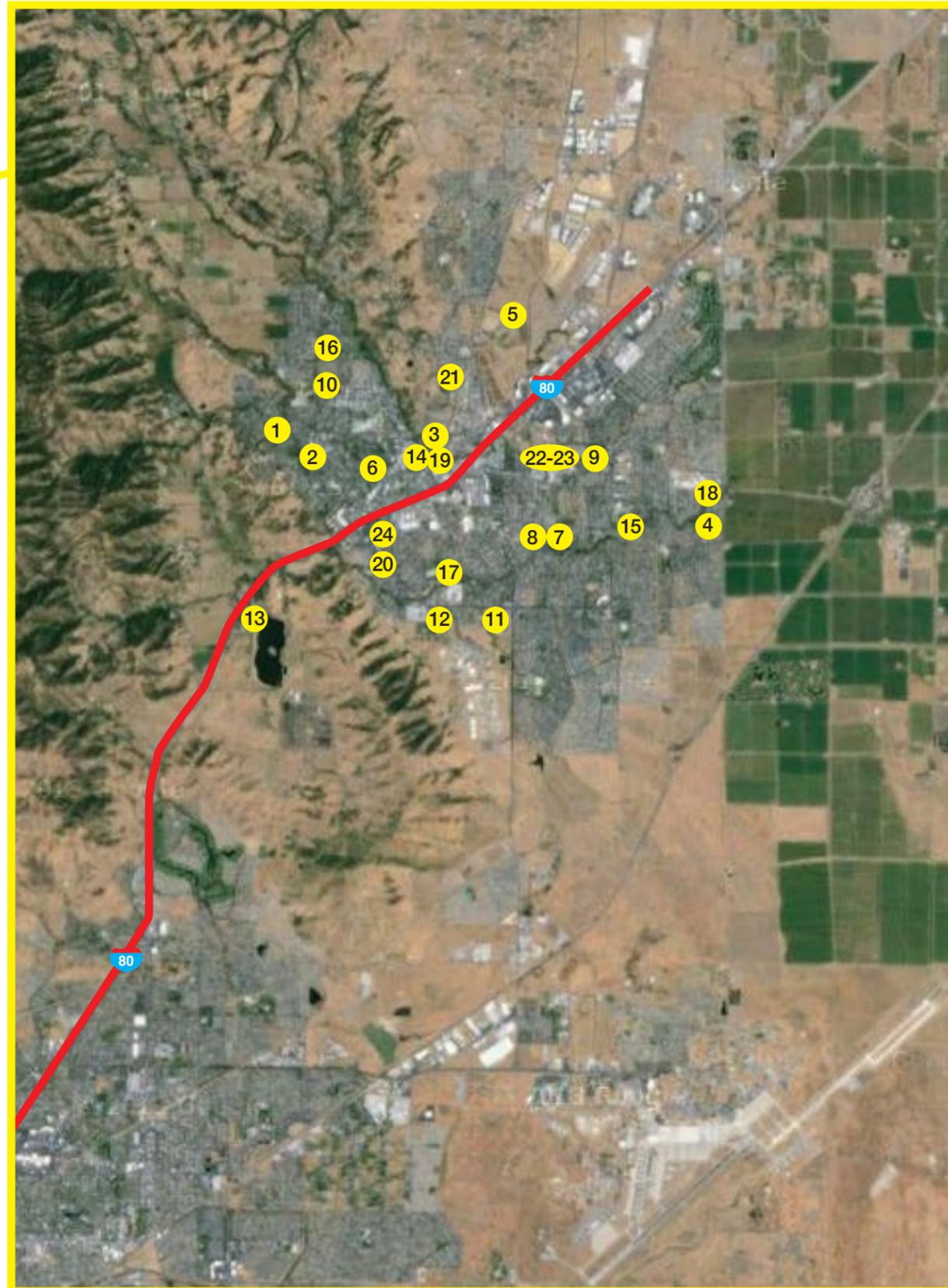
Property of the nearby parks and recreational facilities identified in **Table 2.1-3** would not be acquired as part of the Build Alternative, thereby avoiding direct effects. Since the Build Alternative would not substantially alter the location of I-80, the distance between the parks and recreational 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



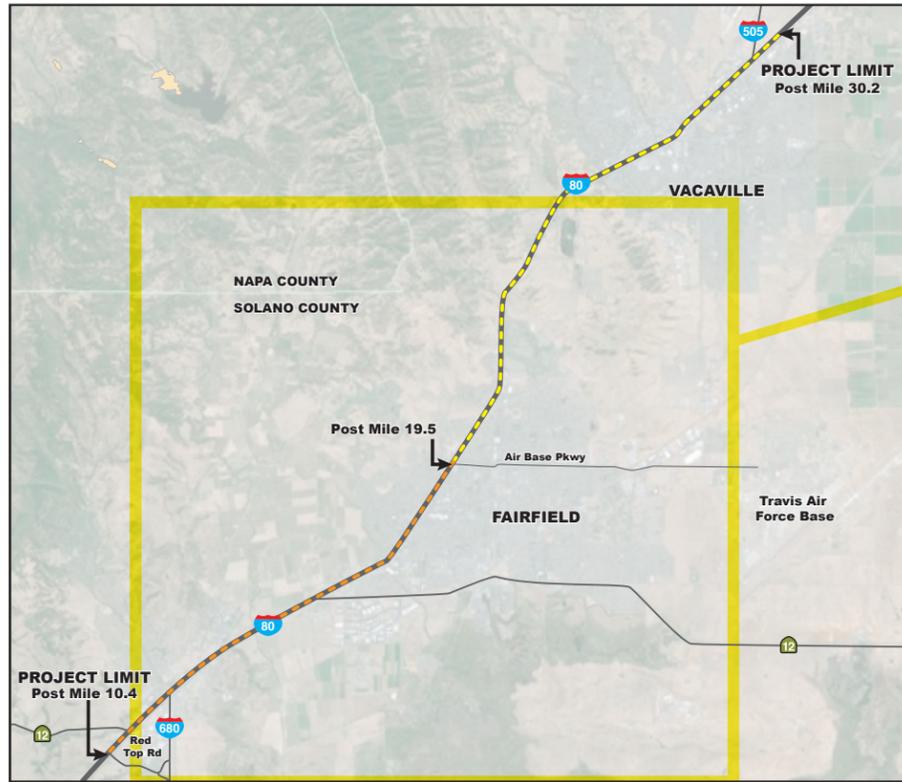
**VACAVILLE PARKS AND RECREATIONS**

- 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

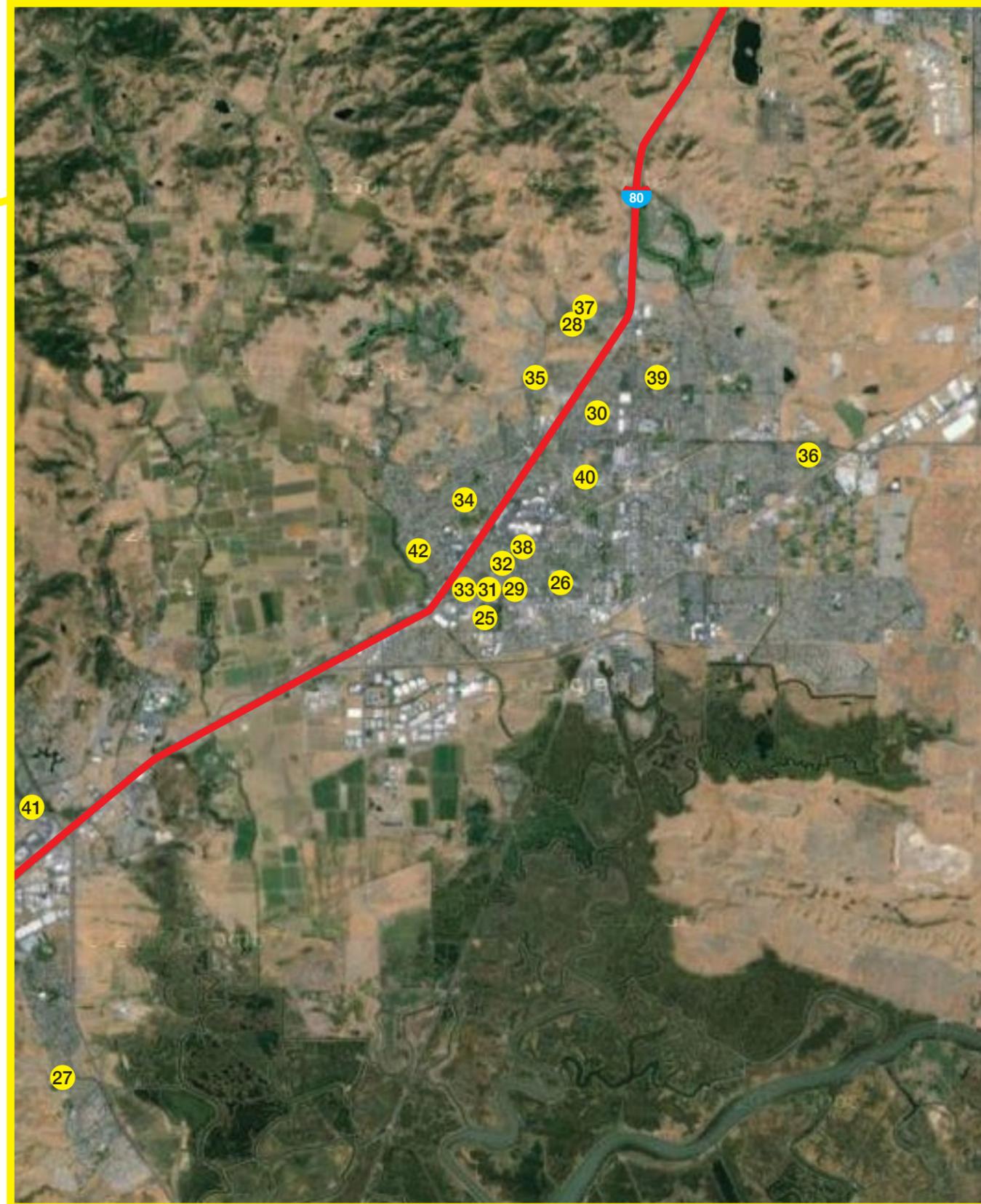
Figure 2.1-2a

Back of Figure 2.1-2a



**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

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 environmental documents discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.

## 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.<sup>14</sup>

**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)

<sup>14</sup> 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<sup>15</sup>. 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.

<sup>15</sup> 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.<sup>16</sup>

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.<sup>17</sup> 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.

<sup>16</sup>16 Solano County General Plan, Introduction 2008  
<sup>17</sup>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
	<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.01</b>

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.<sup>18</sup> 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**.

<sup>18</sup> 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.<sup>19</sup>

**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.<sup>20</sup> 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

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

<sup>20</sup> 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.<sup>21</sup> 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.

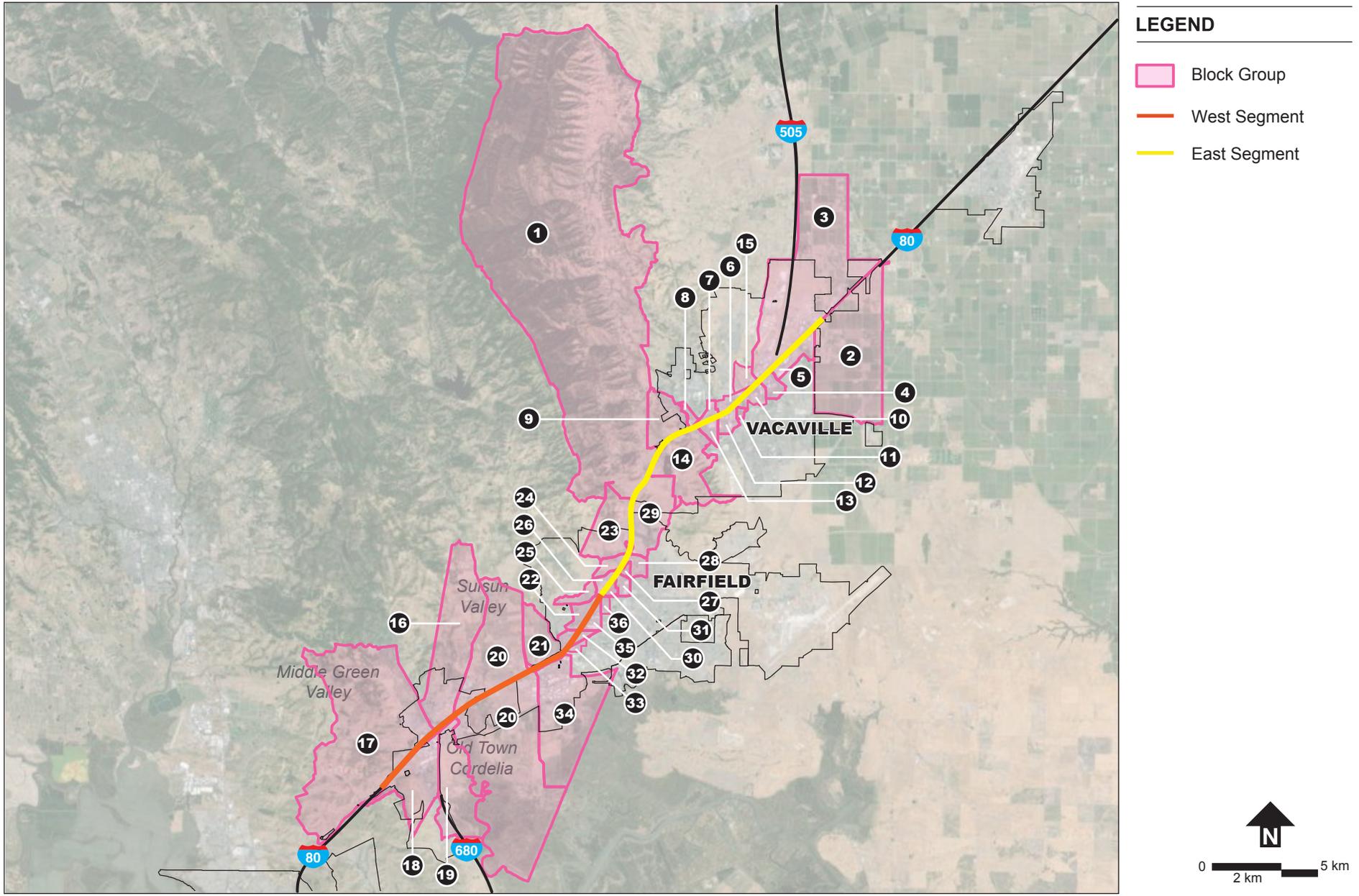
The values and issues that are important to a community set the character and baseline context for how the proposed project would fit into the community's ideologies. The City of Fairfield considers itself to be one of the most desirable growth centers in the Bay Area with a central location between 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.<sup>22</sup> 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.

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

<sup>22</sup> 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**

<b>Solano County</b>			
<b>#</b>	<b>City of Vacaville</b>		<b>City of Fairfield</b>
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<sup>23</sup>.

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

<sup>23</sup> 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.<sup>24</sup> 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.<sup>25</sup> 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

<sup>24</sup> 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.

<sup>25</sup> 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.<sup>26</sup> Additionally, mainline and ramp lane configurations were collected along the study segments.<sup>27</sup> 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.<sup>28</sup>

The traffic operations analysis evaluates three distinct timeframes:

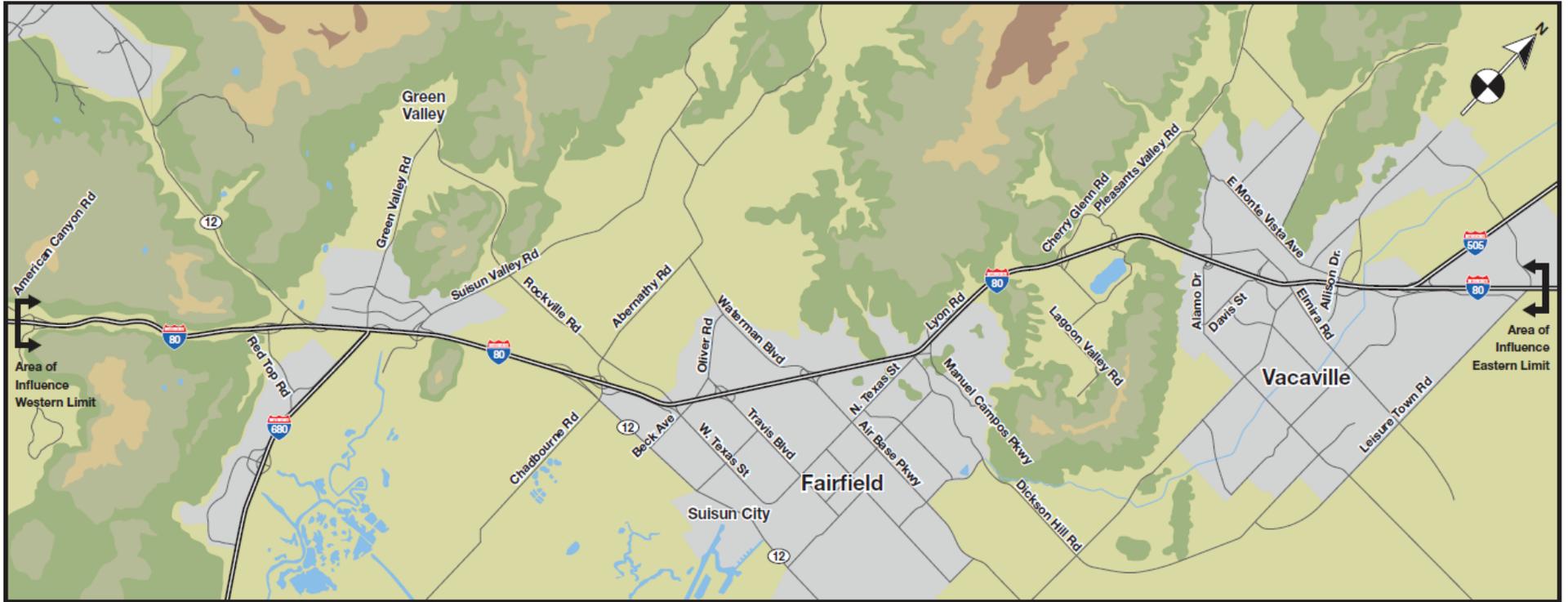
- existing (2010)
- opening year (2020)
- horizon year (2040)

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<sup>26</sup> Additional data was collected late 2008 through early 2009

<sup>27</sup> The freeway "mainline" refers to the general mixed-flow travel lanes

<sup>28</sup> 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

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

Levels of Service for Freeways

Figure **2.1-5**

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)			
		AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
						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)			
		AM LOS/Speed/Density	PM LOS/Speed/Density	AM LOS/Speed/Density	PM LOS/Speed/Density	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
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	<b>E/47/36</b>	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	<b>E/56/36</b>	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	<b>E/55/38</b>	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	<b>E/56/36</b>	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)			
		AM LOS/ Spee d/Den sity	PM LOS/ Spee d/Den sity	AM LOS/ Spee d/Den sity	PM LOS/ Spee d/Den sity	No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
						AM LOS/ Spee d/Den sity	PM LOS/ Spee d/Den sity								
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	<b>E/51/36</b>	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)			
		AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
						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	<b>E/49/39</b>	<b>E/50/41</b>	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	<b>E/53/36</b>	<b>E/54/35</b>	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	<b>E/53/37</b>	<b>E/53/37</b>	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)			
		AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
						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	<b>E/55/35</b>	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	<b>E/53/37</b>	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	<b>E/49/35</b>	D/54/26	D/52/33	C/55/26	D/51/32	C/56/26	<b>E/51/36</b>	<b>E/50/36</b>	D/53/34	D/51/34

Segment	Existing	Existing Plus Project		Opening Year (2020)								Horizon Year (2040)			
		AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	AM LOS/ Speed/ Density	PM LOS/ Speed/ Density	No Build		West Segment Only		Build Alternative		No Build		Build Alternative	
						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 Suisan 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 Suisun 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 <sup>1</sup>	HOV Travel Time Savings	EL Travel Time	GP Travel Time <sup>1</sup>	EL Travel Time Savings	EL Travel Time	GP Travel Time <sup>2</sup>	EL Travel Time Savings
<b>Eastbound</b>									
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
<b>Westbound</b>									
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:

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#### 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)			
		AM	PM	No Build		Build		No Build		Build	
				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)			
		AM	PM	No Build		Build		No Build		Build	
				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)			
		AM	PM	No Build		Build		No Build		Build	
				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)			
		AM	PM	No Build		Build		No Build		Build	
				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)			
		AM	PM	No Build		Build		No Build		Build	
				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)			
		AM	PM	No Build		Build		No Build		Build	
				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 <sup>1</sup>	HOV Travel Time Savings	EL Travel Time	GP Travel Time <sup>2</sup>	EL Travel Time Savings
<b>Eastbound</b>						
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
<b>Westbound</b>						
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  $\geq$  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).<sup>29</sup>

- 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.<sup>30</sup> Guiding policies and implementation programs are established to implement this direction. Specifically, Guiding Policies RS.P-35 – 37 include

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

<sup>30</sup> *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.<sup>31</sup> 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.<sup>32</sup> 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, 6.6 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.

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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.

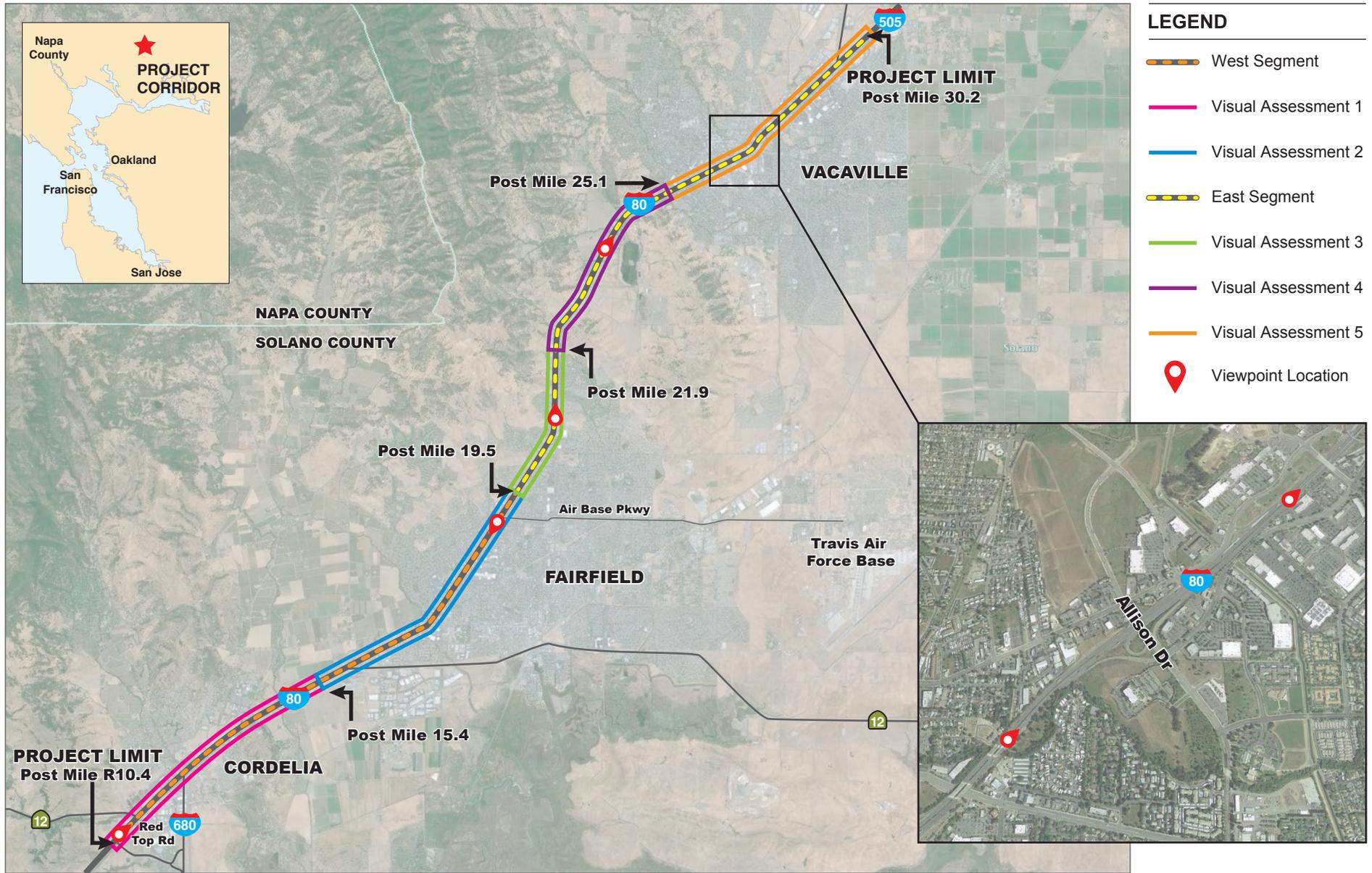
### Visual Setting

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.



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.<sup>33</sup>

#### *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

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<sup>33</sup> 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 than 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.<sup>34</sup> 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
<b>West Segment</b>						
1	Low	Moderate	Moderate-Low	No Change	No Change	No Change
2	Low	Moderate-High	Moderate	No Change	No Change	No Change
<b>East Segment</b>						
3	Moderate-Low	Moderate-High	Moderate	No Change	No Change	No Change
4	Moderate-High	High	High	No Change	No Change	No Change

<sup>34</sup> 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](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
<b>Existing</b>	Moderate-High	Moderate-Low	Moderate	Moderate	N/A
<b>Build Alternative</b>	Moderate-High	Moderate-Low	Moderate-Low	Moderate	Low
<b>No-Build Alternative</b>	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**

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

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

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*.<sup>35</sup> 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.

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<sup>35</sup> Caltrans, 2012. *California Manual on Uniform Traffic Control Devices*. Available online at: [http://www.dot.ca.gov/hq/traffops/engineering/mutcd/ca\\_mutcd2012.htm](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**

**Viewpoint 6, Existing Condition Looking East**



**Visual Simulation of Viewpoint 6**



**Visual Simulation of Viewpoint 6**

**Figure 2.1-10**

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
<b>Existing</b>	Moderate-High	Moderate-Low	Moderate	Moderate	N/A
<b>Build Alternative</b>	Moderate-Low	Low	Moderate-Low	Moderate-Low	Moderate-High
<b>No-Build Alternative</b>	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
<b>West Segment</b>				No Change		
1	Low	Moderate	Moderate-Low			
2	Low	Moderate-High	Moderate			
<b>East Segment</b>						
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  $\geq$  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 historic property 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.