

***Yolo 80 Corridor Improvement/YOL 80 Bus/Carpool Lanes Project  
Sacramento, Yolo, and Solano Counties, California***



**Draft Cumulative Impact Study**

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## Acronyms and Abbreviations

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ACP	Asbestos Compliance Plan
ADA	Americans with Disabilities Act
ADL	Aerially deposited lead
AVM	Avoidance and Minimization Measures
BMP	Best Management Practice
BOH	Bridge and Overhead
BSA	Biological Study Area
Caltrans	California Department of Transportation
CA MUTCD	California Manual on Uniform Traffic Control Devices
CCP	Congested Corridor Plan
CCTV	Closed Circuit Television
CCV	California Central Valley
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CE	Categorical Exemption
CFR	Code of Federal Regulations
CIA	Community Impact Assessment
CMS	Changeable Message Signs
CNDDDB	California Natural Diversity Database
COZEEP	Construction Zone Enhanced Enforcement Program
CR	County Road
CSA	Community Study Area
CSMP	Corridor System Management Plan
CSS	Combined Sewer System
CWA	Clean Water Act
DTSC	Department of Toxics Substances Control
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
ESU	Evolutionary Significant Unit
FEMA	Federal Emergency Management Agency
FHS	Floodplain Hydraulic Study
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
GDP	Gross Domestic Product
GGG	Giant Garter Snake
GHG	Greenhouse gas
GSRD	Gross Solid Removal Device
HDM	Highway Design Manual
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
I-80	Interstate 80
I-5	Interstate 5
ISA	Initial Site Assessment
LRDP	Long Range Development Plan
LOS	Level of Service
ITS	Intelligent Transportation System
MTC	Metropolitan Transportation Commission

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MTP	Metropolitan Transportation Plan
NAC	Noise Abatement Criteria
NES	Natural Environment Study
NEPA	National Environmental Policy Act
NOE	Notice of Exemption
NOA	Naturally Occurring Asbestos
NPDES	National Pollutant Discharge Elimination System
PER	Paleontological Evaluation Report
PIR	Paleontological Identification Report
PM	Post Mile
PS&E	Plans, Specifications, and Estimate
ROW	Right-of-Way
RSA	Resource Study Area
RTP/SCS	Regional Transportation Plan
RW	Retaining Wall
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SCCR	Solutions for Congested Corridor
SCS	Sustainable Communities Strategy
SFHA	Special Flood Hazard Area
SHOPP	State Highway Operation and Protection Program
SR	State Route
SSP	Standard Special Provision
STIP	State Transportation Improvement Program
SWPPP	Storm Water Pollution Prevention Plan
TCE	Temporary Construction Easement
TCR	Transit Corridor Report
TDMR	Travel Demand Modeling Report
TMDL	Total Maximum Daily Load
TMP	Traffic Management Plan
TMS	Transportation Management Systems
TWW	Treated Wood Waste
UC	University of California
US-50	United States Route 50
USFWS	United States Fish and Wildlife Service
VAU	Visual Assessment Units
VMT	Vehicle Miles Traveled
vph	vehicles per hour

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## Chapter 1. Project Description

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### 1.1. Introduction

The California Department of Transportation (Caltrans or Department), in collaboration with stakeholders, proposes to construct improvements consisting of managed lanes, pedestrian/bicycle facilities, and Intelligent Transportation System (ITS) elements along Interstate 80 (I-80) and U.S. Route 50 (US-50) from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and Interstate 5 (I-5) on US-50 in Sacramento County.

Caltrans, as assigned by the Federal Highway Administration (FHWA), is the lead agency under the National Environmental Policy Act (NEPA) for the Caltrans EA 03-3H900 Yolo 80 Corridor Improvements Project (project). Caltrans is also the lead agency under the California Environmental Quality Act (CEQA).

The project is programmed in the State Transportation Improvement Program (STIP), Regional Surface Transportation Program, Congestion Management and Air Quality Improvement Program, and California Transportation Commission Trade Corridor Enhancement Program.

### 1.2. Project Description

This section describes the proposed action and the project alternatives developed to meet the purpose and need of the project while avoiding or minimizing environmental impacts. Caltrans proposes to make improvements on I-80 and US 50 from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and on US 50 to I-5 in Sacramento County.<sup>1</sup> The project would add managed lanes on I-80 and US-50 by a combination of lane conversion, restriping, and shoulder and median reconstruction with a concrete barrier. Drainage modifications would be required due to median reconstruction in the locations to which sheet flow currently drains. Existing ITS elements and infrastructure would be modified, and new ITS elements would be added, including ramp meters, fiber-optic conduit and cables, and overhead signs.

#### 1.2.1. PROJECT ALTERNATIVES

This section describes alternatives that were developed to meet the purpose and need of the project. The No Build Alternative (Alternative 1) is described in Section 1.2.1.3. Build Alternatives 2a, 3a, 4a, 5a, and 6a propose the same geometric footprint, but would incorporate different managed lane types (see **Figure 1.2-1**). Build Alternatives 2b, 3b, 4b,

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<sup>1</sup> I-80 corridor between PM 40.7 and PM 44.7 in Solano County, between PM 0.00 and PM 11.72 in Yolo County, and between PM 0.00 and PM 1.36 in Sacramento County; and US-50 between PM 0.00 and PM 3.12 in Yolo County and between PM 0.00 and PM 0.617 in Sacramento County.

5b, and 6b propose the same geometric footprint, include an I-80 managed lane direct connector, but would incorporate different managed lane types (**Figure 1.2-2**). Build Alternatives 7a and 7b would not construct new lanes but would repurpose an existing lane instead; however, Build Alternative 7b would include the I-80 managed lane direct connector (Figures 1.2-1 and 1.2-2, respectively, located at the end of this chapter.)

- Build Alternative 2a: Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more riders (HOV 2+).
- Build Alternative 2b: Add a high-occupancy vehicle lane in each direction for use by vehicles with two or more riders (HOV 2+), and build an I-80 managed lane direct connector.
- Build Alternative 3a: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more riders (HOT 2+). Single-occupied vehicles would pay a fee for the lane usage.
- Build Alternative 3b: Add a high-occupancy toll lane in each direction for free use by vehicles with two or more riders (HOT 2+), and build an I-80 managed lane direct connector. Single-occupied vehicles would pay a fee for the lane usage.
- Build Alternative 4a: Add a high-occupancy toll lane in each direction for free use by vehicles with three or more riders (HOT 3+). Vehicles with less than three riders would pay a fee for lane usage.
- Build Alternative 4b: Add a high-occupancy toll lane in each direction for free use by vehicles with three or more riders (HOT 3+), and build an I-80 managed lane direct connector. Vehicles with less than three riders would pay a fee for lane usage.
- Build Alternative 5a: Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of number of riders).
- Build Alternative 5b: Add an express lane in each direction (i.e., everyone would pay a fee to use the lane, regardless of number of riders), and build an I-80 managed lane direct connector.
- Build Alternative 6a: Add a transit-only lane in each direction.
- Build Alternative 6b: Add a transit-only lane in each direction, and build an I-80 managed lane direct connector.
- Build Alternative 7a: Repurpose the current number one general-purpose lane for use by vehicles with two or more riders (HOV 2+); no new lanes would be constructed.
- Build Alternative 7b: Repurpose the current number one general-purpose lane for use by vehicles with two or more riders (HOV 2+); no new lanes would be constructed. Build an I-80 managed lane direct connector.

This project contains a number of standardized project features, which are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2 and included as Appendix E.

If a HOT lane alternative is chosen as the preferred alternative (Alternatives 4A, 5A, 6A, 4B, 5B or 6B), then additional advanced HOT lane signs will need to be placed from I-80/El Camino Ave to I-80/ Truxel Rd and between US 50/ I-5 and US 50/ 99 (Sac 80 PM M1.4/3.64 and SAC 50 PM L0.60/R0.20). If necessary, the Environmental Document and the Utility Certification will be revalidated during the PS&E phase.

The Build Alternatives consist of the following three geographic segments.

### **Segment 1**

Segment 1 stretches from Kidwell Road in Eastern Solano County through Davis to the Eastern end of the Yolo Causeway east of Enterprise Boulevard in West Sacramento. Segment 1 consists of three sub-segments:

- *Segment 1a* is from Kidwell Road to Solano County/Yolo County Line.
- *Segment 1b* is from the Solano/Yolo County Line to west end of the Yolo Causeway.
- *Segment 1c* is from the start of the Yolo Causeway to east of Enterprise Boulevard.

### **Segment 2**

Segment 2 starts just east of Enterprise Boulevard and continues north on I-80 to West El Camino Avenue.

### **Segment 3**

Segment 3 starts at the I-80/US-50 Separation and continues east along US-50 to I-5 near downtown Sacramento. Segment 3 consists of two sub-segments:

- *Segment 3a* is the I-80/US-50 Separation to Jefferson Boulevard Undercrossing.
- *Segment 3b* is the Jefferson Boulevard Undercrossing to just east of I-5.

#### **1.2.1.1. COMMON DESIGN FEATURES OF THE BUILD ALTERNATIVES**

Common design features and standardized measures are shared among the Build Alternatives.

#### ***Managed Lanes***

Managed lanes are highway facilities or a set of lanes where operational strategies are implemented to manage overall traffic congestion or in response to changing conditions (FHWA 2008). Managed lanes can include pricing, vehicle eligibility, or access control concepts. The lanes have flexibility to be used by different types of vehicles, depending on the need and can be actively managed to accommodate peak travel demands. Managed lanes would be designated using a striping pattern to distinguish between the mixed-flow lanes as further described in Section 1.2.1.2. Unique Features of the Build Alternatives.

## **Intelligent Transportation System/Transportation Management Systems**

Each of the Build Alternatives would include placement of ramp meters and other ITS/Transportation Management Systems (TMS) such as closed-circuit television (CCTV) and changeable message signs. Several maintenance pullouts are proposed adjacent to I-80 on-ramps to accommodate an electrical cabinet for proposed ramp meters or other ITS/TMS infrastructure.

Proposed ITS elements would be installed on a new pole foundation; some existing ITS infrastructure in these locations would be abandoned or replaced. Accordingly, it is assumed that each ITS pole foundation would have up to a 6-foot radius permanent footprint within a up to 10-foot radius temporary area for construction.

### **Structure Modifications**

As summarized in **Table 1-1.2**, Build Alternatives would add improvements to existing structures to accommodate proposed Managed Lanes.

**Table 1-1.2 Structure Modifications**

<b>Structure Name</b>	<b>Structure Number</b>	<b>Route</b>	<b>Post Mile</b>	<b>Alternative</b>	<b>Structure Work</b>
South Fork Putah Creek	23-0054 R	Sol 80	42.36	All Build Alternatives	Place fiber optic conduit
Old Davis Rd Undercrossing	23-0155R	Sol 80	R43.5	All Build Alternatives	Place fiber optic conduit
South Davis Overhead	23-0156R	Sol 80	R43.93	All Build Alternatives	Place fiber optic conduit
Putah Creek Pedestrian Undercrossing	22-0194	Yol 80	0.01	All Build Alternatives	Place fiber optic conduit
Richard Boulevard Overcrossing RW NO. 3	TBD	Yol 80	0/0.60	All Build Alternatives	Retaining wall at abutment along eastbound I-80 off-ramp to Richards Boulevard
I-80 Managed Lane Direct Connector	TBD	Yol 80	9.5/10.0	Build Alternatives 2b, 3b, 4b, 5b, 6b, 7b	Proposed managed lane connector retaining wall #1; Proposed managed lane connector retaining wall #2

Source: Caltrans Draft Project Report (July 2021)

### **Ramp Modifications**

Within Segment 2, eastbound ramp modifications would be constructed at I-80 eastbound on-ramp from Richards Boulevard to accommodate realignment within the right-of-way. In addition, ramp modifications would occur at the westbound I-80 off-ramp to County Road (CR)-32A/Chiles Road to accommodate additional bicycle/pedestrian pathway within the right-of-way.

## ***Bicycle/Pedestrian Facilities***

The Build Alternatives would replace the existing bicycle pathway pavement behind the gas station located north of West Capitol Avenue from PM 9.15 to PM 9.35. The existing bicycle pathway would be rerouted during repaving activities for up to two months, but repaving activities may occur at nighttime to minimize access disruption. To maintain access, bicycles traveling westbound would be redirected along West Capitol Avenue. Bicycles traveling eastbound would be redirected along a short segment of sidewalk on West Capitol Avenue and use the crosswalk at the West Capitol Avenue/westbound I-80 off-ramp intersection<sup>2</sup>. Bicyclists would then continue eastbound along West Capitol Avenue using the existing bicycle lane. Caltrans would add crosswalk pavement marking across the westbound I-80 off-ramp to West Capitol Avenue and near the existing West Capitol Avenue crosswalk. In addition, Caltrans would add advanced warning signs to alert the motorists traveling on the westbound I-80 off-ramp to West Capitol Avenue before reaching the proposed crosswalk. Caltrans would place signage as part of the traffic management plan to note the access updates and identify the bicycle/pedestrian detours.

The Build Alternatives would also replace the existing bicycle pathway pavement from PM 9.1 to the Yolo Causeway bridge deck approach at approximately PM 8.9. While the existing Class I bicycle pathway is closed, a temporary bicycle pathway with K-rail barrier would be placed along the I-80 westbound on-ramp from West Capitol Avenue. Up to 100 linear feet of existing barrier near PM 8.9 would be removed and realigned to allow bicycles to rejoin the existing Class I Bicycle Pathway along Yolo Causeway. The existing Class I bicycle pathway along the Yolo Causeway would not require closure during construction activities.

The Build Alternatives would extend the westernmost limit of the existing Class I bicycle pathway from I-80 along Yolo Causeway to connect to CR-32A. The pathway extension would be located adjacent to the westbound I-80 off-ramp to CR 32A and would be approximately 12-feet-wide. The area surrounding the pathway extension would be graded to comply with the Americans with Disabilities Act of 1990 (ADA) regulations. A concrete barrier would separate the pathway extension from westbound off-ramp vehicular traffic. Once construction of the pathway extension along westbound I-80 off-ramp is complete, the Build Alternatives would conduct pavement rehabilitation from CR 32A to Levee Road. During pavement rehabilitation activities, Levee Road would be closed. Bicycles would be redirected along the newly constructed pathway extension on westbound I-80 off-ramp to access the existing Class I bicycle pathway along Yolo Causeway, which would be built prior to rehabilitation activities on Levee Road.

The Build Alternatives would include widening the shoulders of CR-32A from the existing Levee Road path to just east of CR-105 to accommodate a standard Class I bicycle path. In addition, the Build Alternatives would include widening the shoulders of CR-32A from CR-105 to the proposed Class I bicycle path along CR-32A to accommodate a standard Class II

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<sup>2</sup> City of West Sacramento Municipal Code 10.32.020 states that bicycles are permitted on the public sidewalk but shall yield to any pedestrian.

bicycle lane. Construction of the Class II bicycle lane would involve widening the shoulders by 4 feet for the Class II 6-foot lane on both sides with standard edge line striping. No barriers would be constructed. Caltrans would coordinate with Yolo County Public Works Department to complete this bicycle pathway design along CR 32A.

### ***Park-and-Ride Facility***

Within Segment 2 of each of the Build Alternatives, a Park-and-Ride Facility would be constructed on the east side of Enterprise Boulevard in a 4.5-acre lot and would provide for approximately 300 parking spaces. Users of the Park-and-Ride Facility would have the option to park their cars for the day and connect to several county and regional transit services. The facility would be located partially within the existing Caltrans right-of-way and partially outside the existing Caltrans right-of-way. Landscaping and nighttime lighting are proposed at the Park-and-Ride Facility.

### ***Signage***

The Build Alternatives would include roadside signs and overhead signs to provide symbolic or text messages that would guide and warn motorists and regulate the flow of traffic. Some of the signs would have hours of operation that restrict certain classes of vehicles during peak periods. Other signs would have information for motorists of the conditions or hazards that they are approaching.

Roadside signs would include regulatory and warning signs, route shields, and guide signs. These signs would be located on wood or metal posts. Wood posts would be approximately 6-inch by 6-inch in size while metal posts would be approximately 2.5-inch by 2.5-inch in size. Roadside signs would be mounted on the freeway concrete median barrier or placed adjacent to the edge of the travel way up to 30 feet. However, placement of roadway signs would avoid environmentally sensitive areas.

Overhead signs would be mounted on versatile truss structures spanning above the travel lanes. The total height of the overhead sign structure (including the sign) would depend on the type of sign being mounted but would not likely exceed 40 feet in height. Overhead sign structures would have a concrete foundation of up to 6.5 feet in diameter and would either be supported on a cast-in-drilled-hole pile foundation or supported by a structure.

### ***Lighting***

Street lighting would be added near CR-32A at the proposed bicycle pathway extension adjacent to the westbound off-ramp. Within Segment 2, bridge deck lighting with Type 21 Barrier-Rail-Mounted Lighting Standards would be constructed. Additional street lighting would be added to the Bryte Bend Bridge, but it may also be added at proposed auxiliary lane locations if determined necessary during the design phase. Some nighttime lighting would occur during nighttime construction work activities as well as at the Park-and-Ride facility. Signage would use reflective lettering.

### **Road Cut/Fill**

Some locations would require full structural section reconstruction, and other locations would require cut or fill of the embankment due to road widening.

### **Grinding**

Cold planing, the process of removing part of the surface of a paved area, would be required throughout the project limits. Cold planing would be required for ramp conforms at all ramps and may be required at other locations along the travel way wherever hot mix asphalt (HMA) is currently in place. A mill (cold planing) and fill operation may be proposed to repair roadway surface scarring that occurs during temporary restriping associated with some stage construction operations.

### **Site Preparation**

Site preparation would include delineating construction work areas, installing environmentally sensitive area (ESA) fencing around sensitive habitats and cultural resource areas, installing wildlife exclusion fencing around staging areas, installing best management practices (BMPs) in accordance with the project's Stormwater Pollution Prevention Plan (SWPPP), and removing vegetation, as summarized in Appendix E.

### **Utilities**

Build Alternatives 2a, 3a, 4a, 5a, 6a, and 7a would not result in potential conflicts with existing utilities that are present along the I-80/US-50 corridor. Utility companies would require verification of facilities and involvement in construction plans. Accordingly, prior to construction, an estimated 15 test hole sites would be drilled at eight different locations for natural gas lines running transversely underneath I-80, the Yolo Causeway, and West Capitol Avenue in Sacramento where the new managed lane would be constructed with retaining walls and columns. Positive findings would verify whether the gas line would require relocation or how to redesign to avoid conflicts with existing utilities.

Under all Build Alternatives, removal of an existing overhead sign near Westacre Park, within Caltrans right-of-way, would require an overhead electrical distribution line to be deenergized temporarily. Under Build Alternatives 2b, 3b, 4b, 5b, 6b, and 7b, up to four 115-kilovolt overhead utility towers may be relocated or tower height increased near the new I-80 managed lane direct connector at the I-80/US-50 separation in West Sacramento.

### **Fiber-Optic Cable**

The Build Alternatives would install a fiber-optic cable and associated fiber-optic splice boxes within the roadbed at the eastbound outside shoulder of I-80 from west of Kidwell Road in Solano County at PM 40.7 to PM 4.35 in Yolo County. Cut and cover or trenching would be the primary construction method and would require excavation of up to 42 inches deep to

install within a 12-foot buffer surrounding the running line. Fiber-optic cable may also be placed via directional borings and to avoid conflicts with existing utilities.

### ***Right-of-Way and Temporary Construction Easements***

The Build Alternatives would require Caltrans to acquire two private fee parcels to construct the proposed park-and-ride facility at Enterprise Boulevard (2.8 acres). A total of five TCEs would be required along the project alignment for a total of 12.24 acres. No displacement of any residences or businesses would be required.

### ***Staging Areas***

As depicted on Figures 1.2-1 and 1.2-2, staging areas would be located at the I-80/West El Camino Avenue interchange, South River Road, I-80/Richards Boulevard interchange, the I-80 and SR-113 interchange, West Capitol Avenue, and along Kidwell Road. These areas total 53.31 acres and would be used for equipment maintenance and storage of equipment, construction materials, fuels, lubricants, solvents, and other possible contaminants during construction.

### ***Traffic Management During Construction***

Various Transportation Management Plan (TMP) elements such as portable changeable message signs (CMS) and the California Highway Patrol Construction Zone Enhanced Enforcement Program would be used to minimize delays to the traveling public. Flaggers would be used to divert traffic. Prior to construction, a detailed TMP would be prepared.

Ramp closures are anticipated at all ramp locations adjacent to proposed widening or proposed mainline paving. Traffic would be detoured to the next interchange. Caltrans would also place signage as part of the TMP to note the access updates and identify the bicycle/pedestrian detours. Caltrans would install a cross walk at the westbound I-80 off-ramp across right turn movement to West Capitol Avenue as well as a temporary flashing beacon located upstream.

Build Alternatives 2b, 3b, 4b, 5b, 6b, and 7b may require a temporary, full closure on westbound US-50 for construction of the direct connector structure. Full closures would most likely occur during the hours of the lowest volume of traffic (e.g., nighttime) or during a continuous 24- or 48-hour operation, but may also occur during daytime. The anticipated closure would occur for up to three nights to install falsework and then three additional nights to remove falsework for construction of the direct connector structure. The primary detour for westbound US-50 traffic would be to use northbound I-5 to westbound I-80. Local traffic would use other interchanges in the area.

### ***Vegetation and Tree Removal***

Vegetation clearing would be required and would be confined to the area within the project footprint, including construction access routes. Vegetation removal and clearing would be

completed with hand tools where possible. Chainsaws, grinders, and excavators would be used for vegetation that cannot be removed by hand. All vegetation would be removed within proposed cut and fill lines as well as within temporary impact lines where ITS components would be constructed. Within areas of temporary impact, vegetation removal would be avoided to the extent possible.

### ***Construction Equipment***

The equipment used for the proposed work of the Build Alternatives would be similar among the Build Alternatives. Center median work would use excavators, scrapers, motor graders, loaders, backhoes, pavers, concrete barrier slip form pavers, truck mounted cranes, 18-wheel trucks, dump trucks, and water trucks. Reconstruction and modification of ramps/gores/shoulder embankments would use excavators, motor graders, loaders, backhoes, pavers, 18-wheel trucks, dump trucks, and water trucks. Road surfacing work, including placement for sensors in the road surface, would use core drillers, trailers containing and dispersing sealant, and water trucks.

Construction of the I-80 managed lane direct connector under Build Alternatives 2b, 3b, 4b, 5b, 6b, and 7b would require pile driving to install the footings to a depth of up to 40 feet. Equipment would also include a crane (for pile driving), excavator, dozer, loader, manlift, articulated 4x4 forklift, truck, dump truck, trailer unit air compressor, and water truck. This construction equipment would also be used for structural sign mounts along with a truck mounted crane for all Build Alternatives. A truck-mounted auger would be used for installing roadside signs.

### ***Ground Disturbance***

The depth of ground disturbance would vary throughout the project limits. At locations where CMS, sign structures, or piles would be installed, disturbance could be up to 30 feet deep. As described, construction of the I-80 managed lane direct connector under Build Alternatives 2b, 3b, 4b, 5b, 6b, and 7b would require pile driving to install the footings to a depth of up to 40 feet. At locations of culverts, depth of ground disturbance could vary from 3 feet to 10 feet (the estimated depth to bottom of culvert/inlet). At locations of linear electrical facilities such as fiber-optic and conduit installations, the ideal depth is typically 4 feet (assuming 42 inches of cover); however, depth could be increased to avoid conflicts with existing or proposed drainage or existing utilities.

### ***Site Cleanup and Post-Construction Activities***

All construction materials and debris would be removed from the construction work areas and recycled or properly disposed of off-site. Caltrans would restore all areas temporarily disturbed by project activities, such as staging areas and access roads, to near or better than pre-construction conditions in accordance with applicable permits and Caltrans requirements.

### 1.2.1.2. UNIQUE FEATURES OF THE BUILD ALTERNATIVES

The Build Alternatives are depicted on Figure 1.2-1 and Figure 1.2-2.

#### ***Build Alternatives 2a and 2b: HOV 2+ Managed Lane***

##### *Lane Configuration – Build Alternatives 2a and 2b*

Build Alternatives 2a and 2b would begin at the Solano/Yolo County Line west of Davis to West El Camino Avenue on I-80 and end at I-5 on US-50 in Sacramento County. Build Alternatives 2a and 2b would include an HOV 2+ managed lane in the eastbound and westbound direction. This would be accomplished by constructing in the median from the Solano/Yolo County line to west of the Yolo Causeway and continuing eastward by restriping to West El Camino Avenue on I-80 and to I-5 on US-50 in Sacramento County.

Build Alternative 2b would involve construction of an I-80 managed lane direct connector in addition to the construction activities planned for Build Alternative 2a. The I-80 managed lane managed lane direct connector would provide a direct connection of the HOV 2+ managed lane by flying over US-50 at the I-80/US-50 Interchange as depicted in Figure 1.3-2. The connector would include a retaining wall on either side and would travel underneath the existing eastbound connector from I-80 to US-50. The proposed connector would be constructed of columns and include concrete barrier type 842 railings.

#### SEGMENT 1

Segments 1a, 1b, and 1c would be restriped with 6-inch thermoplastic traffic stripes for three mixed-flow lanes and one managed lane in each direction, westbound and eastbound.

Within Segment 1b, from just west of the Solano/Yolo County Line to the west end of the Yolo Causeway, the project would involve replacement of the existing inside shoulders and construction of the eastbound and westbound median from around Richards Boulevard to 1.5 miles east of Mace Boulevard to accommodate managed lanes in the eastbound and westbound directions. The new shoulders and construction areas would be asphalt concrete material. The median barriers would be upgraded from a metal beam guard rail to a reinforced concrete barrier.

#### SEGMENT 2

Within Segment 2, the Bryte Bend Bridge would be restriped to accommodate the HOV 2+ managed lane in each direction. Reducing lane and shoulder widths would accommodate a fourth lane on the Bryte Bend Bridge. The bridge striping would change from three lanes (two 12-foot lanes and one 11.5-foot lane) to four lanes (four 11-foot lanes) with 1-foot inside and 2.5-foot outside shoulders.

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## SEGMENT 3

Within Segment 3a, from I-80/US-50 Separation to Jefferson Boulevard Undercrossing, the pavement would be restriped to convert one mixed-flow lane in each direction to managed lanes.

Within Segment 3b, from Jefferson Boulevard Undercrossing to just east I-5, the Jefferson Boulevard undercrossing (Br. No. 22-0106 L/R), and the Sacramento River viaduct (Br. No. 24-0014 R/L) between Jefferson Boulevard and the I-5/US-50 interchange would be restriped to add an additional managed lane in each direction.

### *Lane Access – Build Alternatives 2a and 2b*

An HOV lane is a type of managed lane that allows qualified users, who meet the minimum number of passengers, to use the managed lane. The number of vehicle occupants required to qualify can vary depending on location. Under Build Alternatives 2a and 2b, vehicles with two or more occupants would be permitted to access the HOV lane, and all other vehicles would be prohibited from using those lanes. The HOV lanes would be designated using a striping pattern and a diamond marking to distinguish them from mixed-flow lanes and would operate only during peak commute hours.

### *Signage – Build Alternatives 2a and 2b*

Approximately 45 overhead signs would be replaced or proposed within the project area. Several existing overhead signs would be removed and not replaced. In addition, 311 roadside signs would be replaced and 221 roadside signs are proposed within the median or the shoulder. Proposed signage would be the same for Build Alternatives 2a and 2b. Overhead and roadside signs are described in more detail in Section 1.3.1.1, Common Design Features of the Build Alternatives and shown on Figure 1.3-1 and Figure 1.3-2.

### *Drainage/Culverts – Build Alternatives 2a and 2b*

Anticipated work includes extending existing culverts through existing unpaved medians, extending existing culverts at locations where construction may occur outside the existing edge of pavement lining, and possibly abandoning existing culverts where median construction would occur in crowned sections of the roadway. New drainage inlets and culverts are proposed to be replaced or repaired to accommodate areas where existing shoulders are being narrowed, to accommodate additional runoff due to the increased pavement area, or to perpetuate existing drainage patterns. The linings of three pipes would occur using cast-in-place-pipe lining (CIPP). CIPP is a method to repair pipes without needing to trench by inserting a liner inside the existing culvert pipe.

Build Alternative 2a and Build Alternative 2b would construct 5 new culverts and replace or improve 21 existing culverts. As described, many of the proposed drainage features would be located within the construction footprint of the median for the new HOV 2+ managed lane. In addition, proposed culverts would traverse beneath the freeway to convey drainage to a new

outlet. In these instances, the freeway would be trenched using an excavator and the barrel would be installed. Once the barrel is installed, the trench would be backfilled and compacted back to preconstruction conditions. Trenching across the freeway travel lanes would occur in segments during low peak (nighttime) traffic hours to maintain access. Construction of each new or replaced culvert would occur over approximately 2 nights; however, construction of several culverts could occur concurrently as further described in the construction schedule. It is assumed each of these culvert repair or replacement areas would have a 20-foot by 20-foot temporary construction impact footprint, not to exceed the roadway right of way. Proposed drainage features for the I-80 managed lane direct connector, under Build Alternative 2b, would occur within the construction footprint of the I-80 managed lane direct connector.

#### *Construction Schedule – Build Alternatives 2a and 2b*

Construction of Build Alternative 2a is anticipated to take approximately 443 construction working days over 22 months. Construction of Build Alternative 2b is anticipated to take approximately 732 construction working days over 36 months. Construction would potentially commence in Spring 2025. Due to high daytime traffic volumes, night work would be expected. Both day and night work should be anticipated throughout the project duration.

#### ***Build Alternatives 3a and 3b: HOT 2+ Managed Lane***

Build Alternatives 3a and 3b would be the same as Build Alternatives 2a and 2b, respectively, but would include an HOT 2+ managed lane instead of an HOV 2+ lane. Build Alternative 3b would involve construction of the I-80 managed lane direct connector in addition to the construction activities planned for Build Alternative 3a.

The HOT managed lane would allow vehicles with a minimum two-person occupancy to use the lane for free, while single-occupied vehicles pay for the lane usage. All other project components would be the same, with the exception of signage locations.

Approximately 79 overhead signs would be replaced or proposed within the project area. Several existing overhead signs would be removed and not replaced. In addition, 311 roadside signs would be replaced and 373 roadside signs are proposed within the median or the shoulder. Overhead and roadside signs are described in more detail in Section 1.2.1.1, Common Design Features of the Build Alternatives and shown on Figure 1.2-1 and Figure 1.2-2.

#### ***Build Alternatives 4a and 4b: HOT 3+ Managed Lane***

Build Alternatives 4a and 4b would be the same as Build Alternatives 2a and 2b, respectively, but would include an HOT 3+ managed lane instead of an HOV 2+ lane. Build Alternative 4b would involve construction of the I-80 managed lane direct connector in addition to the construction activities planned for Build Alternative 4a.

The HOT managed lane would allow vehicles with a minimum three-person occupancy to use the lane for free. Vehicles with less than three riders would pay for the lane usage. Vehicles

with two passengers may also pay reduced or full tolls to travel within the HOT lane. All other project components would be the same, with the exception of signage locations.

Proposed signage for Build Alternatives 4a and 4b would be the same for Build Alternatives 3a and 3b, respectively. Overhead and roadside signs are described in more detail in Section 1.2.1.1, Common Design Features of the Build Alternatives and shown on Figure 1.2-1 and Figure 1.2-2.

#### ***Build Alternatives 5a and 5b: Express Managed Lane***

Build Alternatives 5a and 5b would be the same as Build Alternatives 2a and 2b, respectively, but would include an express lane instead of an HOV 2+ lane. Build Alternative 5b would involve construction of the I-80 managed lane direct connector in addition to the construction activities planned for Build Alternative 5a. An express lane is a managed lane that allows vehicles of any occupancy to access a dedicated lane once a toll is paid. All other project components would be the same, with the exception of signage locations.

Proposed signage for Build Alternatives 5a and 5b would be the same for Build Alternatives 3a and 3b, respectively. Overhead and roadside signs are described in more detail in Section 1.2.1.1, Common Design Features of the Build Alternatives and shown on Figure 1.2-1 and Figure 1.2-2.

#### ***Build Alternatives 6a and 6b: Transit-Only Managed Lane***

Build Alternatives 6a and 6b would be the same as Build Alternatives 2a and 2b, respectively, but would include transit-only managed lanes instead of HOV 2+ lanes. Build Alternative 6b would involve construction of the I-80 managed lane direct connector in addition to the construction activities planned for Build Alternative 6a. A transit-only lane is a managed lane that allows only approved public transit vehicles, such as bus services, to access a dedicated lane. All other project components would be the same with the exception of signage locations.

Proposed signage for Build Alternatives 6a and 6b would be the same for Build Alternatives 2a and 2b, respectively. Overhead and roadside signs are described in more detail in Section 1.2.1.1, Common Design Features of the Build Alternatives and shown on Figure 1.2-1 and Figure 1.2-2.

#### ***Build Alternatives 7a and 7b: Repurpose Lanes to HOV 2+ Managed Lane***

Build Alternatives 7a and 7b would repurpose the current number one general-purpose lanes to HOV 2+ managed lanes. No new lanes would be constructed. Build Alternative 7b would involve construction of the I-80 managed lane direct connector in addition to the construction activities planned for Build Alternative 7a.

### *Lane Configuration - Build Alternatives 7a and 7b*

Build Alternatives 7a and 7b would maintain the existing median pavement delineation, unpaved median, and add an HOV 2+ lane by repurposing an existing mixed-flow lane (lane number one). As a result, Build Alternatives 7a and 7b would not shift the edge of travel way into the median or require barrier beam removal within the median.

### *Lane Access - Build Alternatives 7a and 7b*

Vehicles with two or more occupants would be permitted to access the HOV 2+ lane, and all other vehicles would be prohibited from using them. The HOV 2+ lanes would be designated using a striping pattern and a diamond marking to distinguish them from mixed-flow lanes. HOV 2+ lanes would operate only during peak commute hours.

### *Signage – Build Alternatives 7a and 7b*

Proposed signage for Build Alternatives 7a and 7b would be the same for Build Alternatives 2a and 2b, respectively. Overhead and roadside signs are described in more detail in Section 1.2.1.1, Common Design Features of the Build Alternatives and shown on Figure 1.2-1 and Figure 1.2-2.

### *Drainage/Culverts – Build Alternatives 7a and 7b*

Build Alternatives 7a and 7b would repurpose the current number one general-purpose lanes to HOV 2+ managed lanes. Therefore, culvert construction associated with Build Alternative 7a would only be related to replacements or improvements to 18 existing culverts. Build Alternative 7b would construct 5 new culverts associated with the I-80 managed lane direct connector. Construction methods would be the same as Build Alternative 2a and 2b, respectively. The lining of one pipe would also occur using CIPP. As stated earlier, CIPP is a method to repair pipes without needing to trench by inserting a liner inside the existing culvert pipe.

### *Construction Schedule – Build Alternatives 7a and 7b*

Construction of Build Alternative 7a is anticipated to take approximately 180 construction working days over 10 months. Construction of Build Alternative 7b is anticipated to take 732 construction working days over 36 months to complete. Construction would potentially commence in Spring 2025. Due to high daytime traffic volumes, night work would be expected. Both day and night work should be anticipated throughout the project duration.

## **1.2.1.3. ALTERNATIVE 1 – NO BUILD ALTERNATIVE**

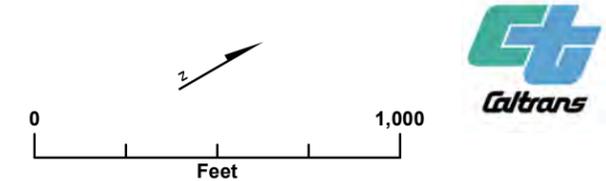
Alternative 1, the No Build Alternative, would maintain the existing conditions, and no work would be conducted to relieve current traffic congestion to improve traffic flow, mobility, and travel time reliability while at the same time reducing vehicle emissions and travel costs. The No Build Alternative would not provide a transportation facility that functions for all users,

including bicyclists, pedestrians, local transit services, and freight. Recurring travel demand would continue to exceed the current design capacity of the highway, resulting in severe traffic congestion and impaired mobility. Additionally, the transportation network would not include adequate facilities for all modes of transportation.

The No Build Alternative assumes programmed and planned improvements to the current corridor. While there are numerous planned or programmed transportation projects within the region that can impact future travel patterns, this section focuses only on those future baseline improvements that directly impact the project area.



- RW
  - ▭ ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Staging Area
  - County Line
- Signage and Read Point Locations**
- All Alternatives
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

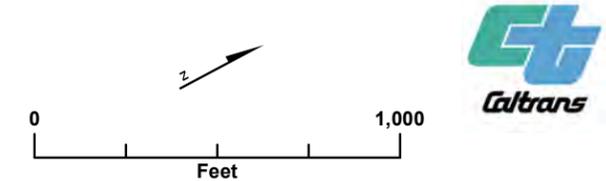
**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

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- R/W
  - ▭ ESL
  - Post Mile
  - County Line
- Signage and Read Point Locations**
- Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)



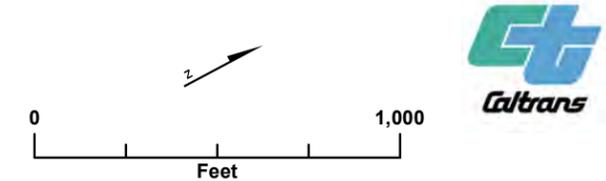
**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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- RW
  - ▭ ESL
  - Post Mile
  - Culvert Work Area
  - ▨ Temporary Construction Easement
- Signage and Read Point Locations**
- Alternatives 2a, 6a, and 7a only
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)

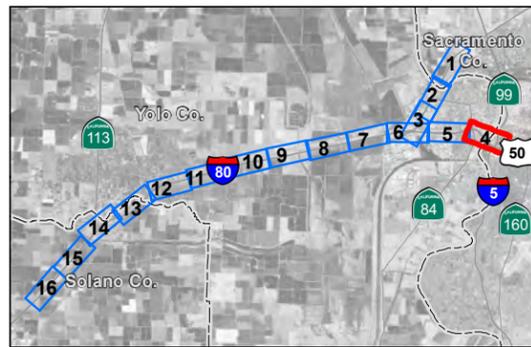
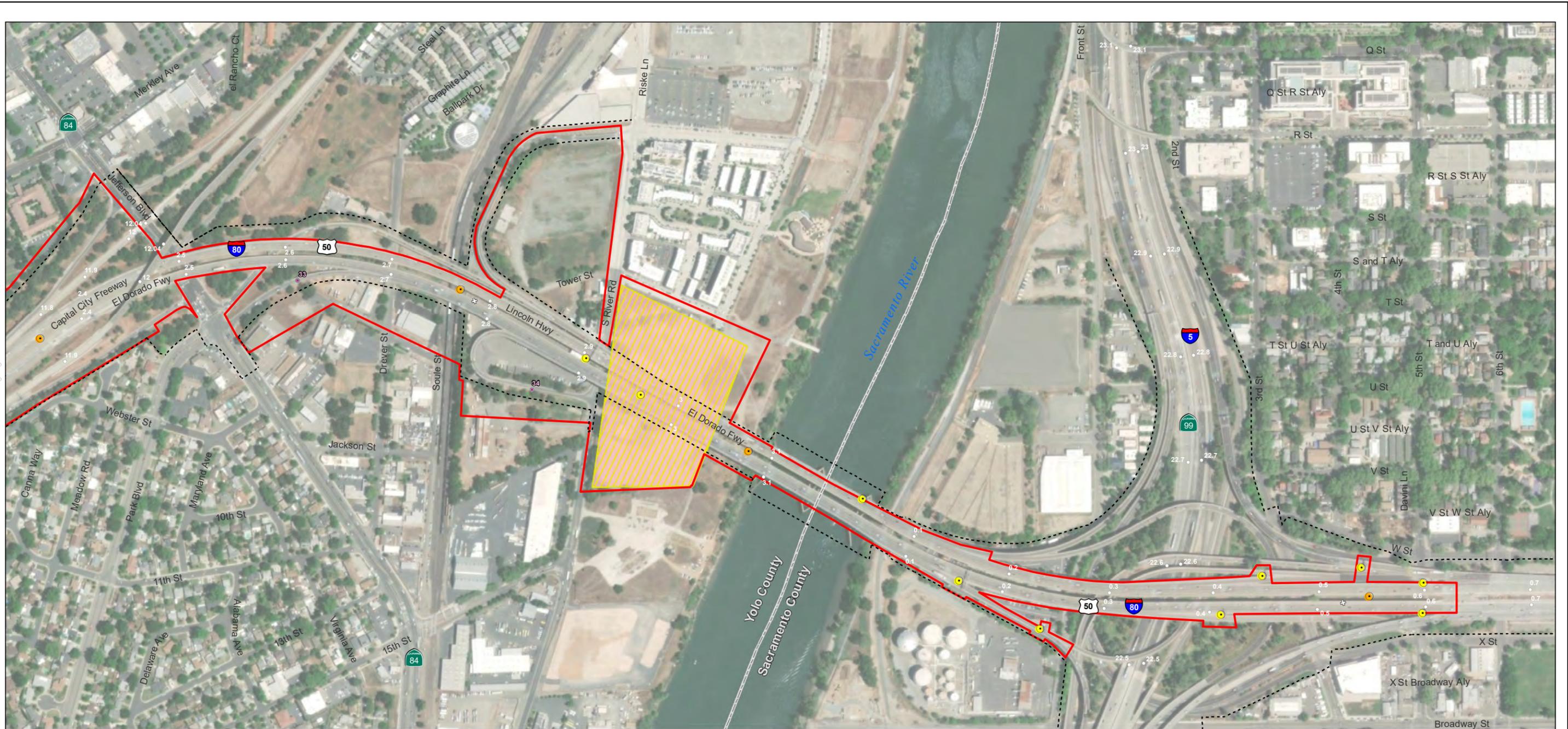


**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

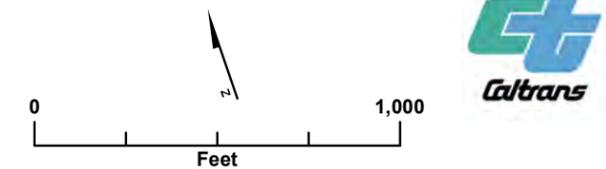
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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- R/W
  - ▭ ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Staging Area
  - ▨ Temporary Construction Easement
  - County Line
- Signage and Read Point Locations**
- All Alternatives
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)

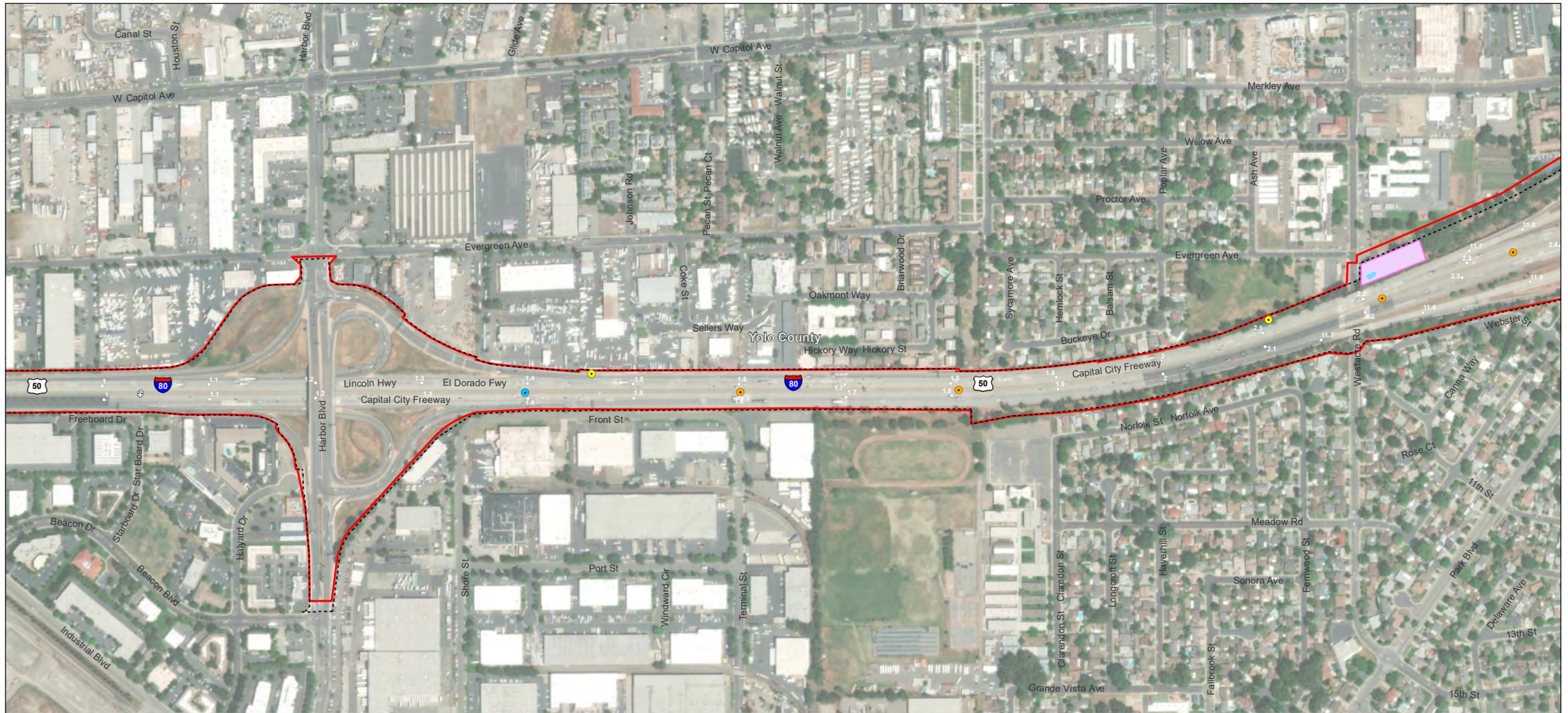


**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 4 of 16

**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
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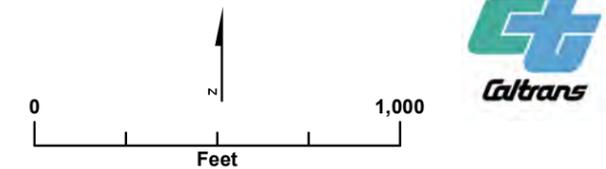
**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

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- RW
  - ESL
  - Post Mile
  - Trash Rack
- Signage and Read Point Locations**
- All Alternatives
  - Alternatives 2a, 6a, and 7a only
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)
- Culverts and Drainage**
- All Alternatives

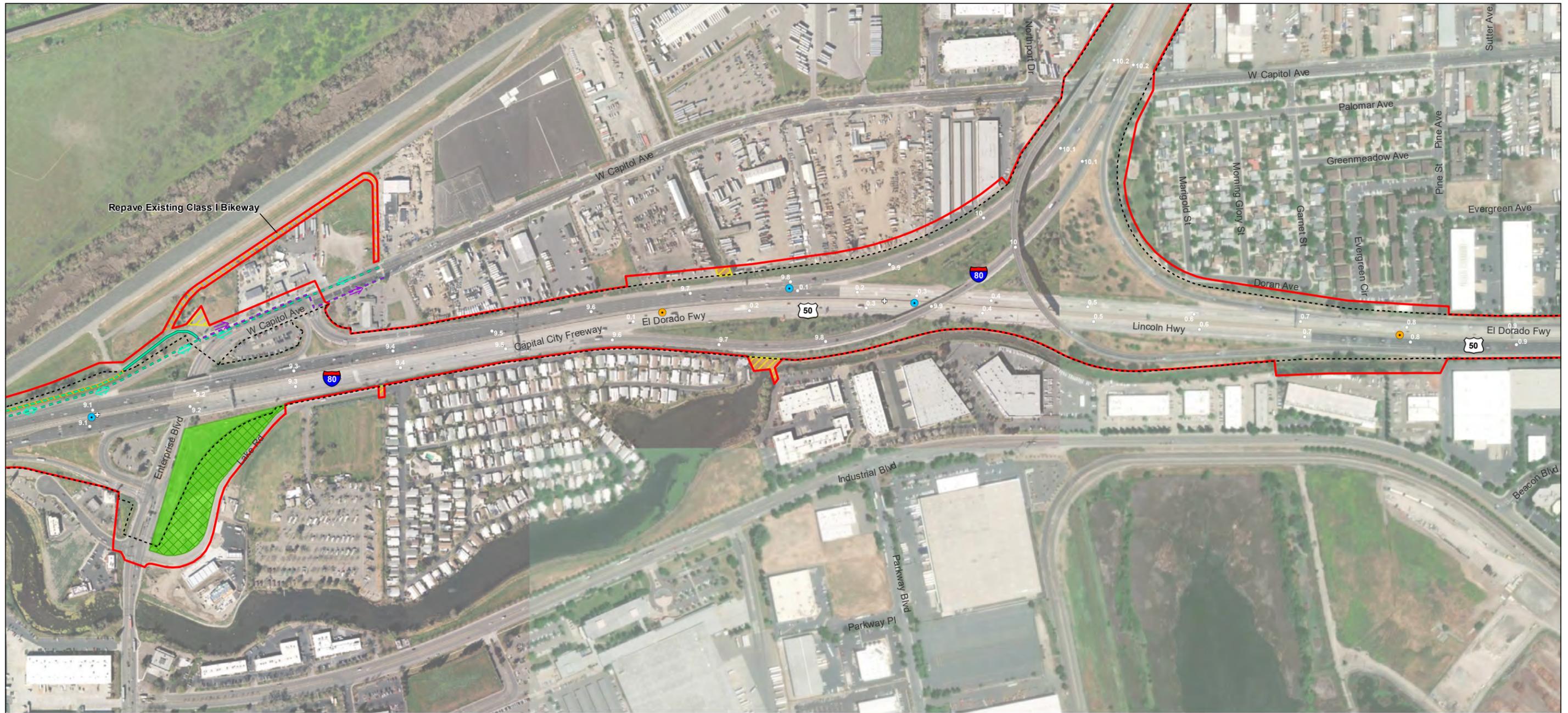
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

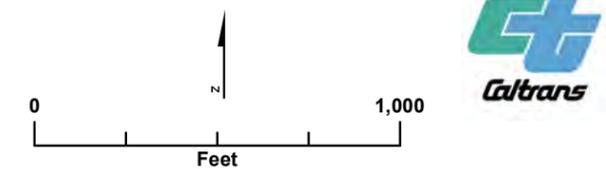
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**Notes**  
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- R/W
- ESL
- Post Mile
- Proposed Park & Ride Lot
- Permanent Easement
- Temporary Disturbance
- Culvert Work Area
- Temporary Construction Easement
- Existing Class I Bikeway
- Temporary Bike Detour
- Temporary Bike Detour (eastbound only)

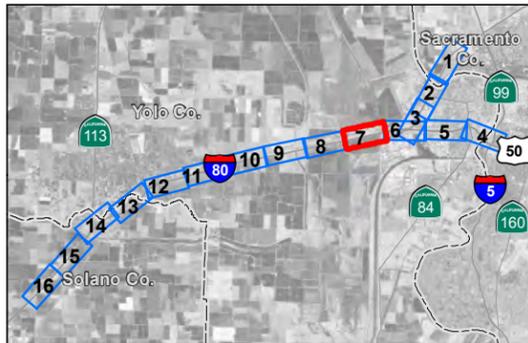
- Signage and Read Point Locations**
- Alternatives 2a, 6a, and 7a only
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)



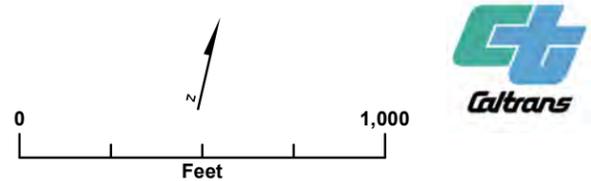
**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 6 of 16

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

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- R/W
  - ▭ ESL
  - Post Mile
  - ▨ Temporary Disturbance
  - Existing Class I Bikeway
  - - - - Temporary Bike Detour
  - Yolo Bypass Wildlife Area
- Signage and Read Point Locations**
- Alternatives 2a, 6a, and 7a only
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)

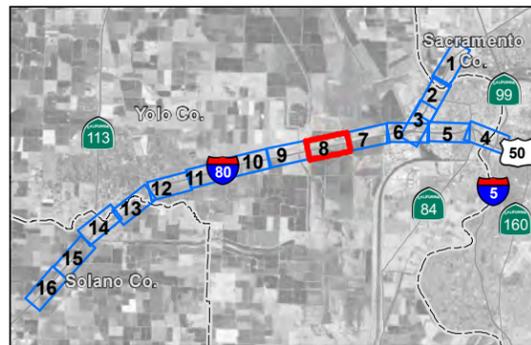


**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 7 of 16

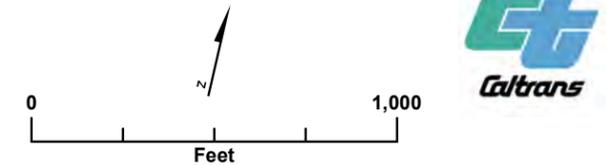
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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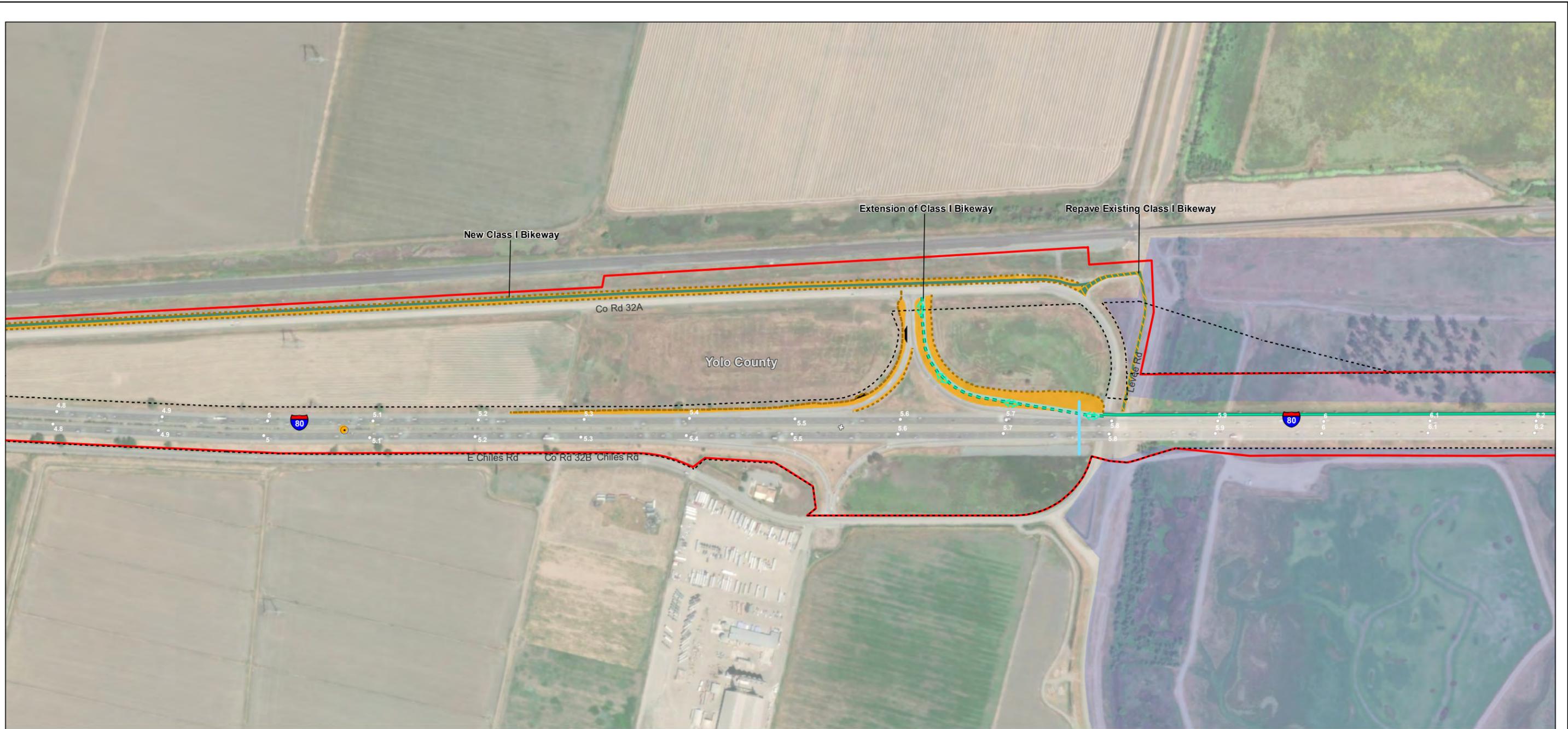
- R/W
  - █ ESL
  - Post Mile
  - █ Existing Class I Bikeway
  - █ Yolo Bypass Wildlife Area
- Signage and Read Point Locations**
- Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

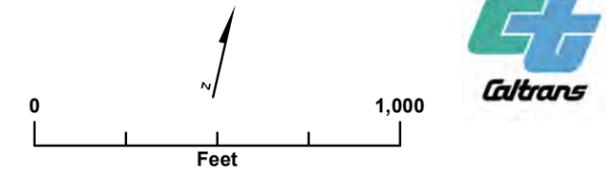
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 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



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 2. Data Sources: CalTrans, Stantec, 2021  
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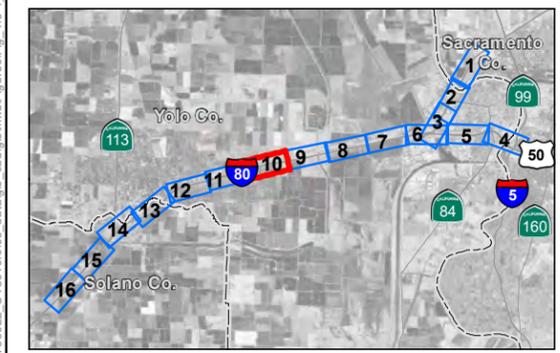
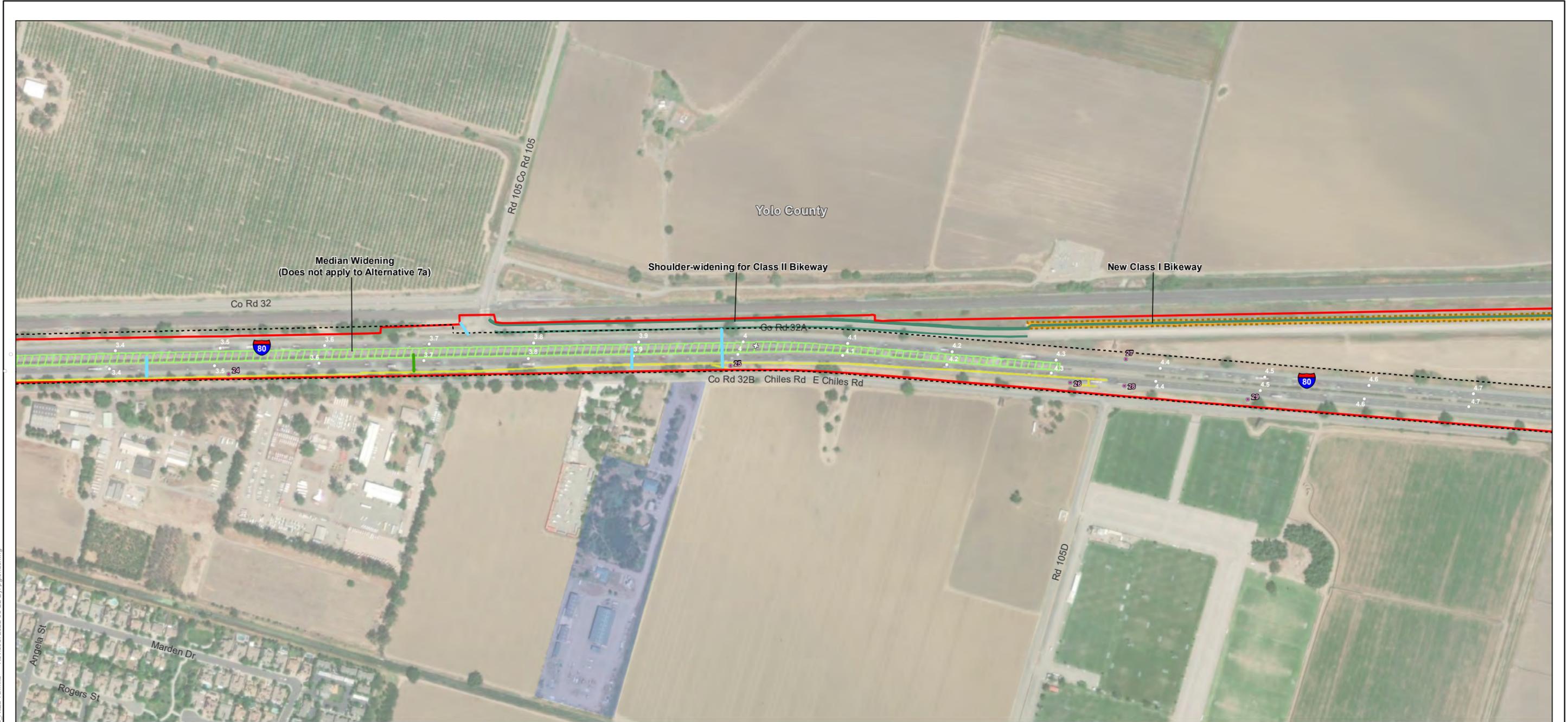
- R/W
- ESL
- Post Mile
- Temporary Disturbance
- Cut-Fill
- Cut-Fill Disturbance Area
- Existing Class I Bikeway
- Extension of Class I and Class II Bikeway
- Extension of Class I Bikeway
- Temporary Bike Detour
- Yolo Bypass Wildlife Area
- █ Pullout
- Signage and Read Point Locations**
- Alternatives 3a, 4a, and 5a only
- ⊕ Read Point (Alternatives 3a, 4a, and 5a only)
- Culverts and Drainage**
- All Alternatives



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

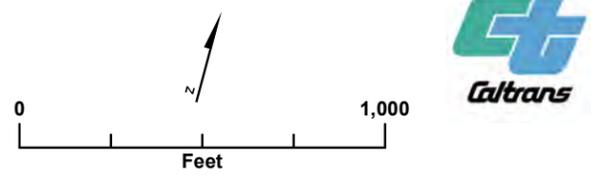
**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

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- R/W
- ESL
- Post Mile
- Intelligent Transportation System Improvement
- Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area
- Cut-Fill
- Cut-Fill Disturbance Area
- Widening - Median (Does not apply to Alternative 7a)
- Extension of Class I and Class II Bikeway

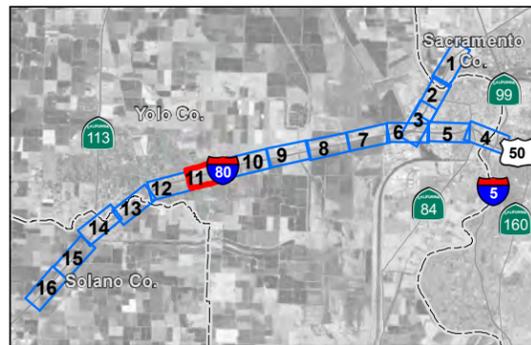
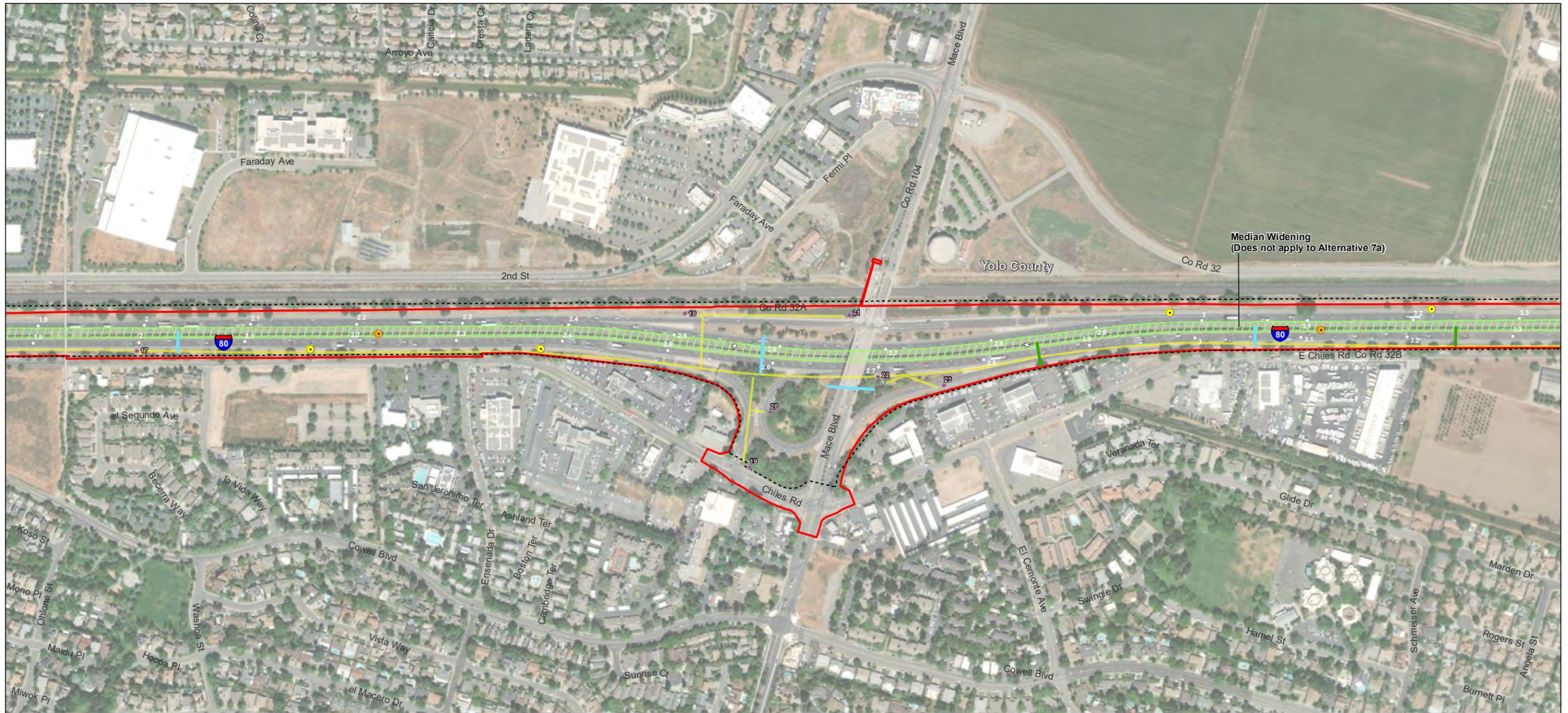
- Yolo Bypass Wildlife Area
- Signage and Read Point Locations**
- Read Point (Alternatives 3a, 4a, and 5a only)
- Culverts and Drainage**
- All Alternatives
- Alternatives 2a-6a



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 10 of 16

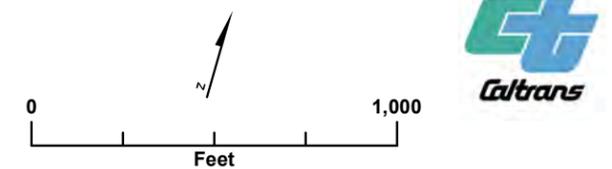
**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



- R/W
  - ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Fiber Optic Cable
  - Fiber Optic Cable Disturbance Area
  - ▨ Widening - Median (Does not apply to Alternative 7a)
- Signage and Read Point Locations**
- All Alternatives
  - Alternatives 3a, 4a, and 5a only
  - ⊕ Read Point (Alternatives 3a, 4a, and 5a only)

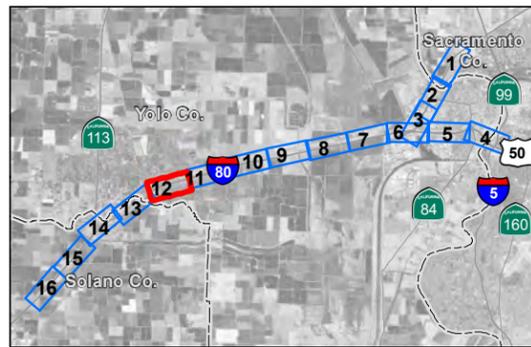
- Culverts and Drainage**
- All Alternatives
  - Alternatives 2a-6a



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

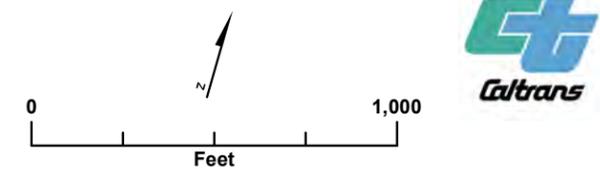
**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



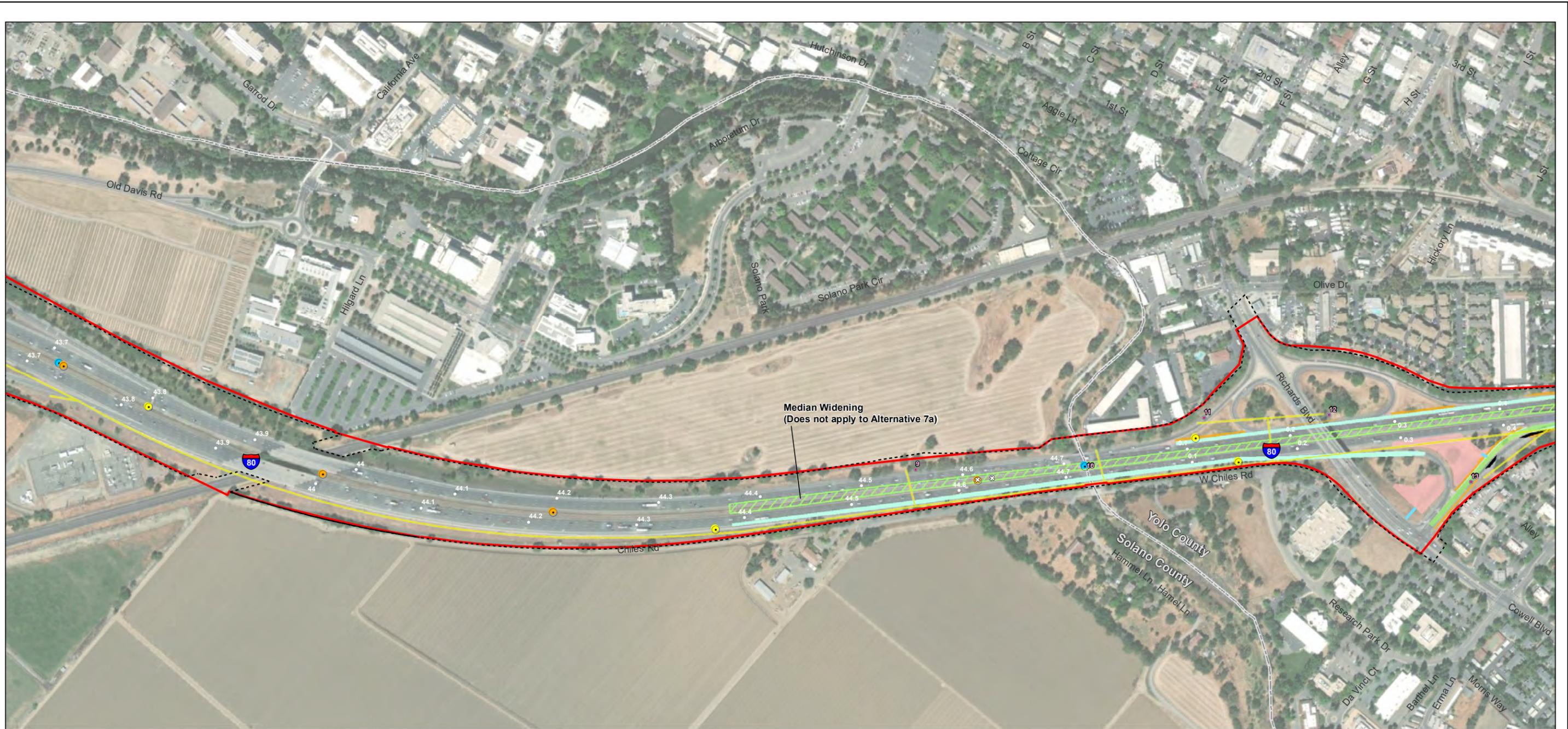
**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- RW
- ESL
- Post Mile
- Intelligent Transportation System Improvement
- Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area
- Cut-Fill Disturbance Area
- Staging Area
- Widening - Outside Lanes/Shoulder
- Widening - Median (Does not apply to Alternative 7a)
- Realigned Richards Blvd On-ramp
- Pullout
- Signage and Read Point Locations**
- All Alternatives
- Alternatives 3a, 4a, and 5a only
- ⊕ Read Point (Alternatives 3a, 4a, and 5a only)
- Culverts and Drainage**
- All Alternatives



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 12 of 16

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

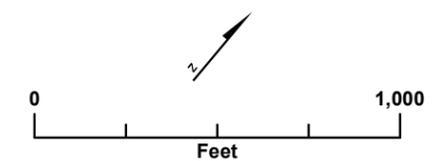


**Notes**  
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- RW
- ESL
- Post Mile
- Intelligent Transportation System Improvement
- Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area
- Cut-Fill Disturbance Area
- Staging Area
- Widening - Outside Lanes/Shoulder
- Widening - Median (Does not apply to Alternative 7a)

- Realigned Richards Blvd On-ramp
- Pullout
- County Line
- Signage and Read Point Locations**
- All Alternatives
- Alternatives 2a, 6a, and 7a only
- Alternatives 3a, 4a, and 5a only
- ⊕ Read Point (Alternatives 3a, 4a, and 5a only)
- Culverts and Drainage**
- All Alternatives

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



**Figure 1.2-1**  
**Project Design: Build Alternatives 2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

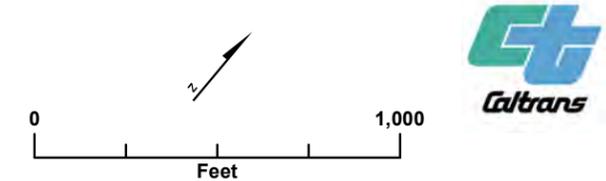
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- R/W
  - ▬ ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Fiber Optic Cable
  - Fiber Optic Cable Disturbance Area
  - Staging Area
  - Pullout
  - County Line
- Signage and Read Point Locations**
- All Alternatives

- Alternatives 2a, 6a, and 7a only
- Alternatives 3a, 4a, and 5a only

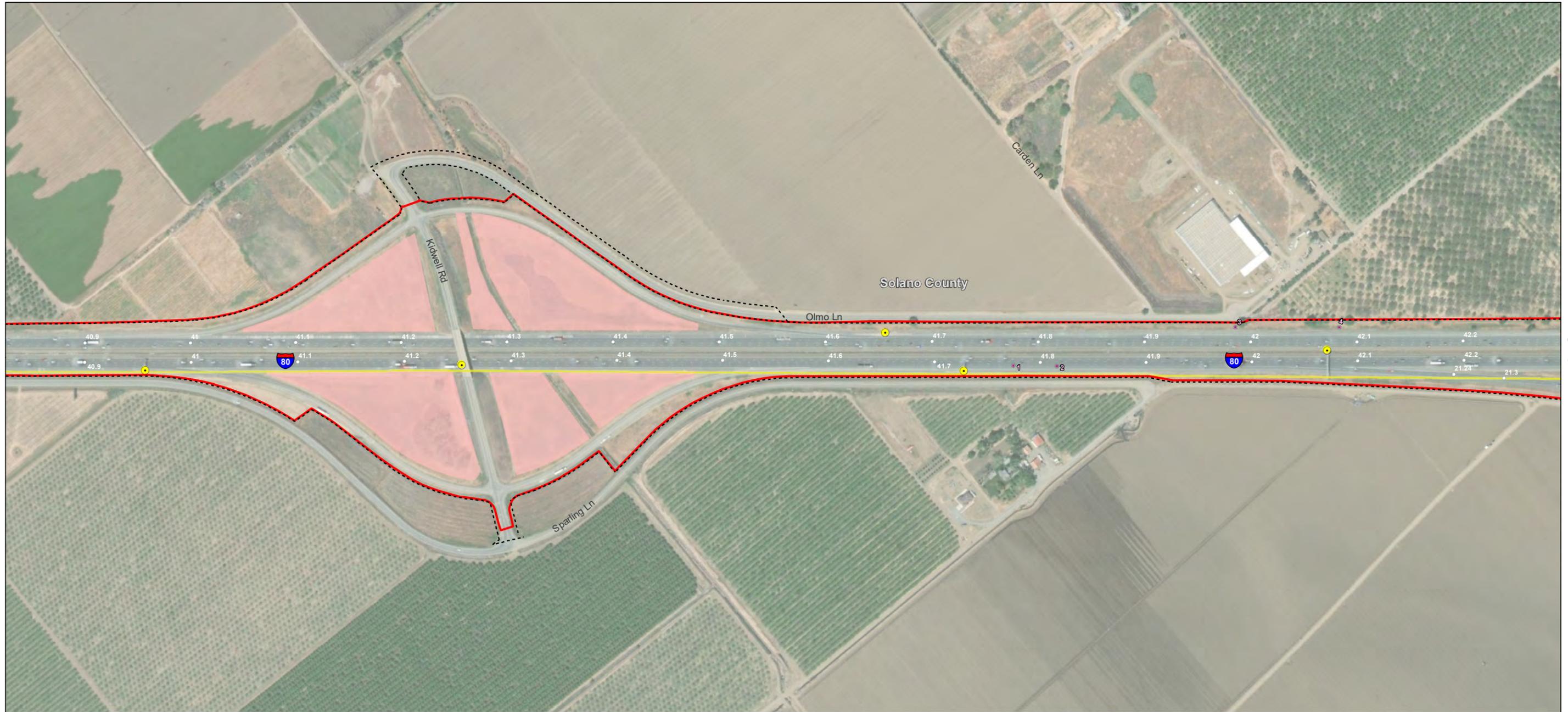


**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 14 of 16

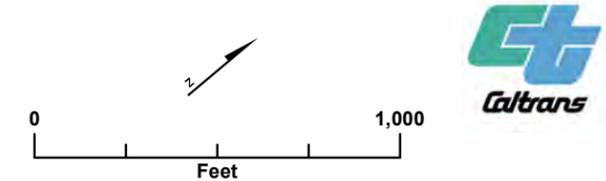
**Notes**  
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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- R/W
- ▭ ESL
- Post Mile
- ▭ Intelligent Transportation System Improvement
- ▭ Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- ▭ Fiber Optic Cable Disturbance Area
- ▭ Staging Area
- Signage and Read Point Locations**
- All Alternatives



**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

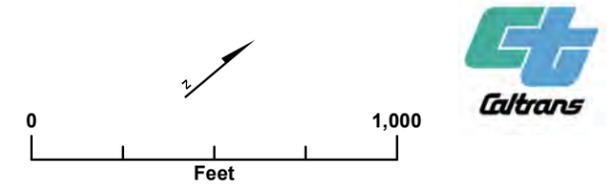
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 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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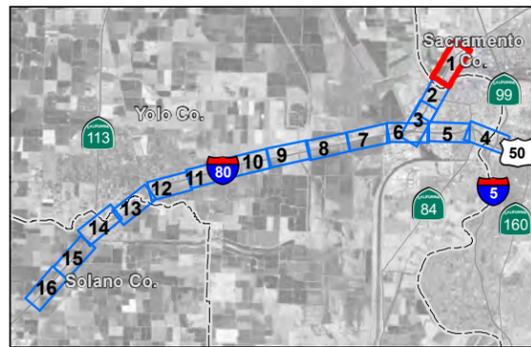
- R/W
- ▭ ESL
- Post Mile
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area



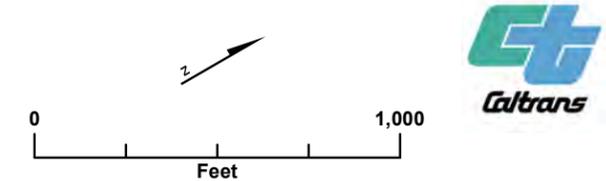
**Figure 1.2-1**  
**Project Design: Build Alternatives**  
**2a, 3a, 4a, 5a, 6a, 7a**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

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- RW
  - ▭ ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Staging Area
  - County Line
- Signage and Read Point Locations**
- All Alternatives
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

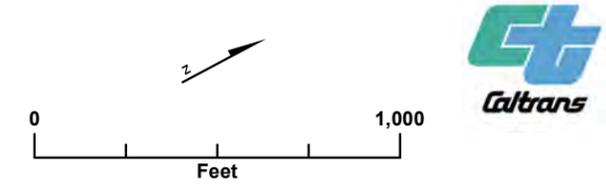
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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- RW
- ▭ ESL
- Post Mile
- County Line
- Signage and Read Point Locations**
- Alternatives 3b, 4b, and 5b only
- ⊕ Read Point (Alternatives 3b, 4b, and 5b only)



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 2 of 16

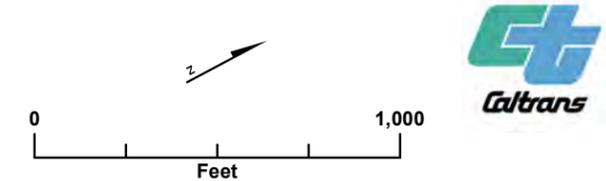
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- R/W
  - ▭ ESL
  - Post Mile
  - Culvert Work Area
  - Cut-Fill
  - ▨ Temporary Construction Easement
  - I-80 Connector Structure
  - ▨ Cut-Fill Disturbance Area
- Signage and Read Point Locations**
- Alternatives 2b, 6b, and 7b only
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)

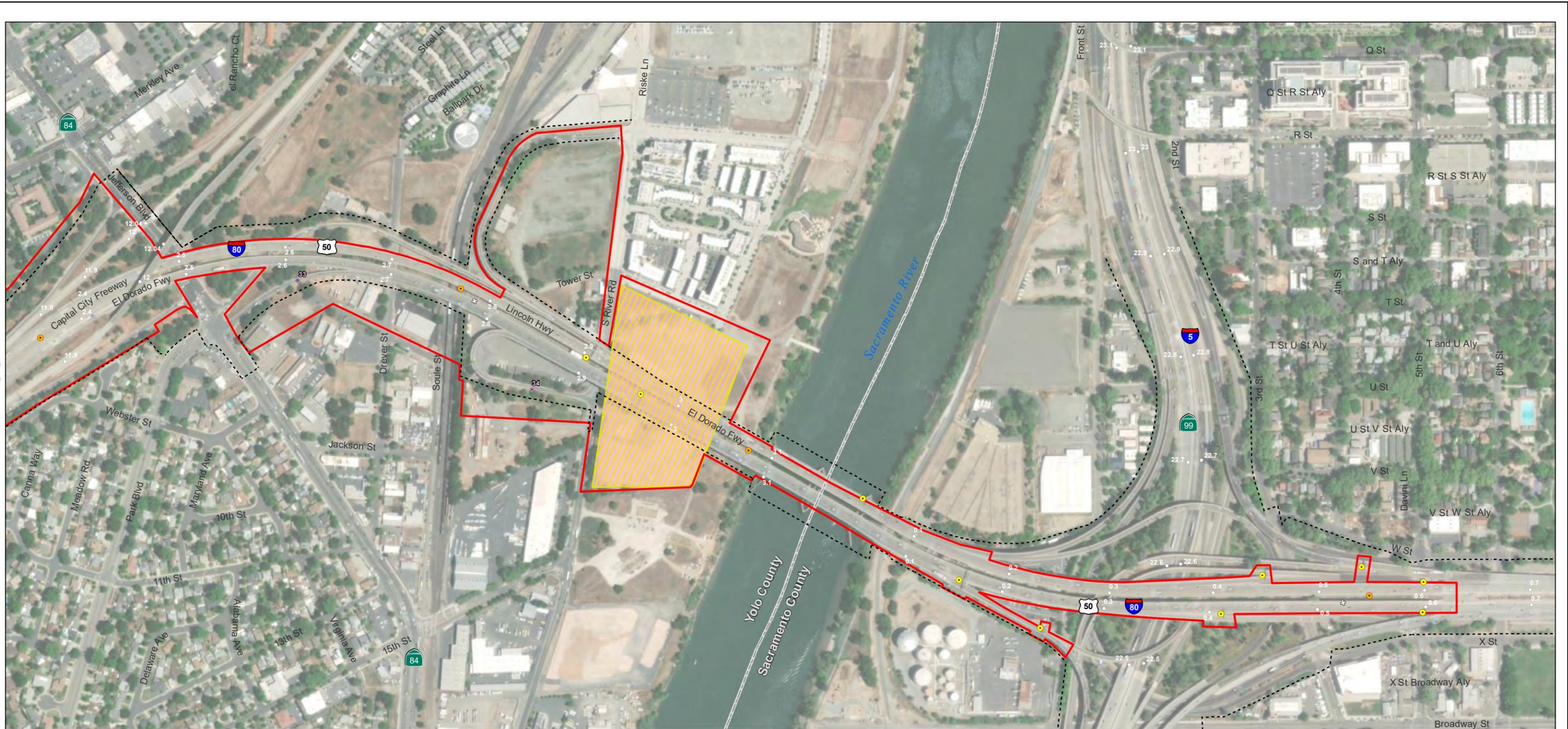


**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

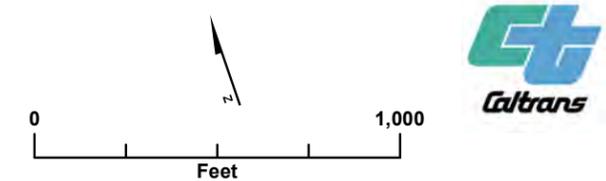
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 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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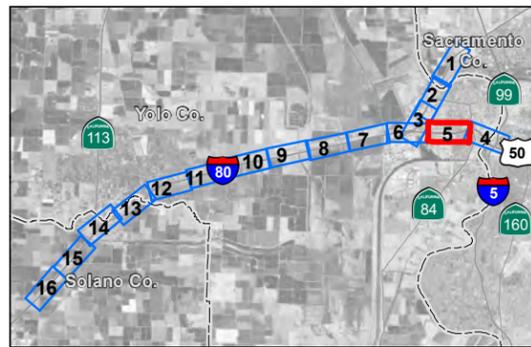
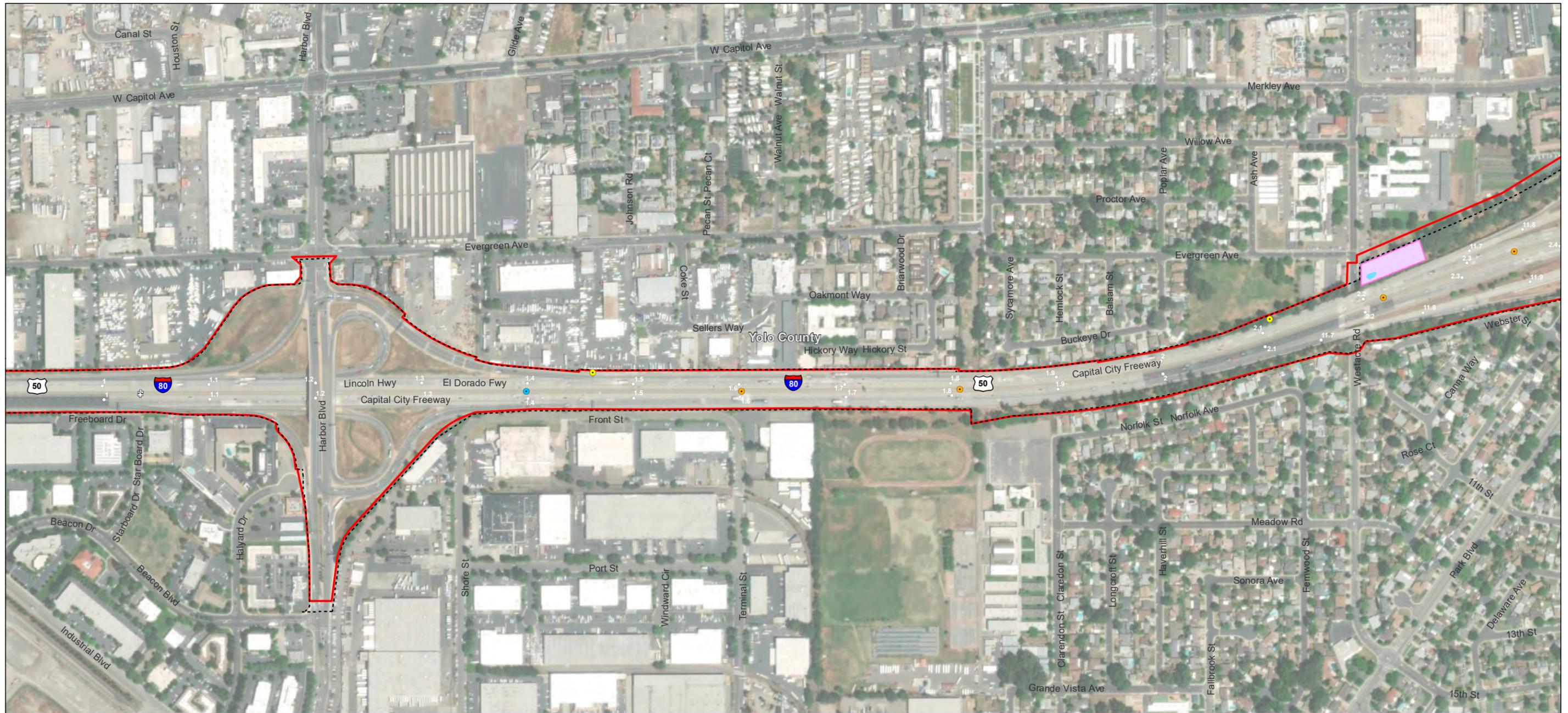
- RW
- ▭ ESL
- Post Mile
- ▭ Intelligent Transportation System Improvement
- ▭ Intelligent Transportation System Improvement Disturbance Area
- ▭ Staging Area
- ▨ Temporary Construction Easement
- County Line
- Signage and Read Point Locations**
- All Alternatives
- Alternatives 3b, 4b, and 5b only
- ⊕ Read Point (Alternatives 3b, 4b, and 5b only)



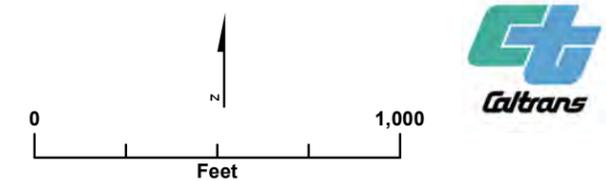
**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 4 of 16

**Notes**  
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



- RW
- ▭ ESL
- Post Mile
- ▭ Trash Rack
- Signage and Read Point Locations**
- All Alternatives
- Alternatives 2b, 6b, and 7b only
- Alternatives 3b, 4b, and 5b only
- ⊕ Read Point (Alternatives 3b, 4b, and 5b only)
- Culverts and Drainage**
- All Alternatives



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

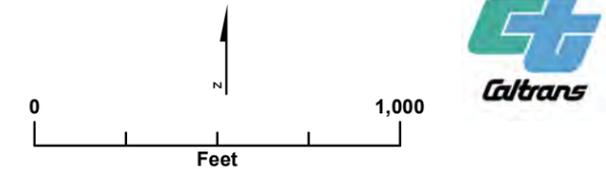
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**Notes**  
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 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- R/W
  - ESL
  - Post Mile
  - Proposed Park & Ride Lot
  - ▨ Permanent Easement
  - ▨ Temporary Disturbance
  - Culvert Work Area
  - Cut-Fill
  - ▨ Temporary Construction Easement
  - I-80 Connector Structure
  - ▨ Cut-Fill Disturbance Area
  - Existing Class I Bikeway
  - Temporary Bike Detour
  - Temporary Bike Detour (eastbound only)
- Signage and Read Point Locations**
- Alternatives 2b, 6b, and 7b only
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)



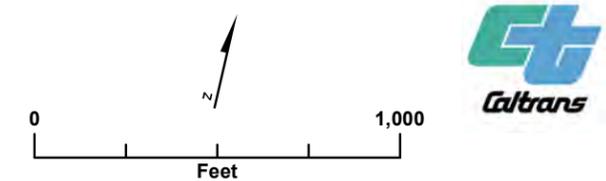
**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 6 of 16

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

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- R/W
  - ▭ ESL
  - Post Mile
  - ▨ Temporary Disturbance
  - Existing Class I Bikeway
  - - - - Temporary Bike Detour
  - ▭ Yolo Bypass Wildlife Area
- Signage and Read Point Locations**
- Alternatives 2b, 6b, and 7b only
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)

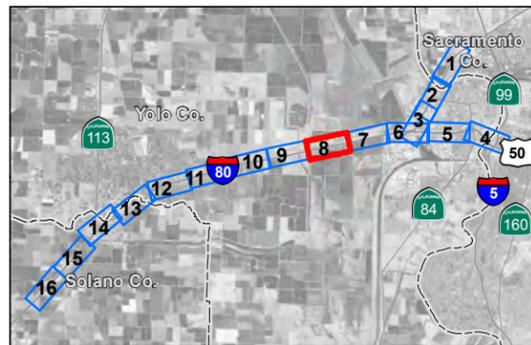


**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

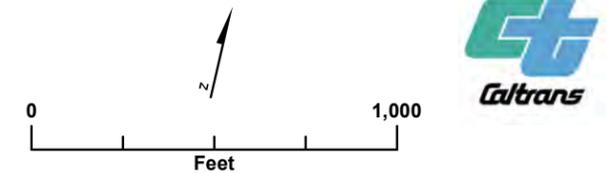
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 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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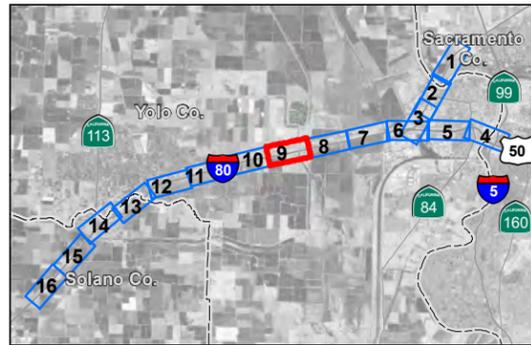
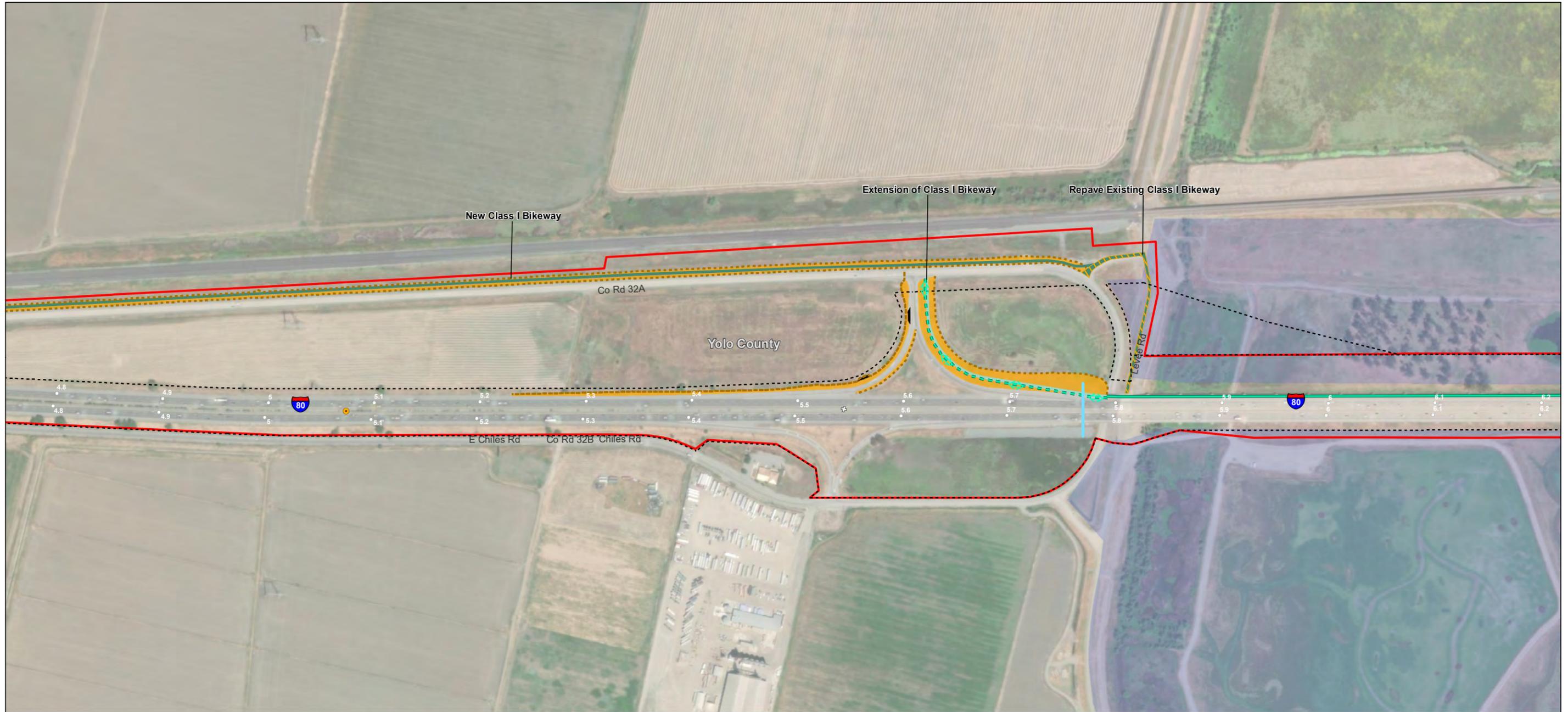
- R/W
  - █ ESL
  - Post Mile
  - █ Existing Class I Bikeway
  - █ Yolo Bypass Wildlife Area
- Signage and Read Point Locations**
- Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

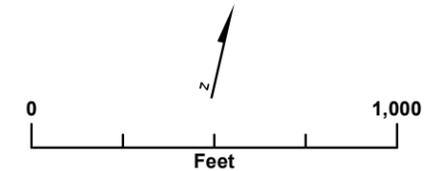
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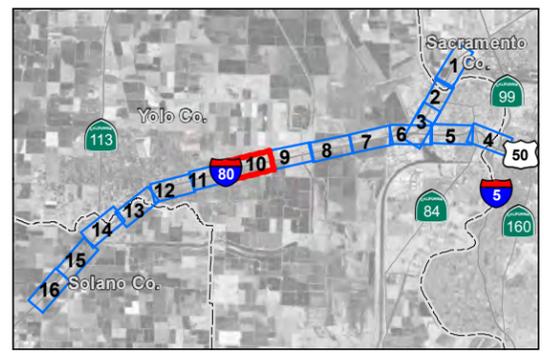
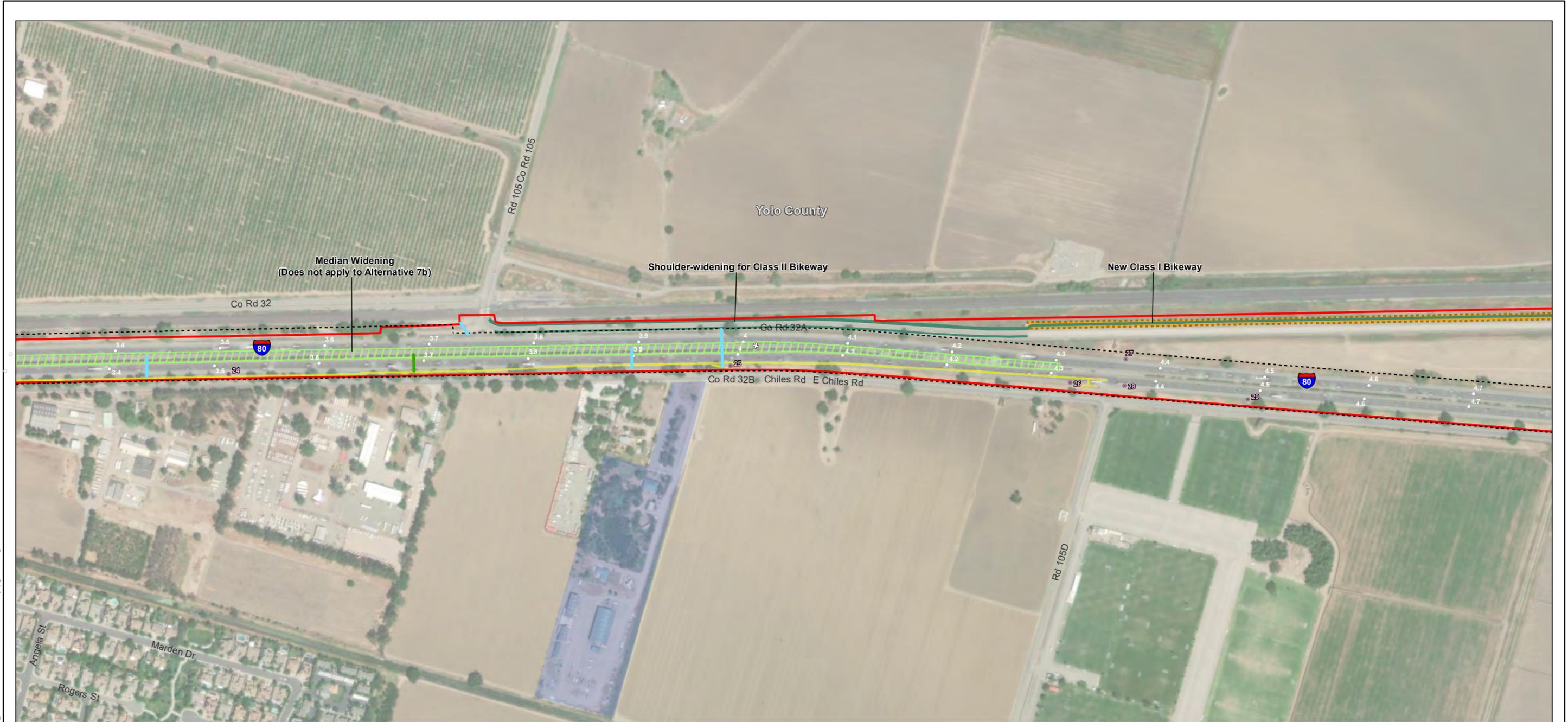
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 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- R/W
- ESL
- Post Mile
- Temporary Disturbance
- Cut-Fill
- Cut-Fill Disturbance Area
- Existing Class I Bikeway
- Extension of Class I and Class II Bikeway
- Extension of Class I Bikeway
- Temporary Bike Detour
- Yolo Bypass Wildlife Area
- █ Pullout
- Signage and Read Point Locations**
- Alternatives 3b, 4b, and 5b only
- ⊕ Read Point (Alternatives 3b, 4b, and 5b only)
- Culverts and Drainage**
- All Alternatives



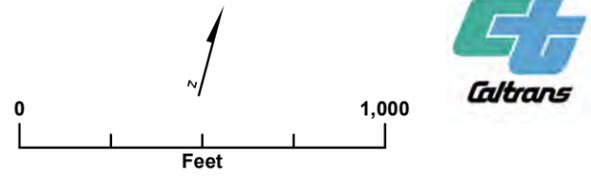
**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



- R/W
- ESL
- Post Mile
- Intelligent Transportation System Improvement
- Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area
- Cut-Fill
- Cut-Fill Disturbance Area
- Widening - Median (Does not apply to Alternative 7b)
- Extension of Class I and Class II Bikeway

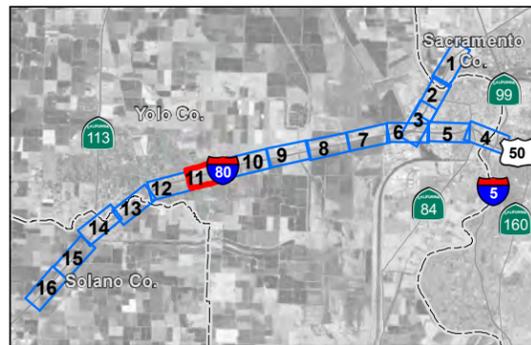
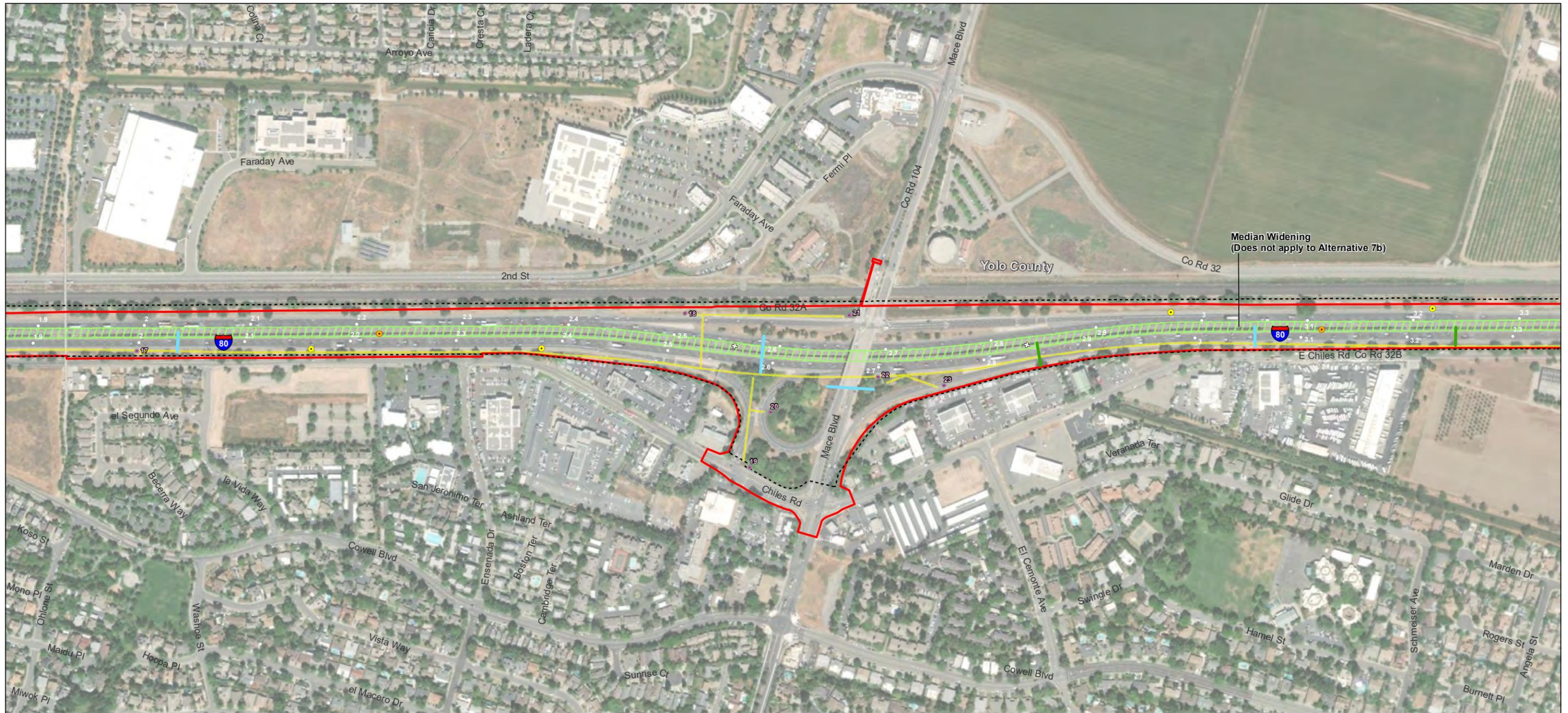
- Yolo Bypass Wildlife Area
- Signage and Read Point Locations**
- Read Point (Alternatives 3b, 4b, and 5b only)
- Culverts and Drainage**
- All Alternatives
- Alternatives 2b-6b



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 10 of 16

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

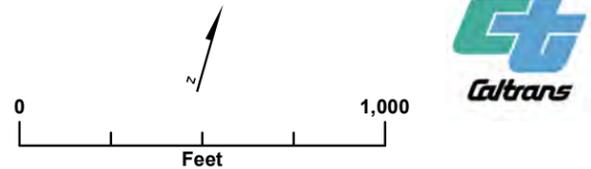
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 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

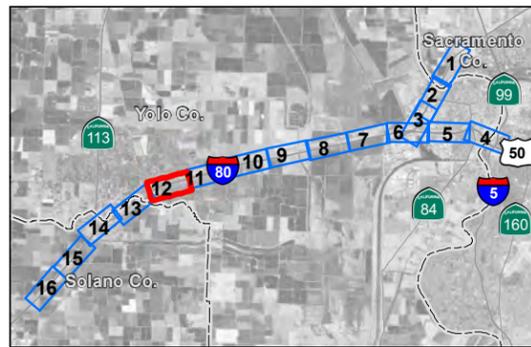
- R/W
  - ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Fiber Optic Cable
  - Fiber Optic Cable Disturbance Area
  - ▨ Widening - Median (Does not apply to Alternative 7b)
- Signage and Read Point Locations**
- All Alternatives
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)

- Culverts and Drainage**
- All Alternatives
  - Alternatives 2b-6b



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

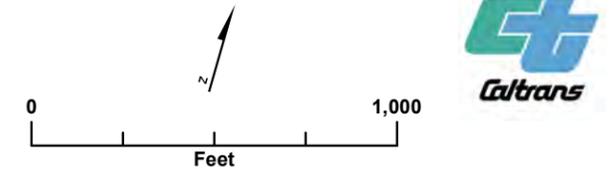
**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



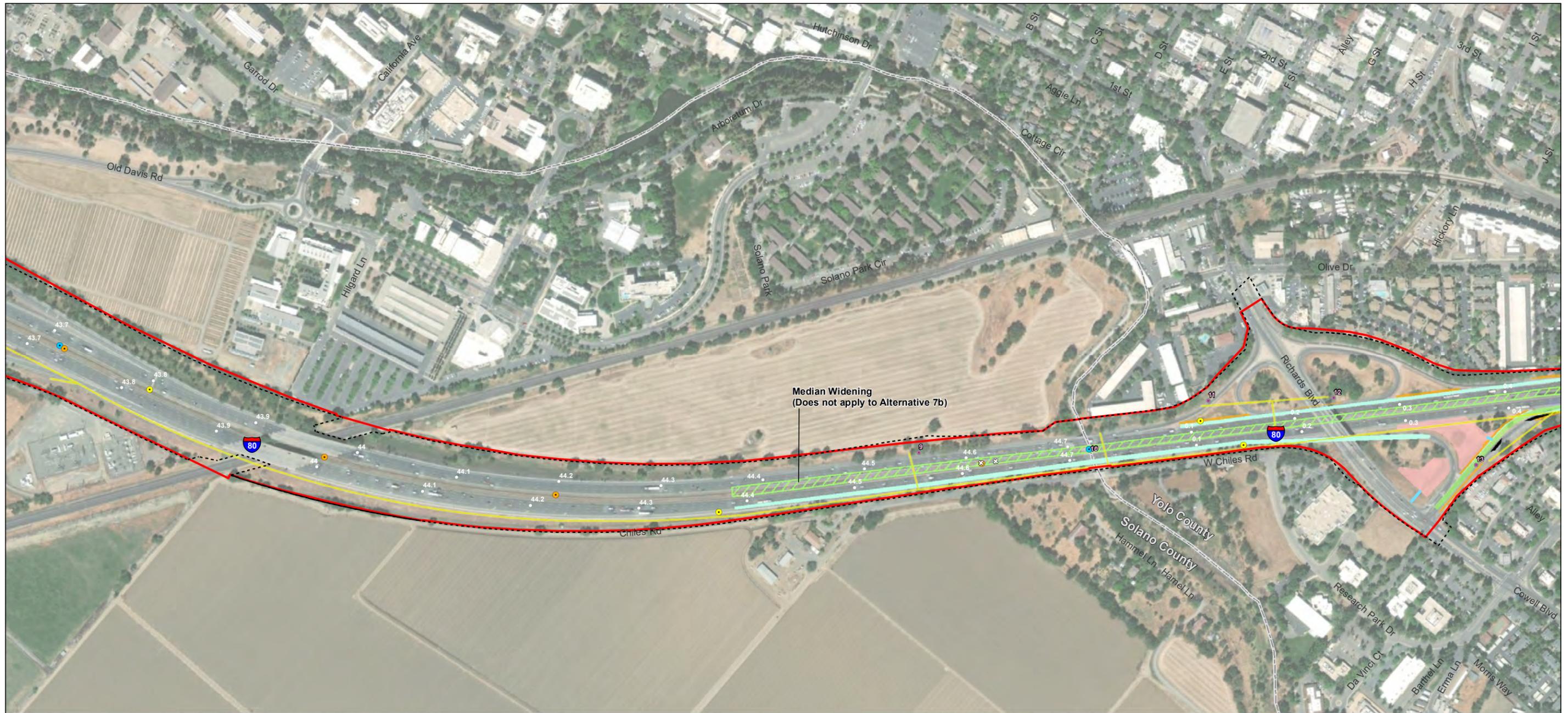
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 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
 2. Data Sources: CalTrans, Stantec, 2021  
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

- R/W
- ESL
- Post Mile
- Intelligent Transportation System Improvement
- Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area
- Cut-Fill Disturbance Area
- Staging Area
- Widening - Outside Lanes/Shoulder
- Widening - Median (Does not apply to Alternative 7b)
- Realigned Richards Blvd On-ramp
- Pullout
- Signage and Read Point Locations**
  - All Alternatives
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)
- Culverts and Drainage**
  - All Alternatives

**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.



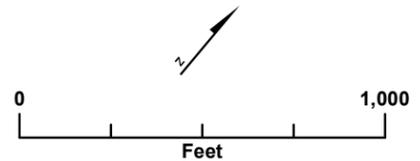
**Figure 1.2-2**  
**Project Design: Build Alternatives 2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 12 of 16



**Notes**  
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet  
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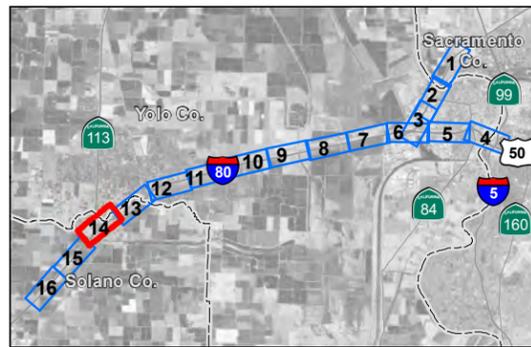
- R/W
- ESL
- Post Mile
- Intelligent Transportation System Improvement
- Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- Fiber Optic Cable Disturbance Area
- Cut-Fill Disturbance Area
- Staging Area
- Widening - Outside Lanes/Shoulder
- Widening - Median (Does not apply to Alternative 7b)
- Realigned Richards Blvd On-ramp
- Pullout
- County Line
- Signage and Read Point Locations**
  - All Alternatives
  - Alternatives 2b, 6b, and 7b only
  - Alternatives 3b, 4b, and 5b only
  - ⊕ Read Point (Alternatives 3b, 4b, and 5b only)
- Culverts and Drainage**
  - All Alternatives

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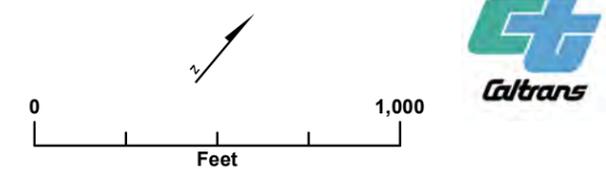
**Figure 1.2-2**  
**Project Design: Build Alternatives 2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California  
 Sheet 13 of 16

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- R/W
  - ESL
  - Post Mile
  - Intelligent Transportation System Improvement
  - Intelligent Transportation System Improvement Disturbance Area
  - Fiber Optic Cable
  - Fiber Optic Cable Disturbance Area
  - Staging Area
  - Pullout
  - County Line
- Signage and Read Point Locations**
- All Alternatives

- Alternatives 2b, 6b, and 7b only
- Alternatives 3b, 4b, and 5b only

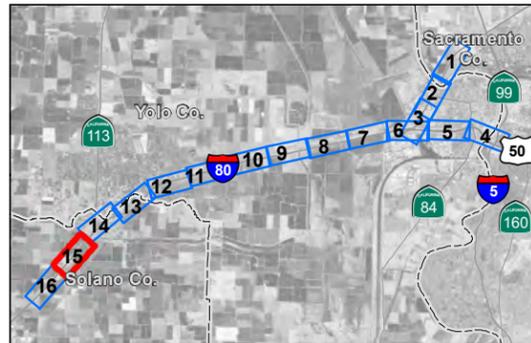
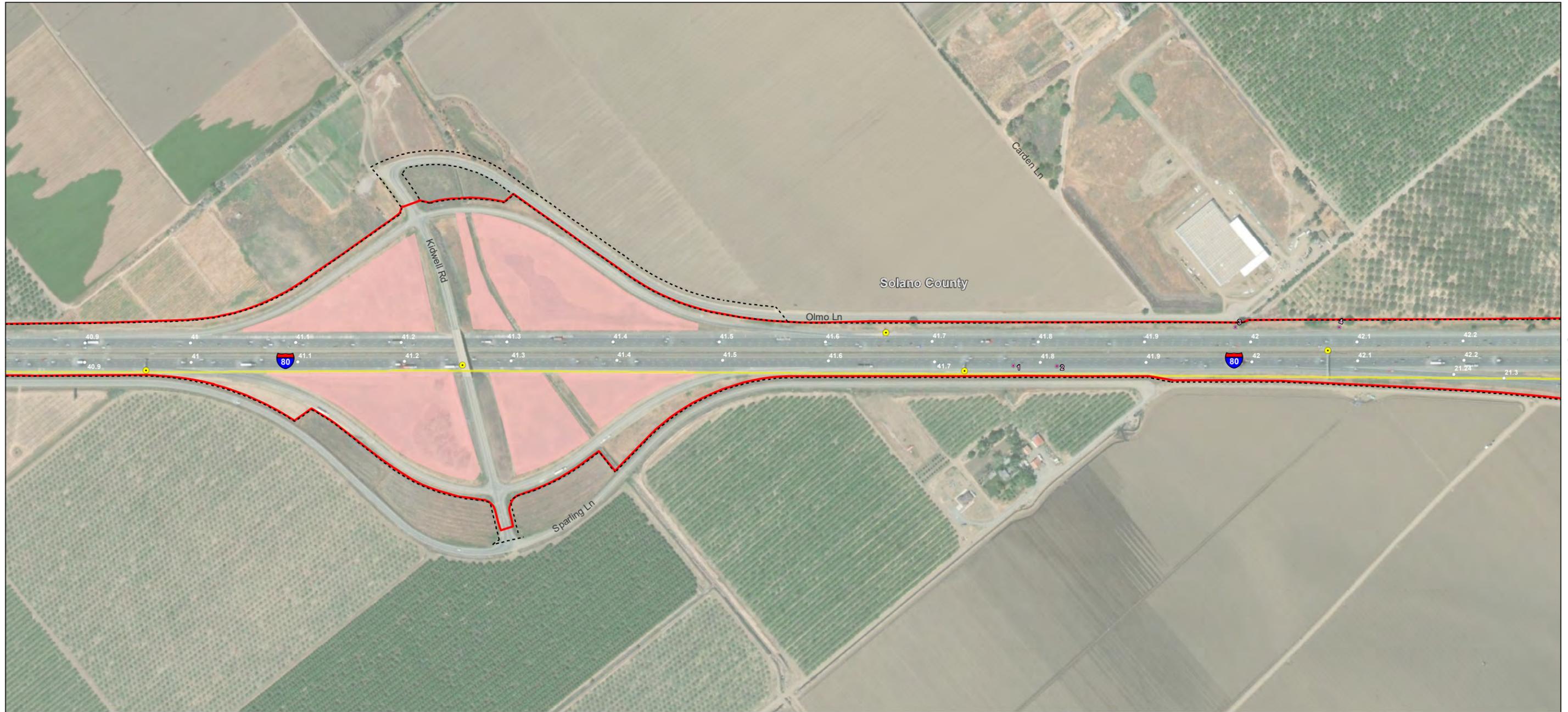


**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
 EA 03-3H900  
 Solano, Yolo, and Sacramento Counties, California

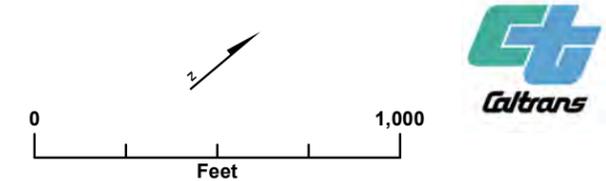
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- R/W
- ▭ ESL
- Post Mile
- ▭ Intelligent Transportation System Improvement
- ▭ Intelligent Transportation System Improvement Disturbance Area
- Fiber Optic Cable
- ▭ Fiber Optic Cable Disturbance Area
- ▭ Staging Area
- Signage and Read Point Locations**
- All Alternatives



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
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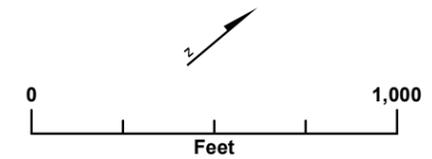
**Note:** The project design components depicted in this figure are preliminary. Proposed surface treatments such as striping are not included.

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- R/W
- ▭ ESL
- Post Mile
- Fiber Optic Cable
- ▭ Fiber Optic Cable Disturbance Area



**Figure 1.2-2**  
**Project Design: Build Alternatives**  
**2b, 3b, 4b, 5b, 6b, 7b**  
 Yolo 80 Corridor Improvement Project  
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## Chapter 2. Regulatory Setting

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Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also result in potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

Cumulative impacts were previously defined under the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA at Title 40 Code of Federal Regulations (CFR) Section 1508.7. The CEQ is responsible for developing federal procedures to comply with NEPA. In July 2020, CEQ comprehensively updated the NEPA regulations, repealing the definition of cumulative impacts (Council on Environmental Quality, 2021). Subsequently, Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (January 2021) directed all agencies to “immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last 4 years that conflict with these important national objectives” to tackle climate change.

CEQA Guidelines, Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. The CEQA definition of cumulative impact refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The Cumulative Impact Study for the project was prepared in compliance with NEPA and CEQA, which require that direct, indirect, and cumulative impacts of proposed actions be assessed and disclosed.

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## Chapter 3. Methods

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This Cumulative Impact Study was developed based on the eight-step process as set forth in Caltrans' Guidance for Preparers of Cumulative Impact Analysis (Caltrans, 2005). The eight-step process is described in the following sections.

### **3.1. Step 1: Identify Resources to Consider in the Cumulative Impact Analysis**

As specified in the Caltrans guidance, if the proposed project would not result in a direct or indirect impact on a resource, the project would not result in a cumulative impact on that resource. This Cumulative Impact Study includes resources that would be significantly impacted by the proposed project, as well as resources that are currently in poor or declining health or that would be at risk even if proposed project impacts were not substantial. Those resources are identified and discussed in Section 4.2.

### **3.2. Step 2: Define the Resource Study Area**

Cumulative impacts are considered within spatial (geographic) and temporal boundaries, starting from the past when the resource was first affected, to a designated point in the future (reasonably foreseeable future). The temporal boundaries for each resource are discussed in Steps 3 and 5 below. The geographic boundaries of the resource study area (RSA) for each resource were considered by consulting with technical resource specialists. A unique RSA was identified for each resource, rather than a single consolidated study area.

### **3.3. Step 3: Describe the Current Condition and Historical Context of Each Resource**

This step includes a description of the current health, condition, or status of the resource, and provides the historical context for understanding how the resource got to its current state. The information in the "Affected Environment" section of the project's environmental document is used as a starting point. Recent trends affecting the resource are described to provide an understanding of the current condition of the resource.

The historical context of the resource is also provided, with the past temporal boundary varying for each resource depending on when the resource was first affected. Key patterns or activities in the past that influenced each resource are described, which are often notable changes to the region's land use or demographic patterns.

### **3.4. Step 4: Identify Direct and Indirect Impacts That Might Contribute to a Cumulative Impact**

This step includes a description of the impacts that the project alternatives would have on the resources identified in Step 1. The environmental study limits and project components are largely the same for all Build Alternatives. However, the cumulative impact analysis in Chapter

4 will assess the impacts for each resource area and describe any notable differences between the Build Alternatives.

### **3.5. Step 5: Identify Other Reasonably Foreseeable Future Actions That Affect Each Resource**

This step includes identifying other current and reasonably foreseeable future actions to be considered in the cumulative impact analysis. The future temporal boundary was identified as approximately 20-years into the future based on the horizon year for the project, which is the year 2041.

While an RSA has been identified for each resource, a Cumulative Impacts Study Area (study area) was selected to identify other present or reasonably foreseeable future actions. The study area is generally bounded I-80 and US-50 from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and I-5 on US-50 in Sacramento County. The boundaries of the study area were delineated by reviewing the area within a 0.5 to 4-mile radius of the project area, and then adjusting the boundaries based on major roadways and land use/neighborhood boundaries (see Figure 4-1).

The current and reasonably foreseeable future actions used in this Cumulative Impact Study were provided by the Caltrans Project Development Team, which included members from the cities of Davis, West Sacramento, Sacramento, and the Sacramento Area Council of Governments.

Section 15130(b)(1) of the CEQA Guidelines provides two methods for analyzing cumulative impacts. The List Approach identifies all “past, present, and probable future projects contributing to the cumulative impact,” while the Projection Approach relies upon adopted general planning or related planning documents to project the impacts of future development. For the purposes of this cumulative impact analysis, both approaches were utilized to analyze cumulative effects; the List Approach captures the major transportation and development projects within the study area, and the Projection Approach captures all the major remaining planned and programmed projects within the study area. Figure 3-1 and Table 3-2 (at the end of this chapter) show the current and reasonably foreseeable actions, including relevant transportation and development projects in the study area. Projects that are located outside of the study area were screened out of the analysis.

### **3.6. Step 6: Assess Potential Cumulative Impacts**

This step includes a description of whether the proposed project, in combination with other actions, would affect the health of each resource or a trend associated with the resource. The discussion includes an assessment of the severity or magnitude of the cumulative impact. A conclusion is provided as to whether impacts would be cumulatively adverse or beneficial.

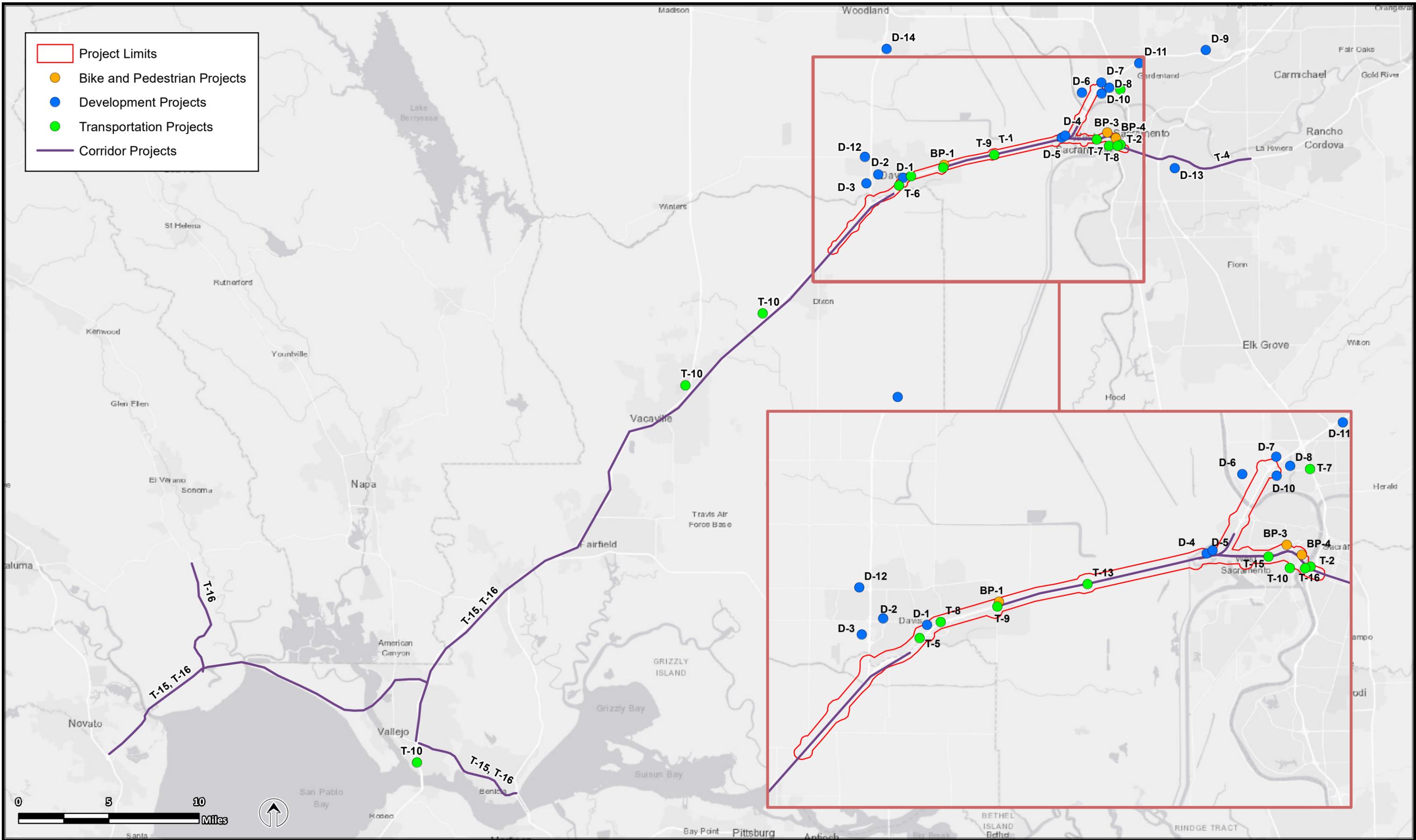
### **3.7. Step 7: Report the Results**

Chapter 4 of this document fulfills the reporting requirements of the cumulative impact analysis. For each resource discussed in Section 4.3, the cumulative impact analysis is organized as follows, in accordance with the Caltrans guidance:

- Resource Study Area
- Current Condition and Historical Context
- Project Impacts
- Current and Reasonably Foreseeable Future Actions
- Cumulative Impacts
- Avoidance, Minimization, and/or Mitigation Measures

### **3.8. Step 8: Assess the Need for Mitigation**

This step includes identifying mitigation for cumulatively considerable impacts. Mitigation measures for cumulative impacts may require participation from multiple resource agencies and jurisdictions and may be outside the scope of the project. However, where feasible, recommendations are provided on future actions that could be taken to influence the sustainability of the resource.



Sources: ESRI 2023.

**FIGURE 3-1 RELEVANT FORSEEABLE PROJECTS Yolo 80 Corridor Improvement Project**

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**Table 3-2 List of Relevant Foreseeable Projects**

<b>Project ID</b>	<b>Project Name</b>	<b>Jurisdiction</b>	<b>Location</b>	<b>Project Description</b>	<b>Status</b>
<b>Transportation Projects</b>					
T-1	Yolo Pavement Rehabilitation Project 03-4F650	Caltrans District 3	Yolo 80 PM 4.3/R11.4 and Yolo 50 PM 0.0/2.5	This project proposes constructing the median on the I-80 West Capitol Avenue Under Crossing (UC) and the I-80 Reed Avenue UC bridges to accommodate stage construction. Additionally, the 03-4F650 project proposes improvements for critical bridge locations within the corridor to upgrade deck surfaces, approach slabs, and slope paving. The proposed median improvement occurs throughout most of the project to accommodate for stage construction. The median concrete barrier will remain in place at other locations, and the median restriped as part of the 3H900 project to provide managed lanes, with one managed lane in each direction. The project proposes new fiber-optic lines throughout, along with some ramp metering and upgrades to other existing roadway features. These Fiber Optic lines will improve the ITS monitoring capability within the corridor.	Planned construction March 2023 to December 2027.
T-2	Sac River Bridge Over Head Bryte Bend Bridge Rehabilitation 03-0F250	Caltrans District 3	Yolo 80 PM R11.1/R11.7 and Sac 80 PM M0.0/M0.5: In Yolo and Sacramento Counties and near West Sacramento from 0.1 miles west of Reed Avenue UC to 0.1 miles east of Bryte Bend Bridge.	This project proposes to rehabilitate the Sacramento River Bridge and Overhead (BOH), Br.# 22-0026 L/R, on I-80 at the Yolo/Sacramento County Line in West Sacramento about three miles west of I-5. The project will rehabilitate the Sacramento River Bridge, OH, including replacing the bridge rail, replacing the deck drain system, building barrier pedestals for future electroliers, and installing conduits.	Construction completed in January 2023.

<b>Project ID</b>	<b>Project Name</b>	<b>Jurisdiction</b>	<b>Location</b>	<b>Project Description</b>	<b>Status</b>
T-3	US 50 ICM Infrastructure 03-3H330	Caltrans District 3	US-50 in El Dorado County from the El Dorado County/Sacramento County line to Stateline Avenue in the City of South Lake Tahoe	This project is on US-50 in and near the cities of Sacramento, Rancho Cordova, and Folsom, from the Yolo/Sacramento County line to Folsom Boulevard; and in Yolo County in West Sacramento along US-50, from the I-80/US-50 interchange to the Yolo/Sacramento County line (PM 0.0 to 3.156), and on I-80 from Enterprise Boulevard to US-50 (PM 9.2 to R9.552). Installation of TMS field elements.	Planned construction September 2021 to December 2023.
T-4	Sac 50 Design-Build 03-0H08U	Caltrans District 3	Sacramento, Sacramento River bridge, Airport Boulevard, SR-99, I-80, US-50	In Sacramento County on the US 50 from PM L0.20 to PM R6.10, from the I-5 Junction to Watt Avenue. The project proposes to construct managed lanes and rehabilitate the pavement.	Construction anticipated to be complete in December 2024.
T-5	Richards Boulevard / Olive Drive Circulation Improvements 03-0H360	City of Davis	Sol 80 PM 44.5/44.7 and Yolo 80 PM 0.0/0.5	City of Davis, in cooperation with Caltrans, has completed a Project Study Report-Project Development Support and will be circulating Draft Project Report / Environmental Document in Early 2022 that evaluates the safety and operational functions of the interchange at Richards Boulevard and I-80. City of Davis project proposes to reconfigure the westbound I-80 off-ramp and westbound I-80 on-ramp to a tight diamond; construct additional turn lanes to the eastbound I-80 on-ramp; eliminate the westbound I-80 slip off-ramp to Olive Drive; construct a two-way shared use path on the west side of Richards Boulevard that will pass under the westbound I-80 on-ramp from Richards Boulevard and cross over I-80.	Planned construction December 2023 to June 2025.
T-6	US 50 Metal Beam Guardrail Upgrade 03-1H870	Yolo County	US 50 from PM 0.0 to 3.0 and on I-80 from PM 9.0 to R10.7	The project will replace the guardrail and place vegetation control.	Construction completed December 2021.

Project ID	Project Name	Jurisdiction	Location	Project Description	Status
T-7	Sac/Placer 80 Fiber Optics 03-0H540	Sacramento County	Sac PM M0.3/18.0 & Pla 80 PM 0.0/0.7	Install Fiber Optic Conduit, Cable and pull boxes, replace sign panels, transition railing, modify ramp metering systems. limits proposed fiber optic conduits and pull boxes along the I-80 median and eastbound I-80 outside shoulder, along westbound I-80 diagonal and loop onramps from West El Camino Ave, along eastbound I-80 off-ramp to West El Camino Real Ave and eastbound I-80 loop on-ramp from West El Camino Real.	Construction completed August 2022.
T-8	Yol 80 Olive Drive Bike/Ped connection 03-4H260	City of Davis	PM 0.841/0.851	Bike/Ped structure from Olive Hill Lane to Pole Line RD OC bridge. Closure of eastbound I-80 off-ramp to Olive Hill Road.	Planned construction January 2021 to June 2023.
T-9	Yol 80 Davis 80 Rehabilitation project 03-2J260	City of Davis	PM 0.0/4.40	Remove portion of pavement and replace with RHMA-G and RHMA-O for I-80 mainline and Mace Blvd ramps. Upgrade Mace Blvd drainage facilities, metal beam guard rail, cross walks, ADA ramps an pedestrian push buttons. Install HOV ramp metering systems at Mace Blvd eastbound on-ramps to I-80. Project Initiation Document was signed December 2022.	Planned construction May 2027 to May 2028.
T-10	Sac 5/50 Interchange Painting 03-1H100	City of Sacramento	Sacramento River Viaduct (Pioneer Bridge) to 4th Street; also, on I-5 from 0.2 miles south of Broadway to S Street (PM 22.15 to PM 22.91).	Proposed painting at interchange on Sacramento River Viaduct and on I-5.	Construction completed February 2023.
T-11	Sycamore Trail Pedestrian Overcrossing 03-3H840	City of West Sacramento	City of West Sacramento	City of West Sacramento plans to construct a trail and pedestrian crossing over US-50 that will extend south from the newly developed pedestrian and bicycle trail at Joseph "Joey" Lopes Park to Westmore Oaks Elementary School. The project site is located between Evergreen Avenue and Stone Boulevard along the Sacramento Regional County Sanitation District lower northwest interceptor sewer easement. The width of the overcrossing would be either 16 or 22 feet.	Planned construction March 2023 to April 2024.

Project ID	Project Name	Jurisdiction	Location	Project Description	Status
T-12	Yolo Rail Relocation	City of Davis, along with City of West Sacramento, City of Woodland and Yolo County	City of Davis, City of West Sacramento, City of Woodland, and Yolo County	The Yolo Rail Realignment Project proposes to relocate the existing rail access from the Union Pacific Railroad mainline current alignment along the eastern edge of West Sacramento to a new location west of the I-80/US-50 split. The project will allow for the West Sacramento riverfront to fully realize its redevelopment potential, alleviate significant traffic impact from the existing freight rail alignment, and provide for the opportunity to expand freight rail service to West Sacramento's industrial areas with minimum community impact. It has been proposed to combine a new railroad overhead under I-80 as part of the combined projects 03-4F650 and 03-3H900 between the Yolo Causeway and Enterprise Boulevard to tie into existing tracks leading to/from the Port of West Sacramento.	Planning phase
T-13	County Road 32A Crossing	Yolo County	CR-32A is located north of I-80 and east of the Mace Boulevard interchange	CR-32A to improve bike path connectivity between CR-105 (just east of Davis) and the western terminus of the proposed new Class I bicycle/pedestrian facility of the Managed Lanes Project (03-3H900) that will connect with CR-32A, just west of the westbound CR-32A Off-Ramp. The County recently completed a Project Study Report and is seeking funding for this project.	Planning Phase
T-14	Bridge Preventive Maintenance on Route 505 at Horse Creek Bridge and on Route 80 at McCune Creek Bridge	Caltrans District 4 SHOPP Projects	Vacaville (Solano I-505 and I-80)	In and near Vallejo, Dixon, and Vacaville, at I-80/SR-29 Separation Bridge (No. 23-008), McCune Creek Bridge (No. 23-0084L/R) and Horse Creek Bridge (No. 23-0077L). Bridge preventative maintenance.	Environmental analysis completed in December 2020.
T-15	SOL SR 37, 80 & 780 RRFB 0P760; SOL-Var. 2020 SHOPP	Caltrans District 4 SHOPP Projects	Solano County, Various post markers	Install rectangular rapid flashing beacons in Solano County on various routes (Routes 37, 80, and 780) at various locations.	Construction anticipated to begin in 2022/2023

<b>Project ID</b>	<b>Project Name</b>	<b>Jurisdiction</b>	<b>Location</b>	<b>Project Description</b>	<b>Status</b>
T-16	SOL-VAR; 2020 SHOPP	Caltrans District 4 SHOPP Projects	Solano County, Various post markers	Install best management practices (stormwater mitigation) at Routes 37, 80, 780, 101, and 121.	Construction anticipated to begin 2023/2024
<b>Bicycle and Pedestrian Facility Projects</b>					
BP-1	Mace Boulevard Corridor Project	City of Davis	City of Davis	Addition of green bicycle lane conflict markings where each westbound freeway ramp intersects with Mace Boulevard. Provision of bicycle intersection crossing markings at the signalized intersection of the I-80 westbound ramps and Mace Boulevard and addition of green bike lane conflict markings where each eastbound freeway ramp intersects with Mace Boulevard.	Planning phase; community meeting to be held on January 20, 2022.
BP-3	Jefferson Boulevard interchange area	City of West Sacramento	City of West Sacramento	Addition of Class II bicycle lanes. The pavement on Jefferson under the US 50 interchange structure was not widened for bicycle lanes. The pavement was recently rehabilitated as part of the West Capitol Avenue Safety Enhancement and Road Rehabilitation project.	Project construction complete.
BP-4	S. River Road interchange area	City of West Sacramento	City of West Sacramento	The widening of 5 <sup>th</sup> Street for Class II bicycle lanes through the US 50 interchange area will be constructed as part of the Riverfront Street Extension / Fifth Street Widening project.	Construction to begin soon.
<b>I-80 Corridor Major Developments/General Plans/Specific Plans</b>					
D-1	Olive Drive	City of Davis	City of Davis	The project would develop existing single-family homes to high density multi-family apartments.	Environmental documents approved in November 2019
D-2	University Mall/ University Commons Redevelopme nt Project	City of Davis	City of Davis	Transit-oriented infill project, commercial and residential.	Final City Council Approval granted on August 25 <sup>th</sup> , 2020
D-3	U.C. Davis West Village Expansion	U.C. Davis	City of Davis	200-acre mixed use neighborhood integrating student, faculty, and staff housing and educational and research facilities, all centered on a civic village square.	Under construction, anticipated completion in fall of 2021

<b>Project ID</b>	<b>Project Name</b>	<b>Jurisdiction</b>	<b>Location</b>	<b>Project Description</b>	<b>Status</b>
D-4	West Sacramento Corporation Yard Relocation Project	City of West Sacramento	City of West Sacramento	West Sacramento proposes to construct a new Municipal Corporation Yard Facility at 4300 West Capitol Avenue, a parcel which the city anticipates purchasing from the Port of West Sacramento.	Phase I of the project is complete.
D-5	West Capitol Avenue - Road Rehabilitation and Safety Enhancement Project	City of West Sacramento	City of West Sacramento	West Capitol Avenue is envisioned as the West Sacramento 's Downtown: a central core with a vibrant main street that takes advantage of its prime location; providing an attractive setting for a variety of land uses including the Civic Center, Community Center, Transit Hub; and providing residential, commercial and urban parks that are accessible via multiple modes of transportation. The primary goals are to repair deteriorating pavement; complete scalloped street sections; install drainage improvements, sidewalks, access ramps, signal modifications, separated/buffered bike lanes, street lighting, high-visibility crosswalks for safer pedestrian crossings; and reduce unnecessary vehicular travel lanes.	Construction is complete.
D-6	Upper Westside Specific Plan	Sacramento County	Sacramento County	The project will be a transportation-oriented development due to its location and proximity to transportation infrastructure and major employment regions in the region. It will also incorporate many "complete streets" aspects such as pedestrian- and bicycle-friendly infrastructure, transit services, and some compact housing to encourage alternative modes of transportation within the area. The project area is currently zoned for agricultural use, but a general plan amendment is underway to alter the land use designations for the Upper Westside Plan area.	Application accepted on February 26th, 2019. Environmental analysis in progress.
D-7	The Core Natomas 300-unit Apartments	City of Sacramento	City of Sacramento	This project provides a 300-unit apartment complex with 506 parking spaces (including 203 garage types), two accesses (orchard and via planned cul-de-sac).	Construction completed in 2020.
D-8	River Oaks Phase 2 - 591 Single Family	City of Sacramento	City of Sacramento	This project provides 591 single-family lots on 83.3 acres of vacant land within the River Oaks Planned Unit Development.	Planning phase; environmental documents submitted in 2018.

<b>Project ID</b>	<b>Project Name</b>	<b>Jurisdiction</b>	<b>Location</b>	<b>Project Description</b>	<b>Status</b>
D-9	Bell Avenue Warehouses Project	City of Sacramento	City of Sacramento	The proposed project would include development of the project site with two warehouse structures totaling approximately 339,549 sf as well as various other site improvements related to internal vehicle circulation, stormwater management, and landscaping. The warehouse situated on the eastern parcel would be approximately 259,749 sf and contain two depressed loading docks on the western face of the building. The warehouse on the western parcel would be approximately 79,800 sf and contain two depressed loading docks on the western face of the building. On-site parking would be provided by 277 proposed parking spaces.	Planning phase; environmental documents submitted in February 2020.
D-10	Rivers Oaks Marketplace	City of Sacramento	City of Sacramento	There is a plan amendment for four new commercial structures on a 3.91-acre parcel in the C-2-PUD (General Commercial-Park El Camino) Zone. This requires a Commission-level review for site plan and design review, conditional use permits, a tentative map, and a Planned unit development Schematic Plan Amendment.	Project construction would be anticipated to last approximately 16 months, beginning in April of 2021 and concluding in July of 2022. Construction would proceed in a single phase.
D-11	ParkeBridge Phase 4	City of Sacramento	City of Sacramento	The project proposes to construct 108 new detached, single-unit dwellings with four house plans on approximately 22 acres in the ParkeBridge Planned Unit Development.	Sub-division is currently under development

Project ID	Project Name	Jurisdiction	Location	Project Description	Status
D-12	Bretton Woods	City of Davis	City of Davis	Davis is annexing land from Yolo County and rezoning land from agricultural intensive to medium density residential, high density residential, residential greenspace overlay, urban agriculture transition area, and mixed use. This will pave the way for 325 single-family homes, 260 of which are for senior citizens, and an additional 150 are affordable senior apartments. The project also includes an approximately 3-acre activity and wellness center. The project is on a site north of Covell Boulevard and west of SR-113, at the intersection of Shasta Drive and West Covell Boulevard.	Currently undergoing planning review of the subdivision phases.
D-13	U.C. Davis Long Range Development Plan	University of California, Davis	Sacramento, located off US-50 near the Highway 99/Business 80 interchange	The 2020 LRDP Update proposes general types of campus development and land uses to support projected campus population growth and enable expanded and new program initiatives. The proposed Aggie Square Phase I project consists of approximately 1,384,500-gross square feet of building space for education, research, residential and commercial uses and parking structure space.	Planning phase; environmental documents submitted in November 2020.
D-14	Woodland Research & Technology Park Specific Plan	City of Woodland	City of Woodland	Woodland is pursuing a specific plan detailing a commercial mixed-use town center with 2.15 million square feet of non-residential building space for approximately 6,100 employees and 1,600 housing units. The project is located in the southern portion of Woodland's planning area, adjacent to the existing city limits, in an area bound by Farmers Central Road to the north, CR-101 to the east, SR-113 to the west, and CR-25A to the south.	Environmental analysis in progress.

## Notes:

CCTV = closed-circuit television

CMS = changeable message signs

CR = County Road

I-80 = Interstate 80

LRDP = long-range development plan

sf = square feet

SHOPP = State Highway Operation and Protection Program

SR = State Route

TCE = temporary construction easement

TMS = transportation management system

U.C. = University of California

US-50 = U.S. Route 50

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## **Chapter 4. Cumulative Impact Analysis**

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### **4.1. Current and Reasonably Foreseeable Future Actions**

The project limits are generally bounded by the I-80 corridor between PMs 40.7 and 44.7 in Solano County, between PMs 0.00 and 11.72 in Yolo County, and between PMs 0.00 and 1.36 in Sacramento County; and US-50 between PMs 0.00 and 3.12 in Yolo County and between PMs 0.00 and 0.617 in Sacramento County. The study area for each resource varies and is described individually in Sections 4.3.1 through 4.3.19. At a minimum, the resource study area includes the project limits, including areas required to accommodate construction activities, mobilization, staging, and access, such as city-owned areas where ROW acquisition and TCEs.

The current and reasonably foreseeable future actions are listed in Table 3-2. The table may not be an exhaustive list of every planned project within the study area cities and communities, but the list contains projects that have the possibility of contributing to a cumulative effect because 1) the projects would result in similar permanent impacts within the Yolo I-80 Corridor Project RSAs, or 2) would be constructed within the same time period as the project and may therefore result in temporary impacts at the same time and/or location as the Yolo I-80 Corridor Improvement Project construction.

### **4.2. Resources Excluded from Cumulative Impact Analysis**

As part of the scoping and environmental analysis carried out for the Project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

#### **4.2.1. Existing And Future Land Use**

Project improvements would mostly occur within the existing Caltrans ROW and would not result in any direct changes to land use adjacent to the Project area. Under all Build Alternatives, there would be some TCEs and staging outside of the Caltrans ROW including one small area of permanent ROW acquisition under Build Alternatives 2a through 7b. The area of proposed permanent ROW acquisition is currently undeveloped, vacant land; and would not result in the displacement of any residences or businesses. Therefore, the project is not expected to result in cumulatively considerable impacts on land use.

#### **4.2.2. CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS**

Project related construction activities would be temporary and would not result in long-term effects that would conflict with state, regional, and local plans. Therefore, the project would not contribute to temporary cumulative impacts related to consistency with state, regional, and local plans.

### **4.2.3. FARMLANDS**

Build Alternatives 2a through 7b would include one permanent acquisition ROW for construction of a Park-and-Ride Facility; however, the property is currently vacant, undeveloped land that is not categorized as an agricultural or farmland area. The alternatives with additional lanes in each direction would only expand into existing Caltrans ROW. Therefore, the project would not result in cumulatively considerable impacts from the conversion of any important farmland or Williamson Act land to non-agricultural uses.

### **4.2.4. POPULATION AND HOUSING**

Build Alternatives 2a through 6b would accommodate planned regional growth but would not remove any impediments to growth, provide new public facilities, or provide new access to previously unserved areas. Build Alternatives 7a and 7b would repurpose existing lanes as managed lanes and would not add capacity. However, Alternative 7b would include the construction of the I-80 connector ramp, which would add operational capacity. Under all Build Alternatives, no residential property acquisition or relocation would be required. Project related construction would occur primarily within the existing Caltrans ROW and would require acquisition of a vacant parcel to construct a Park-and-Ride Facility. The Project would not affect land uses, residential or commercial property, or any minority residences or businesses. There would be no disruption or effect on the existing community features in the surrounding areas. Therefore, the project is not expected to result in cumulatively considerable impacts on regional population and housing.

### **4.2.5. ECONOMIC CONDITIONS**

All Build Alternatives are anticipated to have a positive impact on the regional economy by improving access, travel time, and highway capacity. There would be no adverse effects on the regional economy, such as acquiring or relocating businesses, changing property or sales tax revenue for the cities or counties involved, or altering property values. Therefore, the project is not expected to result in cumulatively considerable impacts on economic conditions.

### **4.2.6. PLANT SPECIES**

The RSA was determined to have potential habitat for 25 special-status plant species. However, focused botanical surveys conducted in May and August 2021 and July 2022 found no special status plant species within the RSA. Construction activities associated with the Project would not result in permanent or temporary disturbances of potential habitat for special status plant species. Therefore, the project is not expected to result in cumulatively considerable impacts on special-status plants.

### **4.2.7. INVASIVE SPECIES**

According to the ratings in the California Invasive Plant Inventory produced by California Invasive Plant Council (Cal-IPC), there are currently 45 invasive plant species within the BSA

(CAL-IPC, 2021). Cal-IPC categorizes non-native invasive plants into three categories of overall negative ecological impact in California: High, Moderate, and Limited. Invasive species found in the RSA with a Cal-IPC rating of “High” include seven species, 20 species with a rating of “Moderate”, and 18 species with a rating of “Limited”. The Project could result in the spread of invasive species during Project construction through ground-disturbing activities, improper disposal of graded and excavated soils on-or off-site, or landscaping with invasive species. To prevent the spread of invasive species, Caltrans Standard Specification 14-6.05A(1) will be included in the contract. Section 14-6.05A(1) includes specifications for preventing the introduction and spread of invasive species to and from the job site. Therefore, the potential for spread of invasive species is very low with implementation of Caltrans Standard Specifications. Therefore, the Project is not expected to result in cumulatively considerable impacts related to invasive species.

### **4.3. Resources Subject to Cumulative Impact Analysis**

#### **4.3.1. PARKS AND RECREATION**

The information in this section is based on the Community Impact Assessment (CIA) (Caltrans, 2023) and Section 4(f) (Caltrans, 2023) completed for the project.

#### **Resource Study Area**

The RSA for land use includes the project limits plus a 1,000-foot buffer. The RSA includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange. The RSA includes the population most likely to experience direct impacts and indirect associated with the project’s direct physical improvements.

#### **Current Condition and Historical Context**

The RSA is in Solano, Yolo, and Sacramento counties. The RSA is located within an existing transportation corridor and is adjacent to a variety of land uses, including residential, commercial, agriculture, industrial, public, open space, and recreational uses.

As shown in Table 2-3 and Figure 2-2 of the CIA, there are 12 existing parks and recreation facilities present within the RSA.

Bike and pedestrian facilities located within the RSA include the Yolo Causeway, a 3.5-mile bridge over the Yolo Bypass, was constructed in 1916. The Yolo Causeway Bike Path is a Class I bike path that runs along the I-80 from West Sacramento to County Road 32A near the City of Davis. As a Class I bike path, it offers cyclists a safe, separated lane for bicycle travel. Access to the bike path is currently very limited with only three entrance and exit points

to the Yolo Causeway Bike Path. Except for the Yolo Causeway bike path, I-80 and US-50 in the Project area do not provide bicycle and pedestrian facilities; bicycle and pedestrian facilities are on surface streets and other paths within the RSA.

Other bicycle and pedestrian facilities within the RSA are located at several interchanges within the cities of Davis and West Sacramento and within unincorporated areas of Solano County. Bicycle and pedestrian facilities located within some of the interchanges consist of sidewalks, a Class I bicycle trail, Class II bike lanes, a Class IV cycle track, and shared-use paths that serve commercial and residential areas. Interchanges that feature bicycle and pedestrian facilities include:

- Old Davis Road Interchange Area
- Richards Boulevard Interchange Area
- Pole Line Road and Dave Pelz Bike Overcrossing Areas
- Mace Boulevard Interchange Area
- County Road 32 Interchange Area and the Yolo Causeway Bicycle Path
- Enterprise Boulevard/W. Capitol Avenue Interchange Area
- Jefferson Boulevard Interchange Area
- S. River Road Interchange Area
- Reed Avenue Interchange Area
- W. El Camino Avenue Interchange Area

### **Project Impacts**

The project would occur mostly within the existing Caltrans ROW. Seven of the park and recreation facilities identified in Table 2-3 of the CIA (River Otter Park, Meadowdale Park, Westacre Park, Roland Hensley Bike Park, Yolo Bypass Wildlife Area, Putah Creek Riparian Reserve, and UC Davis Arboretum and Public Garden) are located adjacent to the Project area and, therefore, would be subject to indirect air quality and noise impacts during construction of all Build Alternatives. The “b” alternatives would require a longer construction period than the “a” alternatives, so the “b” alternatives would result in indirect air quality and noise impacts for a longer period. Build Alternative 7 would require a shorter construction duration as compared to Build Alternatives 2 through 6, thereby resulting in a shorter duration of indirect air quality and noise impacts. However, the indirect impacts associated with construction of Build Alternatives 2a through 7b would not be expected to result in substantial impairment to any of the facilities’ activities, features, or attributes.

The project would require temporary construction-related activities within Roland Hensley Bike Park and Yolo Bypass Wildlife Area, but they would not result in any adverse impacts. The project would replace the existing bicycle pathway pavement behind the gas station north of West Capitol Avenue and extend the westernmost limit of the existing Class I bicycle pathway. During construction activities, temporary traffic delays and ramp closures on I-80/US-50 are expected to occur that may restrict access to recreational facilities, as well as bike and pedestrian facilities, but construction would occur in stages, as a result, not all highway sections would be affected at the same time.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include the transportation and development projects listed in Table 3-2, as well as all other projects that are planned and programmed in the land use and transportation plans.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that would result in impacts to parks and recreation during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

All Build Alternatives would include improvements to bike infrastructure, which would provide several benefits to the community, including enhancing the safety and accessibility of bicycle travel in the area, potentially reducing traffic congestion, air pollution, and greenhouse gas emissions. The improvements include replacing and extending existing bicycle pathways, improving crosswalks and signage, and constructing a new bike path extension. These benefits would lead to safer and more accessible transportation options, improved public health, and recreational opportunities for the community. Project construction and operation would have positive permanent cumulative effects due to the improvements made to bicycle/pedestrian infrastructure within the RSA.

The project in conjunction with other projects would contribute to temporary impacts on parks and recreational facilities during construction activities, such as reduced access, loss of parking, local road closures, and increased noise and vibration levels. These temporary impacts could affect public enjoyment of the resources, but standard BMPs, such as temporary detours, would be provided for any closed recreational trails or walkways. As a result, the project, in conjunction with related projects, would not result in cumulatively considerable permanent impacts to parks and recreation.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.2. GROWTH**

The information in this section is based on the CIA completed for the project (Caltrans, 2023).

#### **Resource Study Area**

The RSA for direct impacts on growth includes the project limits and a 1,000-foot buffer. The RSA includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange.

The RSA includes the population most likely to experience direct impacts associated with the project's direct physical improvements. Since growth is experienced at the regional level, the Sacramento Area Council of Governments (SACOG) region is also considered for cumulative growth impacts. SACOG is a designated Metropolitan Planning Organization that encompasses 28 cities and counties in the Sacramento region.

#### **Current Condition and Historical Context**

The RSA is located within an existing transportation corridor and is adjacent to a variety of land uses, including residential, commercial, agriculture, industrial, public, open space and recreational uses. Land uses in the project study area within unincorporated Yolo County are limited to agricultural, open space, and wildlife refuge uses and would not be subject to future development. Within the last thirty years, more development has occurred surrounding the expansion of the UC Davis campus and commercial businesses to serve the growth. Additional growth was guided by the original Gateway Olive Drive Specific plan, which was developed in 1996 to reuse and revitalize existing neighborhoods and to develop vacant land. Additional population and employment growth within the project study area is expected to take place through natural increase, redevelopment of existing land uses, or infill development. Future development in the area will follow the guidance of the UC Davis 2018 Long Range Development Plan and the updated Gateway Olive Drive Specific Plan (U.C. Davis, 2018) (City of Davis, 2018).

The communities within the RSA have experienced substantial growth in the real estate, construction, manufacturing, health care, and retail sectors which have resulted in economic growth and a low unemployment rate. From 2016 to 2040, population growth in the SACOG Planning Area is anticipated to be 26 percent and employment growth is anticipated to be 23 percent. There are several business centers along the I-80/US-50 corridor. The major

economic centers include commercial businesses, industrial and manufacturing centers, and office/business parks in the Cities of Davis and West Sacramento. The primary employment centers within the CSA include UC Davis and the Port of (West) Sacramento. I-80 is also a major east-west freight/trucking connector through California, which links the San Francisco Bay Area with the Sacramento Region and locations across the country.

### **Project Impacts**

Build Alternatives 2 through 5 would add capacity to I-80/US-50 within the Project corridor by adding managed lanes, which would improve traffic operations and support planned growth without encouraging growth beyond existing boundaries or altering access to residential and business areas. The “b” alternatives under Build Alternatives 2 through 5 would add additional operational capacity through the construction of the I-80 connector ramp. No adverse impacts related to growth are expected with the implementation of Build Alternatives 2 through 5.

Under Build Alternative 6a and 6b, a transit-only lane would be added in both directions, improving transit service and reducing transit travel times. Build Alternatives 7a and 7b would repurpose existing lanes as managed lanes and would not add capacity. However, Build Alternative 7b would include the construction of the I-80 connector ramp, which would add operational capacity. Build Alternatives 6 and 7 would not improve future traffic operations compared to the No-Build Alternative and, therefore, would not accommodate planned growth or encourage growth in the region. However, no adverse impacts associated with growth would be anticipated with implementation of Build Alternatives 6 and 7.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in Table 3-2.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could accommodate increased growth that would result in more intensive land uses within the RSA. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with project construction.

The enhancements planned in Build Alternatives 2 through 5 would help accommodate planned growth on a regional level. However, these alternatives are not anticipated to improve

opportunities for growth or provide new access to previously unserved areas. New residential development along the I-80 corridor is limited by floodplain conditions, long-term wildlife refuge and agricultural preserves, and built-out conditions in city limits. Improving travel times and capacity along I-80 is not expected to stimulate growth into nearby areas where development is not planned, as other factors such as market conditions and local land use policies have a greater influence on land use change than roadway capacity. Furthermore, new development in the RSA would occur in areas already planned for growth, with smart growth policies prioritizing infill and redevelopment projects. Planned new development in previously undeveloped or agricultural areas is limited by land use policies, agricultural preserves, and floodplains.

Therefore, the project's contribution to permanent and temporary cumulative impacts on growth would be minimal. The project's contribution to temporary cumulative impacts would also cease following construction. As a result, the project, in conjunction with related projects, would not result in cumulatively considerable permanent growth impacts.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.3. COMMUNITY FACILITIES AND SERVICES**

The information in this section is based on the CIA completed for the project (Caltrans, 2023).

#### **Resource Study Area**

The RSA for community facilities, utilities, and emergency services includes the project limits, plus a 1,000 foot buffer. The RSA includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange.

#### **Current Condition and Historical Context**

Community facilities within the RSA include schools, libraries, museums, recreation facilities, health providers, emergency services, community centers, and other similar institutions. Facilities that are frequently accessed by the elderly, disabled, low-income, and minority populations are especially important because these groups often have limited mobility and may depend on transit for access.

Utilities and service systems crossing or adjacent to the RSA include fiber-optic and telecommunication lines, as well as electrical and natural gas lines. Additionally, there may be aboveground or belowground utilities related to telecommunication, public works, sewer

service, water services, and other utility services. Water, emergency, and waste services are provided by various districts within the RSA, depending on location. The following agencies provide emergency response services within the RSA: Solano County Sheriff's Office, Solano County Office of Emergency Services, Davis Fire Department, Davis Police Department, UC Davis Police Department, Yolo County Office of Emergency Services, Yolo County Emergency Medical Services Agency, West Sacramento Fire Department, West Sacramento Police Department, Sacramento Fire Department, and the Sacramento Police Department.

## **Project Impacts**

### ***Community Facilities***

The project would be constructed within the existing Caltrans ROW and there would be no direct impact on any community facilities within the RSA. Under all Build Alternatives, there would be temporary traffic delays and potential ramp closures on I-80/US-50 during construction, which could affect access to community facilities. Night work would be conducted to minimize these impacts. Build Alternative 7 would have a shorter construction period, and therefore result in fewer delays, as compared to Build Alternatives 2 through 6. Since the "b" alternatives would construct the elevated I-80 connector, the "b" alternatives construction period would have a longer duration and require additional lane closures than Alternatives 2a through 6a. Temporary traffic impacts would be minimized with the implementation of a Traffic Management Plan (TMP). Once operational, all Build Alternatives would ultimately improve circulation along I-80/US-50, which would result in improved access to community facilities. Therefore, no adverse impacts associated with community facilities would be anticipated with implementation of any of the Build Alternatives.

### ***Utilities***

All Build Alternatives would result in potential conflicts with existing utilities that are present within the RSA. Build Alternatives 2b through 7b would require up to four overhead utility towers to be relocated or have their tower height increased. Under all Build Alternatives, coordination with utility providers would be conducted to verify utility locations during the final design of the Project. Potholing would be used, as needed, to determine locations of existing underground utilities during final design under all Build Alternatives.

### ***Emergency Services***

The construction of all Build Alternatives for I-80/US-50 may result in temporary traffic delays and ramp closures that could impact emergency services. Because Build Alternative 7 would not add new lanes, but would rather repurpose existing lanes as managed lanes, the Build Alternative 7 construction period may have shorter duration and therefore result in fewer delays than those under Build Alternatives 2 through 6. Since the "b" alternatives would construct the elevated I-80 connector, the "b" alternatives construction period would have a longer duration and require additional lane closures as compared to Build Alternatives 2 through 6. Under all Build Alternatives, Caltrans would develop a TMP that includes traffic

controls and other measures to maintain access for emergency services. All emergency response agencies in the project area would be notified of the project construction schedule and would have access to I-80/US-50 throughout the construction period. Ultimately, all Build Alternatives would improve circulation and reduce congestion, which could improve emergency service access and response times.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in Table 3-2.

### **Cumulative Impacts**

#### ***Community Facilities***

Current and reasonably foreseeable future actions could result in activities that would result in impacts on community facilities during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with project construction.

It is anticipated that several of the foreseeable projects may require right-of-way acquisitions, resulting in long-term impacts on community amenities. As a result, these significant transportation projects may lead to cumulative impacts on community facilities that will persist over time. Moreover, the relevant projects planned for construction at the same time as the project may cause temporary impacts, such as access difficulties, reduced visual aesthetics, air pollution, and noise that could impact community facilities. Therefore, the additional projects in conjunction with the project may contribute to temporary cumulative impacts on community facilities. However, they would not be anticipated to result in cumulatively considerable permanent impacts.

#### ***Utilities***

Current and reasonably foreseeable future actions could result in activities that would result in impacts to utilities during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with project construction.

The Project would comply with Caltrans standards and coordination with utility providers to minimize temporary construction impacts. In addition, utilities would be restored upon completion of utility relocation activities. The Project would comply with Caltrans standards and coordinate with utility providers, therefore the Project's contribution to temporary cumulative impacts on utilities would be substantially minimized. In addition, the Project's contribution to temporary cumulative impacts would cease following construction. Each relevant project would be required to consider avoidance, minimization, and/or mitigation measures to reduce impacts to utilities and service systems. Therefore, the Project, in conjunction with related projects, would not result in cumulatively considerable impacts on utilities and service systems.

### **Emergency Services**

Current and reasonably foreseeable future actions could result in activities that would result in impacts to community facilities during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with project construction.

Construction activities of the relevant projects, in conjunction with Project, could result in traffic delays that could affect the ability of fire, law enforcement, and emergency service providers to meet response-time goals. However, construction of the Build Alternatives would include implementation of a TMP and coordination with emergency service providers to minimize temporary construction impacts. The cumulative impacts on emergency services would be temporary and each project would be required to consider avoidance, minimization, and/or mitigation measures to reduce temporary impacts. With implementation of these measures, the Project's contribution to temporary cumulative impacts on emergency services would be substantially minimized. In addition, the Project's contribution to temporary cumulative impacts would cease following construction. Therefore, the Project, in conjunction with related projects, would not result in cumulatively considerable impacts on emergency services.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.4. ENVIRONMENTAL JUSTICE AND EQUITY**

The information in this section is based on the CIA completed for the project (Caltrans, 2023).

## Resource Study Area

The RSA for environmental justice consists of 37 census block surrounding the Project study area. The SACOG Planning Area is used as a regional comparison.

## Current and Historical Context

For this analysis, environmental justice communities are defined consistently with the FHWA environmental justice strategy as areas that have concentrated populations of low-income households and communities of color. The existing conditions for environmental justice populations and within the RSA were identified using the most recent data from the U.S. Census Bureau 2015–2019 American Community Survey 5-Year Estimates and the CalEnviroScreen mapping tool (U.S. Census Bureau, 2019); (California Office of Environmental Health Hazard Assessment, 2021). The environmental justice communities are located in portions of downtown and south Davis, along I-80 and US-50 through most of West Sacramento, and near the US-50/I-5 interchange in Sacramento.

## Project Impacts

The Build Alternatives for the I-80 corridor improvement project would primarily occur within the existing Caltrans right-of-way and would not displace low-income or minority residents, businesses, or employees. A Park-and-Ride Facility with 300 parking spaces would be constructed on the east side of Enterprise Boulevard, partially within existing Caltrans right-of-way and partially outside of it. The alternatives would not disproportionately affect community character, air quality, or visual resources in environmental justice communities compared to non-environmental justice communities. During construction, noise and dust could affect adjacent properties, but effects would be avoided or minimized through implementation of avoidance and minimization measures, as listed in Section 8.4 of the NSR and Section 7.2 of the AQR. Temporary ramp and lane closures during construction could inconvenience all roadway users, but a planned public outreach program would reduce adverse effects on adjacent environmental justice communities. Implementation of the Build Alternatives would improve traffic conditions and reduce cut-through traffic within adjacent neighborhoods, including adjacent environmental justice communities. The Build Alternatives would not cause disproportionately high and adverse effects on equity and environmental justice communities in accordance with Executive Order 12898.

Build Alternatives 2, 6, and 7 would not impose tolls on travelers, so the benefits of these alternatives would be equally shared by travelers of all income levels. Build Alternatives 3, 4, and 5 would include toll lanes, which would benefit a wide range of communities through improved traffic flow, including those defined as environmental justice communities. The “b” alternatives further improve peak-hour travel times and volumes compared to the “a” alternatives. However, Build Alternative 5 does not offer reduced or no payment options for riders in managed lanes who take advantage of carpooling or high vehicle occupancy. If Build Alternative 3, 4, or 5 is selected as the preferred alternative, Caltrans would appoint a tolling authority to operate the toll lanes. This future appointment would be determined, in part, by

the tolling authority's ability to realize travel benefits from toll lane options to all community members, including environmental justice communities. Therefore, the Build Alternatives would not cause disproportionately high and adverse effects on equity and environmental justice communities in accordance with Executive Order 12898.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in Table 3-2.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in activities that would result in impacts to utilities during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with project construction.

Several of the relevant projects did not have environmental documents available to determine potential impacts on environmental justice populations in the RSA. There is potential that relevant projects could result in environmental effects that could result in disproportionately high and adverse effects on minority or low-income populations. The relevant projects, as listed above, that would be constructed within the Project construction period could result in temporary construction impacts related to access, visual/aesthetics, air quality, and noise that could result in disproportionately high and adverse effects on minority or low-income populations. While the Project would also contribute to temporary construction impacts, these impacts would not be disproportionately borne on environmental justice communities and would affect all adjacent communities. The Project's construction impacts would be minimized by adhering to Caltrans' standard specifications and BMPs for noise abatement and fugitive dust control. Each relevant project would also be required to implement measures to minimize temporary impacts to environmental justice and equity. Therefore, the Project would not result in temporary cumulatively considerable impacts on environmental justice and equity.

As discussed above, Build Alternatives 2 through 7 would improve traffic conditions, to varying degrees, on I-80/US-50. Although the congestion relief and enhanced accessibility associated with the Project would benefit all I-80/US-50 travelers, environmental justice travelers may not realize the full benefit from Build Alternatives 3 through 5 because of tolling. Relevant projects have the potential to result in disproportionately high and adverse effects on environmental justice communities. Each relevant project would be subject to approval and be required to consider these impacts and provide measures to avoid or minimize impacts. Therefore, the

Project would not result in permanent cumulatively considerable impacts on environmental justice and equity.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.5. TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES**

The analysis in this section is based on the Transportation Analysis Report (TAR) (Fehr and Peers, 2023), Travel Demand Modeling Report (TDMR) (Fehr & Peers, 2021a), TMP Data Sheet (Caltrans, 2021a) and the Pedestrian and Bicyclist Travel Impact Assessment prepared for the project (Caltrans, 2021g).

### **Resource Study Area**

The RSA for traffic, transportation, pedestrian, and bicycle facilities is 20.8 miles long and includes the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange. The RSA also includes areas required to accommodate construction activities, mobilization, staging, and access, such as city-owned areas where ROW acquisition and TCEs. Staging areas would cover approximately 53.3-acres and be located at the I-80/West El Camino Avenue interchange, South River Road, I-80/Richards Boulevard interchange, the I-80 and SR 113 interchange, and along Kidwell Road (see **Figure 1-2**).

### **Current Condition and Historical Context**

#### *Traffic and Transportation*

The major freeways in the RSA include I-80 and US-50. In the 1960s, I-80 existed as a major freeway artery connecting roads throughout Yolo County (Yolo County, 2009). California's first state highway was established in 1895 on wagon roads within what is now the US-50 corridor. In 1928, US-50 became officially designated as a state highway (USDA, 2022). The I-80/US-50 corridor now provides a primary connection for east-west travel in Solano, Yolo, and Sacramento Counties, as well as connections to major north-south corridors of SR-113 in Yolo County and I-5 and SR-99 in Sacramento County. Within the Sacramento region, the I-80/US-50 corridor serves local and commute traffic, traffic to and from the San Francisco Bay Area, recreational traffic to and from the Lake Tahoe Basin, and is a primary corridor for goods movement.

The I-80/ US-50 corridor experiences high travel demand, especially during peak commute periods and weekends. The demand has created severe traffic congestion and diminished mobility along the freeway corridor which is caused by the outdated bottleneck design. Traffic congestion within the project area has impacted public transit times and reliability, particularly during peak commute periods. The congestion has also impacted freight travel times, which slow the delivery times of shipments such as produce and other goods. Additionally, collisions along the corridor impact transit times and reliability, as well as the movement of freight and commute times.

Overall, the circulation system experiences substantial congestion due to increasing travel demand. The transportation plans governing the RSA include long-term goals to improve the existing circulation system by improving existing transportation infrastructure and encouraging alternative modes of transportation.

#### *Bicycle and Pedestrian Facilities*

Section 4.3.1 of this Cumulative Impact Assessment describes the Current and Historical Context of pedestrian and bicycle facilities present within the RSA.

### **Project Impacts**

#### *Traffic and Transportation*

As described in the TAR, a qualitative assessment was prepared to compare the traffic performance of each Build Alternative. Build Alternative 4 was assigned very good performance in all categories except VMT. Build Alternatives 2 and 5 also would have very good performance in four or more categories. Build Alternatives 2, 4, and 5 would increase freeway capacity in the form of a managed lane so that faster travel time would be available and, therefore, both vehicle and person throughput would be increased at key bottlenecks within the Project area: eastbound I-80 at Mace Boulevard and westbound I-80 at the Yolo Bypass. Build Alternative 3 would not perform as well as Build Alternatives 2, 4, and 5 because more vehicles would be eligible for the managed lane under Build Alternative 3 which would lead to a higher level of congestion. Build Alternative 6 would not perform as well as the other Build Alternatives. While person throughput could be improved under Build Alternative 6 if additional bus service were provided, the forecasted passenger vehicle volume would be constrained by the network capacity resulting in performance similar to Alternative 1 for many performance measures. Build Alternative 7 would perform poorly due to congestion within the general purpose lanes that would result in delays while entering and exiting the HOV lane.

#### *Bicycle and Pedestrian Facilities*

Under all Build Alternatives, physical changes to bicycle and pedestrian facilities include the following: extension of the Yolo Causeway Class I bicycle path along the westbound off-ramp alignment to connect with CR-32A, widening the shoulder of CR-32A from the existing Levee Road path to just east of CR-105 to accommodate a standard Class I bicycle path and

widening the shoulders of CR-32A from CR-105 to the proposed Class I bicycle path along CR-32A to accommodate a standard Class II bicycle lane, and replacing the existing bicycle pathway pavement behind the gas station located north of West Capitol Avenue to the Yolo Causeway bridge deck approach.

Once operational, the Build Alternatives would result in changes to traffic patterns that would affect spaces shared with pedestrians and bicyclists by introducing new traffic into the area. The Pedestrian and Bicycle Travel Impact Assessment analyzed each location where the Build Alternatives would affect existing pedestrian and bicycle facilities, as well as each location where a substantial change in traffic volume is anticipated. At the following areas, it was determined that bicyclists and pedestrians would not be negatively affected by any of the Build Alternatives: Pedrick Road and Kidwell Road Interchanges Areas, Old Davis Road Interchange Area, Richards Boulevard Interchange Area, CR-32 Interchange Area, Yolo Causeway Bicycle Path, Harbor Boulevard Interchange Area, Jefferson Boulevard/South River Road Interchange Area, Reed Avenue Interchange Area, and West El Camino Avenue Interchange Area. At the Mace Boulevard Interchange Area, pedestrians and bicyclists would be exposed to an increase in traffic volume by as much as four vehicles per minute, depending on the Build Alternative. Build Alternatives 6a, 6b, 7a, and 7b would result in the smallest change in traffic volume. The Pedestrian and Bicycle Travel Impact Assessment provided considerations for improving the pedestrian and bicycle infrastructure in this area in order to accommodate the increase in traffic volume associated with the Project (Caltrans, 2021g).

Under all Build Alternatives, the existing bicycle pathway pavement behind the gas Station located north of West Capitol Avenue from PM 9.15 to PM 9.35 would be replaced. The existing bicycle pathway would be rerouted during repaving activities for up to two months, but repaving activities would be conducted during nighttime to the greatest extent feasible in order to minimize disruption. To maintain access, bicycles traveling westbound would be redirected along West Capitol Avenue. The Build Alternatives would also replace the existing bicycle pathway pavement from PM 9.1 to the Yolo Causeway bridge deck approach at approximately PM 8.9. While the existing Class I bicycle pathway is closed, a temporary bicycle pathway with K-rail barrier would be placed along the I-80 westbound on-ramp from West Capitol Avenue. The existing Class I bicycle pathway along the Yolo Causeway would not require closure during construction activities.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

All transportation projects listed in **Table 3-2** directly impact the project area. Multiple listed projects have potential to be constructed at the same time as this project; however, a complete list of construction schedules is not available at this time.

## **Cumulative Impacts**

Construction of the relevant projects would occur either simultaneously or partially during the construction period of the Project which could increase traffic congestion and delays, potential lane closures, reduced speed-limits, staging, and detours. However, concurrent construction would be temporary, and projects would be at various stages throughout the 400 working day construction period of the Project. Each transportation project would be required to implement measures as necessary to avoid and minimize traffic impacts.

The Project is anticipated to result in permanent beneficial improvements to the Project area by reducing overall long-term traffic flow and access to highway facilities. The relevant projects are also intended to permanently improve local infrastructure by reducing traffic congestion, increasing access to transit and transportation alternatives within the RSA, and contributing to overall beneficial cumulative impacts on the area. Therefore, the Project, in conjunction with related projects, would not result in cumulatively considerable temporary impacts on traffic and transportation.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.6. VISUAL/AESTHETICS**

The analysis in the following section is based on the Visual Impact Assessment (VIA) and the supplemental VIA prepared for the project (Stantec Consulting Services, Inc., 2022).

## **Resource Study Area**

The RSA is comprised of four visual assessment units along the project corridor as described in the VIA prepared for the project. Each visual assessment unit (VAU) is typically defined by the limits of a particular viewshed and has its own character and visual quality and is defined as follows:

- Solano County VAU: located within the limits of Solano County from the project's western terminus northeast along Interstate 80 to south of the County of Yolo/City of Davis limits
- Davis VAU: located along I-80 from the University of California at Davis just south and east of the City of Davis boundary and extends through the City of Davis to the eastern limits of the city
- Yolo County VAU: located along I-80 from the eastern limits of the City of Davis spanning the Yolo Bypass to the western limits of the City of West Sacramento

- West Sacramento VAU: located along the I-80/US-50 corridor within the city limits of West Sacramento and Sacramento, extending from the west boundary of West Sacramento to the eastern termini of the project

## **Current Condition and Historical Context**

Past conversions of natural habitat to agricultural use have changed the visual character in parts of the RSA such that non-agricultural vegetation and trees have been removed and replaced. Most of the visible features in the RSA include transportation infrastructure, agricultural land, heavily disturbed land, and open space. Development patterns, general lack of topographic variability, vegetation, and roadway infrastructure commonly restrict distant views within the RSA.

The RSA does not contain any existing scenic views or resources as designated by Caltrans. However, the Sacramento River, Sacramento River Corridor, and Yolo Bypass Wildlife Area are within the RSA and considered areas of local scenic value. Sacramento and Yolo Counties have also designated I-80 as a scenic corridor. The Yolo Bypass Wildlife Area is visible from the RSA, which encompasses open views of managed wildlife habitat and seasonal views of open water.

The central portion of the project corridor offers skyline views of downtown Sacramento in the eastbound direction. In the western and central extents, views of open spaces and agricultural areas provide a notable visual contrast from the extents in the cities of Davis, West Sacramento, and Sacramento. The corridor through the City of Davis is notable for its consistent mature trees planted on both sides of the freeway. The center median vegetation is also a notable and character defining feature of the roadway corridor. Other distant views within the RSA are limited by absence of topographic variability, existing development, commercial and residential buildings, vegetation, and roadway infrastructure.

## **Project Impacts**

### *Permanent Impacts*

As described in the VIA, the Build Alternatives were grouped where project impacts were found to be substantially similar. Group 1 includes Build Alternatives 3a, 3b, 4a, 4b, 5a and 5b, which are priced lane alternatives, because the main visual impacts are from an increased number of overhead pricing signs. Group 2 includes Build Alternatives 2a, 2b, 6a, and 6b which do not include any overhead pricing signs and, therefore, visual impacts are reduced under these Build Alternatives. Group 3 includes Build Alternatives 7a and 7b, which is similar to Group 2 except that no center median work is required under these Build Alternatives. Group 1, Group 2, and Group 3 all have “a” and “b” sub-groups which correspond to the “a” and “b” options for each Build Alternative. The “a” and “b” subgroups only have substantial visual differences related to the I-80 connector structure.

Under Alternative Group 1, large overhead signage components would represent a visual change in the corridor due to their different color of white instead of green. Median plantings would also be removed within the Davis VAU and replaced by median barriers, which would represent a loss of visual character and quality in the area. The loss of median plantings would also increase the amount of light and glare experience by highway users and neighbors. These changes would alter the visual character of the corridor toward a more urbanized aesthetic in areas that are currently more naturalized and suburban in character. New lighting would be installed in the Solano County and Davis VAUs, the Bryte Bend Bridge in the West Sacramento VAU, and the new bike path in the Yolo County VAU. This new lighting would introduce views of new sources of light into nighttime public views. However, the level of lighting would not be substantial, and only a small number of residents would have a close proximity to the light.

Under Alternative Group 2, visual impacts would be similar to those described under Alternative Group 1 with the exception of the large overhead signage components. Therefore, visual impacts would be reduced within the corridor under Alternative Group 2.

Under Alternative Group 3, visual impacts would be similar to those described under Alternative Group 1 with the exception of the large overhead signage components and the removal of median plantings. Therefore, visual impacts would be substantially reduced within the corridor under Alternative Group 3.

For Alternative Subgroup “b”, the design would include an I-80 connector structure within the West Sacramento VAU. The elevated I-80 connector structure would include the removal of approximately 70 trees, grading, new landforms, aerial structures, columns, and walls. Therefore, the “b” Alternatives would result in increased visual impacts as compared to the “a” Alternatives.

Visual character and visual quality impacts of the Build Alternatives are ranked as follows (with the first being highest impact and the last being lowest impacts): Alternative Group 1b (3b, 4b, 5b), Alternative Group 2b (2b and 6b), Alternative Group 1a (3a, 4a, 5a), Alternative Group 2a (2a and 6a), Alternative 7b, Alternative 7a.

### *Temporary Impacts*

Under all Build Alternatives, highway users would experience short-term visual impacts as a result of construction. Construction-related impacts are lowest in Alternative 7a, where visual impacts would be reduced since the center median work would not be performed and the construction schedule would be shortened. Duration of construction is expected to vary by alternative and range from 24 to 42 months. Construction-related impacts are highest in Alternative Group 3b, where the I-80 connector structure would be built, increasing the schedule to 42 months, and including the use of a crane. Temporary visual effects from construction would be typical of any major corridor improvement project and are not considered to be substantial or significantly contribute to a permanent effect. As described in the VIA, measures are proposed to reduce the impacts from temporary construction.

## **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in Table 3-2.

## **Cumulative Impacts**

Cumulative impacts are those resulting from past, present, and reasonably foreseeable future actions, combined with the potential visual impacts of this project. For this project, it has been determined that the following cumulative visual impacts may occur. In combination with the project, the Yolo Pavement Rehabilitation Project (T-1), Sac 50 Design-Build Project (T-4), and City of Davis Richards Boulevard Ramps Reconfiguration Project (T-5) would contribute to permanent cumulative visual impacts. These projects would widen highways and structures, remove existing plantings in the center median, reconfigure on/off-ramps, replace guardrails, paint structures, and impact associated vegetation. These projects, as well as development of adjacent parcels would also contribute to an increase in lighting levels and glare in the area by infilling unlit open space areas and adding reflective surfaces. Visual changes would vary throughout the corridor; some areas would be visually unchanged and other areas would experience more noticeable visual changes.

The proposed project under Alternative Group 1 would result in permanent visual/aesthetic impacts by making the freeway larger and more dominant in the landscape, changing views for both freeway travelers and adjacent land uses. Visual impacts under Alternative Groups 2 and 3 would be lessened. The combined visual effect of this Project and other development projects planned, recently in construction, or currently in construction would collectively change the visual character of the region. As described in planning documents such as the General Plans for the cities of Davis, Sacramento, and West Sacramento and County Regional Transportation Plans, there is development anticipated within and surrounding the project area. These plans, once implemented, would create new/reconfigured transportation facilities as well as induce development and infill of open space areas and vacant lots within the RSA.

Approximately half of the corridor is within municipalities which have identified land development and urban growth patterns adjacent to the proposed project. Over time, the highway users and highway neighbors may experience the gradual transition of undeveloped lots, the redevelopment of existing developed lots, and the modification of transportation corridors to support these developments within the landscape. As such, the contribution of the proposed project is minimal in the context of visual impacts through the project area. Permanent visual impacts would be consistent with the visual environment goals and objectives established by local and regional planning documents and ordinances.

The project could potentially result in cumulatively considerable temporary visual impacts if multiple projects are constructed concurrently. Nighttime constructions lighting, glare,

construction equipment, staging areas, demolition, and other construction related activities from multiple projects may contribute to cumulative visual impacts. However, construction related visual impacts would be temporary. Similar to the Project, related projects would be required to incorporate aesthetic treatment design considerations to avoid visual resource removal and implement replacement planting as needed. As a result, the Project, in conjunction with related projects, would not result in cumulatively considerable permanent visual impacts.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.7. CULTURAL RESOURCES**

The information in this section is based on the Historic Property Survey Report (Caltrans, 2021j) and the Section 4(f) evaluation (Caltrans, 2023) prepared for the Project.

#### **Resource Study Area**

The RSA for cultural resources is defined as the Area of Potential Effects (APE). In accordance with Section 106 PA Stipulation VIII.A, the Area of Potential Effects for the Project was established in consultation with Connor Buitenhuys, Professionally Qualified Staff of Prehistoric and Historical Archaeology, and Jess Avilla, Project Manager on June 30, 2020. The APE is constrained entirely to Caltrans ROW and sums approximately 360 acres along the 9.5-mile long Project.

#### **Current Condition and Historical Context**

The RSA contains numerous culturally sensitive areas, including prehistoric, ethnohistoric, and built environment historic period sites.

The RSA was populated by indigenous people for thousands of years prior to the influx of Euro-American settlers in the mid-1800s. Within Sacramento County, the Nisenan, or Southern Maidu, and the Plains Miwok, a subgroup of the Eastern Miwok, once populated the area. The Patwin Indians are indigenous to Solano County. Yolo County was populated by two Native American groups: the Patwin and, to a lesser extent, the Plains Miwok.

Areas that are likely or extremely likely to contain prehistoric sites that are within or adjacent to the RSA include the Delta and Sacramento River areas. Historic sites within the RSA are also commonly associated with remnants of the extensive mining activities that occurred as a result of the gold rush (Sacramento County 2011, Yolo County 2009).

## Project Impacts

Based on records searches, one historic resource (P-57-000194) was recorded as being within the APE. An archaeological pedestrian survey was conducted throughout the APE. Historic resource P-57-000194 was ultimately determined to not be within the APE because it does not intersect with any potential Project activities. No other historic or cultural resources were identified as a result of the survey. Extended Phase I (XPI) testing was conducted at sensitive locations within the APE and the associated XPI Report is available in Attachment 3 of the HPSR (Caltrans, 2021j). No buried cultural resources were identified as a result of the XPI testing. Therefore, the Project would not result in adverse impacts on cultural resources. Caltrans, pursuant to Section 106, has determined a Finding of No Historic Properties Affected is appropriate for this Project because there are no historic properties within the APE.

Because there are no historic properties within the RSA the project would not result in any Section 4(f) use or de minimis finding for any historic properties or historical resources (Caltrans, 2023).

## Current and Reasonably Foreseeable Future Actions

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

## Cumulative Impacts

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to hydrology and floodplains. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

Similar to the Project, all projects and plans listed in Table 3-2 that would involve ground disturbance could result in damage to or destruction of previously undiscovered subsurface archaeological deposits or unmarked burials. The related projects would be required to conduct applicable surveys and take necessary precautions if determined to be in an area known to have potential for cultural resources. All related projects would also be required to consider avoidance, minimization, and/or mitigation measures. As a result, the Project, in conjunction with related projects, would not result in cumulatively considerable impacts on cultural resources.

## **Avoidance, Minimization, and/or Mitigation Measures**

### **4.3.8. HYDROLOGY AND FLOODPLAINS**

The information in this section is based on the Floodplain Hydraulic Study (FHS) prepared for the project (Wood Rodgers, Inc., 2021).

#### **Resource Study Area**

The RSA for hydrology and floodplains includes the entire Cache Slough Watershed in Solano County and the Knights Landing Ridge Cut-Tule Canal Watershed in Yolo and Sacramento Counties. The RSA also includes the project area as depicted on the following Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel numbers:

- 06067C0157J and 06067C0160J for Sacramento County, California and Incorporated Areas dated 06/16/2015.
- 0607280005B for City of West Sacramento, California, Yolo County dated 01/19/1995.
- 06095C0075E and 06095C0100E for Solano County, California and Incorporated Areas dated 05/04/2009.
- 06113C0610G, 06113C0611G, 06113C0620G, and 06113C0630G for Yolo County, California and Incorporated Areas dated 06/18/2010.

#### **Current Condition and Historical Context**

The RSA is within the Cache Slough Watershed in Solano County and the Knights Landing Ridge Cut-Tule Canal Watershed in Yolo and Sacramento Counties. The Cache Slough Watershed encompasses 268,591 acres and the Knights Landing Ridge Cut-Tule Canal Watershed encompasses 106,939 acres. Cache Slough and Knights Landing Ridge Cut-Tule Canal drain to the Sacramento River, which drains into the Delta and San Francisco Bay.

The project corridor passes through the Yolo Bypass floodway and crosses over the Sacramento River. The Sacramento River historically was the largest watercourse affecting the Yolo Basin from the north and east. Flooding of newly developed agricultural land, aggravated by the cumulative effects of 19th century hydraulic mining led to the implementation of large-scale flood control projects within the entire Sacramento Basin (Central Valley Habitat Joint Venture 1993). The Yolo Bypass was constructed in the 1930s as part of the Sacramento River Flood Control Project to keep floodwaters out of the Sacramento River and reduce the potential for large-scale flooding. Today, the Yolo Bypass conveys up to 80 percent of floodwaters, which eventually drain back into the Sacramento River within Solano County (Yolo County 2018). The Yolo Bypass is 41 miles long and is

surrounded completely on the east and partially on the west by levees constructed by the U.S. Army Corps of Engineers (USACE) (Yolo Basin Foundation 2001). The construction of causeways and bridge crossings along I-80 and I-5 have affected flood conveyance in the Yolo Bypass.

The FHS identified existing drainage issues within the RSA. The I-80 on both sides of the Bryte Bend bridge experiences washouts and ponding (Wood Rodgers, Inc., 2021). Within the RSA there are areas designated as Special Flood Hazard Area (SFHA) Zone A, SFHA Zone AE, SFHA Zone 99A, and Other Areas of Flood Hazard Zone X.

### **Project Impacts**

Under Alternative 2a, the proposed pedestrian/bicycle bridge would span the Yolo Bypass, which has been mapped by FEMA as Zone AE. It is anticipated that changes in water surface elevation within the Yolo Bypass would be minimal. However, as recommended in the LHS, a detailed hydraulic study should be prepared during the design phase due to the bridge piers being located in Zone AE (Wood Rodgers, Inc., 2021). With the preparation of a detailed hydraulic study, Alternative 2a would not result in adverse impacts to hydrology and floodplains.

Under all Build Alternatives, construction would encroach within Zone A floodplains. Alternative 3a and 3b would result in the least amount of impacts to hydrology and floodplains due to less overall ground disturbance. None of the Build Alternatives not raise or change the profile of the highway within this floodplain encroachment area and, therefore, it is anticipated that there will be no adverse impacts to the floodplain in this area. Alternatives 2b through 7b would not result in adverse impacts to hydrology and floodplains.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to hydrology and floodplains. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

All relevant projects would be required to determine any potential impacts on the existing floodplain and document any floodplain impacts. Relevant projects would also be required to undergo review by the applicable Lead Agency for compliance with National Pollutant Discharge Elimination System (NPDES) permits for construction, operation, and maintenance activities as well as compliance with local urban stormwater and non-stormwater runoff ordinances for temporary and permanent impacts. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to hydrology and floodplains.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.9. WATER QUALITY AND STORM WATER RUNOFF**

The analysis in this section is based on the Water Quality Assessment (Caltrans, 2020b) and the FHS (Wood Rodgers, Inc., 2021) prepared for the project.

### **Resource Study Area**

The RSA for water quality and storm water runoff includes the entire Cache Slough Watershed in Solano County and the Knights Landing Ridge Cut-Tule Canal Watershed in Yolo and Sacramento Counties. The RSA includes the areas of project improvements, maintenance access, soundwalls, and other peripheral features owned and maintained by Caltrans, and the cities of Davis, West Sacramento and Sacramento. The RSA also includes areas required to accommodate construction activities, mobilization, staging, and access, such as city-owned areas where ROW acquisition and TCEs.

### **Current Condition and Historical Context**

The RSA is within the Cache Slough Watershed in Solano County and the Knights Landing Ridge Cut-Tule Canal Watershed in Yolo and Sacramento Counties. According to the Water Quality Assessment, the watersheds within the RSA are considered to be high-risk receiving watersheds. Primary land uses in the Cache Slough Watershed include agriculture, local and regional flood protection, terrestrial and aquatic wildlife habitat, and water supply for local agriculture and regional municipal and industrial needs. The landscape is characterized by a flat alluvial valley landform with wetlands, uplands, floodplains, fields, major rivers, and riparian habitats. The RSA is covered with both permeable and impermeable material (i.e., paved). Existing land uses within and adjacent to the RSA primarily include freeway infrastructure, residences, civic, agricultural, educational, commercial, and retail/restaurant facilities. Standard stormwater drainage features within the RSA include curb and gutter, cross culverts, stabilized shoulder backing, vegetated roadside ditches, vegetated gore areas, bioswales, and possible combined sewer system connections. Stormwater flows within the RSA limits, and outside of the urban area, and into agricultural locale.

The major receiving waters within the RSA are Putah Creek, the Willow Slough Bypass, and Delta Waterways. These waters have water quality objectives that include the following: bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, mercury, methylmercury, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity (Caltrans, 2020b). There are also smaller natural or engineered drainage conveyance systems within the RSA which drain to the major waterways. According to Caltrans, groundwater can be found at 13-feet below the surface or approximately 35-feet below the existing I-80 footprint (Caltrans, 2021e). However, no drinking water reservoirs or recharge facilities were identified within the RSA.

The project corridor passes through the Yolo Bypass floodway and crosses over the Sacramento River. Historically, the Yolo Bypass floodway and connects the cities of Davis and West Sacramento. The Yolo Bypass is within the Yolo Basin, which was once a nearly 80,000-acre wetland area. In more recent history, the majority of land within the Bypass has been used for grazing and farming with limited wetland management. The Yolo Bypass area was designated as a Wildlife Area by the Fish and Game Commission in 1994, which encompasses 16,000-acres of protected land (CDFW, 2022). Within Yolo County, the project is also within a Secondary Delta Protection Zone. Land use in these areas must be consistent with the Yolo County General Plan and the Land Use and Resource Management Plan (LURMP). Mercury is a known contaminant in the Delta, which is the result of natural deposits and the ongoing effects of gold mining in the 18th century.

## **Project Impacts**

During Project construction, potential temporary non-stormwater impacts on water quality would result from soil-disturbing activities such as excavation and trenching, soil compaction, cut and fill activities, grading, fueling and maintenance, hazardous material handling and storage activities, and paving. Stormwater runoff from the construction sites and staging areas also have potential to temporarily impact water quality and beneficial uses. However, BMPs and avoidance, minimization, and mitigation measures would be utilized to minimize the impacts on non-stormwater and stormwater receiving waters. Therefore, potential temporary impacts would be significantly reduced and would terminate following the construction period.

Potential long-term impacts that result from the Project may include stormwater runoff containing sediment from soil erosion, petroleum and wear products from motor vehicle operation, accidental spills of hazardous materials during construction activities and accidental spills during normal roadway operation. The Project is subject to laws and regulations that protect surface water quality and hydrology by establishing water quality compliance standards or waste discharge requirements. These mandates require the implementation of design, construction, and operational controls for proper runoff management and water quality treatment/protection.

## **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed in **Table 3-2**, as well as all other projects that are planned and programmed in the land use and transportation plans. Each of the listed projects are located within the RSA for water quality and stormwater runoff.

## **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to water quality and stormwater runoff. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction. Similar to the Project, the relevant projects have the potential to impact water quality temporarily and permanently; however, all projects would be required to implement measures and BMPs to reduce impacts to water quality and stormwater runoff.

Potential long-term impacts that result from the Project may include stormwater runoff containing sediment from soil erosion, petroleum and wear products from motor vehicle operation, and accidental spills during normal roadway operation. The relevant transportation projects would have the potential to result in similar impacts but would be required to implement measures to avoid impacts to water quality and stormwater runoff. Each project would also be required to develop a SWPPP if more than one acre of soil would be disturbed. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to water quality and stormwater runoff.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.10. GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY**

The information in the geology/soils/seismic/topography section is based on the District Preliminary Geotechnical Report (DPGR) for the I-80 Corridor Improvement Project (Caltrans, 2021i), Structure Preliminary Geotechnical Report for I-80 HOV Connector RW No. 1 & 2 (Caltrans, 2021b), Structure Preliminary Geotechnical Report for Richards Blvd. OC RW No. 3 (Caltrans, 2021e), and Structure Preliminary Geotechnical Report for I-80 HOV Connector (Caltrans, 2021f) prepared for the project.

## **Resource Study Area**

The RSA for geology/soils/seismic/topography includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange. The RSA includes the areas of project improvements, construction staging areas, project-related signage, maintenance access, sound walls, stormwater features, and other peripheral features owned and maintained by Caltrans.

## **Current Condition and Historical Context**

The RSA is located within the Sacramento Valley area of the Great Valley geomorphic province in California. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). The sediments deposited in the Great Valley came from erosion of the Coast Ranges and the Sierras. The Great Valley is comprised of up to several thousand feet of Quaternary aged (less than 2 million years old), unconsolidated marine and non-marine alluvial deposited sediments at the surface which underlies the RSA (Caltrans, 2021d). The Great Valley depositions were mostly marine until the beginning of the Pliocene epoch (approximately 5.3 million years ago) when the Great Valley's seas were replaced by freshwater rivers and lakes. According to the Structure Preliminary Geotechnical Report, the RSA is underlain with Holocene aged (approximately 11,700-years ago to present day) basin deposits (Qb) which consists of fine-grained sediments with horizontal stratification deposited by standing or slow-moving water in topographic lows (Caltrans, 2021b). Today, the Great Valley is drained by the Sacramento River from the north and the San Joaquin River from the south.

Most of the RSA is located within an existing transportation corridor. Therefore, the RSA is also underlain by artificial fill material, which is dirt that has been altered by human activity and used to fill in areas where the ground has been disturbed. The artificial fill was used during construction of the existing highway for (not limited to) earth retaining walls, fill slopes, and embankments.

No potential for surface fault rupture exists at the site because there are no known faults of Holocene or younger age that fall within 1,000-feet of the project. The project is also outside of the Alquist-Priolo Fault Zone. There is presence of saturated loose granular soils within the project area; therefore, the potential for liquefaction within the project limits exists.

## **Project Impacts**

Construction of the Project would require grading activities, vegetation clearing, compacting, and excavation during construction. Grading activities have the potential to expose subsurface soils, which could potentially increase the chance of soil erosion. The potential for surface fault rupture within the Project site is absent since there are no known faults of Holocene or

younger age that fall within 1000 feet of the project limits, or trend towards the project limits, nor do the Project limits fall within an Alquist-Priolo Fault Zone.

During operation of all Build Alternatives, the Project features could be affected by ground motion, liquefaction, and possible ground rupture from seismic activity. However, the Project would be designed and constructed to current standards, including seismic design standards, and would include consideration of liquefaction potential, settlement, landslide, and scour in the design of foundation and retaining systems. In addition, any proposed structures would be designed and constructed in accordance with the latest Caltrans design guidelines based on site-specific field investigations. Therefore, impacts on geology/soils/seismic/topography would not be adverse under any of the Build Alternatives.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed in **Table 3-2**, as well as all other projects that are planned and programmed in the land use and transportation plans. Each of the listed projects are located within the RSA for geological resources.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to geology, soils, seismic, and topography. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction. Similar to the Project, the relevant projects have the potential to impact water quality temporarily and permanently; however, all projects would be required to implement measures and BMPs to reduce impacts to geology, soils, seismic, and topography.

Each relevant project would be subject to geotechnical analysis and cannot be constructed unless each project is determined to be geotechnically feasible. Similar to the Project, the relevant projects would be designed and built to current standards. Construction activities for the Project would increase the possibility for erosion, slope instability from seismic shaking, and soil expansion/collapse. Similar to the Project, relevant projects would be required to comply with seismic requirements of the California Building Code. The potential for landslides would be considered when planning grading or excavation activities in areas known to be prone to landslides. Relevant projects would also be required to implement measures as necessary if they would result in impacts to geology or soils. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to geology, soils, seismic, and topography.

## **Avoidance, Minimization, and/or Mitigation Measures**

### **4.3.11. PALEONTOLOGY**

This information in this section is based on the Paleontological Identification Report (PIR) prepared for the project (Caltrans, 2021d).

#### **Resource Study Area**

The RSA for paleontology includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange. The RSA includes the areas of project improvements, construction staging areas, project-related signage, maintenance access, sound walls, stormwater features, and other peripheral features owned and maintained by Caltrans.

The RSA includes the areas of project improvements, construction staging areas, project-related signage, maintenance access, sound walls, stormwater features, and other peripheral features owned and maintained by Caltrans.

#### **Current Condition and Historical Context**

The RSA is located within the Sacramento Valley area of the Great Valley geomorphic province in California. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). The sediments deposited in the Great Valley came from erosion of the Coast Ranges and the Sierras. The Great Valley is comprised of up to several thousand feet of Quaternary aged (less than 2 million years old), unconsolidated marine and non-marine alluvial deposited sediments at the surface which underlies the RSA (Caltrans, 2021d). The Great Valley depositions were mostly marine until the beginning of the Pliocene epoch (approximately 5.3 million years ago) when the Great Valley's seas were replaced by freshwater rivers and lakes. According to the Structure Preliminary Geotechnical Report, the RSA is underlain with Holocene aged (approximately 11,700-years ago to present day) basin deposits (Qb) which consists of fine-grained sediments with horizontal stratification deposited by standing or slow-moving water in topographic lows (Caltrans, 2021b). Today, the Great Valley is drained by the Sacramento River from the north and the San Joaquin River from the south.

The landscape is characterized by a flat alluvial valley landform with wetlands, uplands, floodplains, fields, major rivers, and riparian habitats. The landcover elements include crops, rural-to-dense urban commercial/residential development, rural farmland and agricultural, and man-made landscapes (trees, shrubs, streetscapes), and levees. Most of the project study area is located within an existing transportation corridor. Therefore, the RSA is also underlain by artificial fill material, which is dirt that has been altered by human activity and used to fill in

areas where the ground has been disturbed. The artificial fill was used during construction of the existing highway for (not limited to) earth retaining walls, fill slopes, and embankments.

### **Project Impacts**

Due to the low sensitivity of the surficial geology directly underneath the project limits, shallow disturbance construction activities are unlikely to encounter significant fossil resources. The project as a whole could be classified as having no risk of encountering fossils (if all work occurs at or near the ground surface or within imported fill material), to having low risk of encountering fossil resources (if certain project locations will require limited areas of excavation up to 40 feet deep). The exact locations and depths of excavation needed would be determined during final design of the Project. To reduce the potential impacts of excavation, the Project would follow BMPs for paleontological resources and implement avoidance, minimization, and mitigation measures, and additional measures to be determined by a forthcoming Paleontological Monitoring Plan (PMP). Any impact on paleontological resources would be permanent and irreversible.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to paleontological resources. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

These relevant projects would likely require earth-moving activities with the potential to encounter paleontological resources. Therefore, these relevant projects may contribute to permanent cumulative impacts on paleontological resources. Similar to the Project, if paleontological resources are encountered during the construction period of any relevant project, work in the area would immediately halt until a qualified paleontologist is notified and examines the resource. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to paleontological resources.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.12. HAZARDOUS WASTE OR MATERIALS**

The analysis in this section is based on the Hazardous Waste Initial Site Assessment (ISA) prepared for the project (Caltrans, 2021c).

#### **Resource Study Area**

The RSA for hazardous waste and materials includes the project area and all properties within and adjoining the project area (i.e., properties located within 300 feet of the project area). The RSA includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange. The RSA includes the areas of project improvements, maintenance access, soundwalls, stormwater features, and other peripheral features owned and maintained by Caltrans.

#### **Current Condition and Historical Context**

According to the ISA, a geologic evaluation was performed within the project area to identify potential for Naturally Occurring Asbestos (NOA). The evaluation did not result in the identification of altered ultramafic bedrock, alluvium derived from ultramafic rock, or rock commonly associated with NOA, therefore it is assumed to not occur within the RSA. However, there is potential for aerielly deposited lead (ADL) and treated wood waste (TWW) to occur in the project area.

The project site also underwent evaluation for potential hazardous waste sites as identified by the Department of Toxic Substance Control (DTSC) and any active, inactive, or closed landfills as identified by the Integrated Waste Management Board. The web-based databases Envirostor and Geotracker did not indicate the presence of any hazardous waste/sources within the RSA.

#### **Project Impacts**

Various studies would be performed during final design of the Project to identify potential hazardous substances within the Project area. Depending on the contaminants present, additional soil sampling and analysis may be required under all Build Alternatives to determine if hazardous materials are present at levels requiring special handling of the soil. A preliminary site investigation (PSI) will be required for ADL. If elevated lead levels are encountered within the Project area, all Build Alternatives would then follow the July 1, 2016, ADL Agreement

between Caltrans and the DTSC. Based on results of the PSI, special materials handling, worker health and safety training or regulated soil disposal may be required for construction of all Build Alternatives. TWW would also be tested or properly disposed of according to the guidelines set in place by the DTSC. Under all Build Alternatives, Caltrans standard specifications would be adhered to.

Under all Build Alternatives, if hazardous materials are identified or encountered, appropriate avoidance, minimization, and mitigation measures would be followed. In addition, hazardous materials may be used throughout construction. Therefore, all of the Build Alternatives could contribute to temporary cumulative impacts related to hazardous waste or materials. The Build Alternatives could also potentially contribute to permanent cumulative impacts related to hazardous waste or materials. Under all Build Alternatives, operation and maintenance would not introduce new sources of hazardous waste or materials.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts related to hazardous waste and materials. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

During construction, each of the relevant projects could potentially result in impacts from hazardous waste and materials. Hazards may occur from construction materials, fuels, lubricants, solvents, and other possible contaminants during construction. Contaminated soil or groundwater may also be encountered during Project construction which could impact surrounding neighborhoods, schools, businesses, and recreation areas. Further investigation would be performed prior to construction of each project to identify hazards and implement appropriate measures to protect highway users, neighbors and construction workers from potential hazardous waste and material exposure. Each relevant project would be required to adhere to laws governing storage, transportation, and handling of hazardous materials.

Since construction workers have direct access to potentially hazardous materials, they would be required to take appropriate precautions to minimize their exposure, which includes using

the appropriate protective clothing and equipment. With implementation of BMPs, the Project's contribution to temporary adverse cumulative impacts related to hazardous waste or materials would be substantially minimized. In addition, the Project's contribution to temporary cumulative impacts would cease following construction. The operation and maintenance of the relevant projects would not introduce new sources of hazardous wastes or materials. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact from hazardous waste or materials.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.13. AIR QUALITY**

The information in this section is based on the Air Quality Report (AQR) (Caltrans, 2023) completed for the project.

#### **Resource Study Area**

The RSA for permanent cumulative impacts on air quality includes the Sacramento Valley Air Basin (SVAB), which includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and parts of Solano and Placer counties.

The RSA for temporary cumulative impacts on air quality includes the project study area, which includes 20.8 miles along the I-80 corridor between Kidwell Road and the Solano/Yolo county line, between the Solano/Yolo county line and the Yolo/Sacramento county line, and between the Yolo/Sacramento county line and West El Camino Avenue; and on the US-50 corridor between the I-80/I-50 interchange and the Yolo/Sacramento county line and between the Yolo/Sacramento county line and the US-50/I-5 interchange. The RSA includes the areas of project improvements, maintenance access, soundwalls, stormwater features, and other peripheral features owned and maintained by Caltrans.

#### **Current Condition and Historical Context**

The Project is within the SVAB which is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Ranges to the west. The Sacramento Valley is generally flat, and the elevation ranges from just below sea level near the Sacramento/San Joaquin Delta to over 2,150 feet above sea level at the Sutter Buttes. Temperatures during the year vary from lows in the 20s to highs up to 115 degrees Fahrenheit. The climate is characterized by hot dry summers and mild rainy winters with summer highs in the 90s and winter lows occasionally below freezing. The rainy season occurs between the months of November through March with an average annual rainfall of about 20 inches. The wind patterns in the SVAB are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants when certain meteorological conditions exist. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the Sacramento Valley. The air stagnation results in less vertical air flow and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of particulate matter pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog and pollutants near the ground. With ozone typically being its highest in the late spring and early autumn months (May through October) due to stagnant morning air and light afternoon winds. The winter months are ideal low temperatures to trap PM<sub>2.5</sub>.

Air quality regulation in the RSA is administered by the Sacramento Metropolitan Air Quality Management District and the Yolo-Solano Air Quality Management District. The California Air Resources Board maintains the only monitoring station that collects ambient air quality data in the vicinity of Sacramento County. The nearest monitoring location is located in Sacramento County approximately 0.75 miles northeast of the project location. Sacramento and Yolo Counties are currently designated as nonattainment for fine particulate matter (PM<sub>2.5</sub>/10). Since the project is in a non-attainment area for the PM<sub>2.5</sub>/10 state standards, a qualitative emissions analysis using the latest CT-EMFAC model, CT-EMFAC2021, was performed in to satisfy CEQA's Appendix G: Environmental Checklist Form. Table 8 in the AQR discusses the maximum construction emissions per project phase. The Project was also evaluated under NEPA to determine if it would be considered a Project of Air Quality Concern (POAQC)

Ozone and particulate matter are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. The high ozone season is during May through October for the Sacramento region. Wind carries air pollutants from the coastal Bay Area and San Joaquin Valley to the inland areas of the Sacramento region, and these pollutants may contribute to ozone formation. Peak 1-hour and 8-hour ozone concentrations in the SVAB have declined overall by about 14% during the last 20 years (Solano County 2008). Peak ozone values in the SVAB have not declined as rapidly over the last several years as they have in other urban areas.

## **Project Impacts**

Under all Build Alternatives, there would be improved traffic flow and reduced congestion within the Project limits. These improvements would result in a slight increase of GHG emissions in opening year 2029 and horizon year 2040 since the project would improve traffic flow and therefore, result in an increase in VMT. However, in design year 2049, GHG emissions under all Build Alternatives would be less than the GHG emissions under the No-Build Alternative. GHG emissions are expected to decrease as compared to conditions under 2029, which is attributed to newer more fuel-efficient fleets and the increase in electric vehicles by the year 2048. Therefore, the Project would not result in substantial long-term GHG impacts.

Interagency Consultation participants concurred that the Project is not a POAQC on October 15, 2021 by EPA and on October 18, 2021 by FHWA. Therefore, PM hot-spot analysis is not

required. The total daily PM10 and PM2.5 emissions with the I-80 connector for the Build Alternatives in the opening year and the horizon year would be higher than existing conditions. However, as shown in Tables 4 and 5 in the AQR, the increases would not be substantial with or without the I-80 connector.

Construction and grading activities associated with the project would result in temporary air quality impacts from the generation of dust (PM10), exhaust from construction equipment (ROG, NOx, PM10, and PM2.5), and GHG emissions. Currently, neither Caltrans nor SMAQMD/YSAQMD have adopted GHG standard levels that apply to construction projects. There would be approximately 5,532 tons of CO2 generated during construction of the Project. Control measures will be implemented as specified in Caltrans 2018 Standard Specifications Section 10-5 “Dust Control”, Section 14-9 “Air Quality” and Section 18 “Dust Palliatives”, which would substantially minimize short-term air quality impacts resulting from construction of the project.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed in **Table 3-2**, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that would result in air quality impacts to adjacent sensitive receptors during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

During construction of the Project, there would be an increase in localized air quality and GHG impacts due to emissions from generation of dust and equipment exhaust. BMPs would be implemented to avoid and/or minimize impacts, including control measures as specified in Caltrans 2018 Standard Specifications Section 10-5 “Dust Control”, Section 14-9 “Air Quality” and Section 18 “Dust Palliatives”. Similar to the Project, all relevant projects would be required to comply with applicable air quality standards and implement BMPs as necessary to avoid and minimize impacts. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to temporary air quality and GHG emissions.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.14. NOISE AND VIBRATION**

The information in this section is based on the Noise Study Report (NSR) completed for the project (Caltrans, 2022).

#### **Resource Study Area**

The RSA for noise and vibration is comprised of Noise Analysis Areas as described in the NSR prepared for the project. The analysis focuses on locations with defined outdoor activity areas, such as residential backyards, patios and balconies, common use areas at multifamily residences, outdoor sports and recreation areas, outdoor dining areas of restaurants, and school playgrounds. The RSA includes the areas of project improvements, maintenance access, sound barriers, stormwater features, and other peripheral features owned and maintained by Caltrans.

#### **Current Condition and Historical Context**

The RSA is located within an existing transportation corridor and is adjacent to a variety of land uses, including residential, commercial, agriculture, industrial, public, open space and recreational uses. I-80 is one of the most heavily traveled roadways in the RSA. The existing noise sources in the RSA are largely dominated by highway traffic and local traffic on city streets, commercial and industrial uses, railroad operations, and aircraft overflights.

#### **Project Impacts**

Under all Build Alternatives, traffic noise levels are predicted to approach or exceed the Noise Abatement Criteria (NAC) at multiple locations within the RSA. The Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol) defines a noise increase as substantial when the predicted noise levels with Project implementation exceed existing noise levels by 12 dBA or more. Noise levels are calculated to increase by up to 2 dBA over existing conditions as compared to 2049 No Build conditions. Under Build Alternative 3a in 2049, noise levels would increase by up to 2 dBA as compared to existing conditions and No Build conditions. These noise level increases are not considered substantial per the Protocol.

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. The overall reasonableness of noise abatement is determined by three factors: noise reduction goal (at least 7 dB of noise reduction at one or more benefited receptors), cost of noise abatement (allowance of \$107,000 per benefited receptor), and the viewpoints of benefited

receptors. One sound barrier along eastbound I-80 between Richards Boulevard and railroad tracks was determined to be acoustically feasible. Noise barrier cost-effectiveness will be assessed and documented in the Noise Abatement Decision Report (NADR). The project would not result in operational noise impacts with implementation of noise mitigation and the installation of the recommended sound barrier. Additionally, vibration levels are not anticipated to increase largely above existing conditions. Therefore, the project would not result in adverse permanent impacts on noise and vibration.

Project construction would require the use of equipment that could vary in noise level from 80 to 89 a-weighted decibels at 50 feet from the source (e.g., backhoes, concrete pumps, bulldozers, pneumatic tools, heavy trucks, and scrapers). Construction noise control will conform to the requirements in Section 14-8.02, "Noise Control," of the Standard Specifications and Special Provisions. While construction activities are anticipated to result in temporary increases to noise and vibration levels for adjacent sensitive receptors, measures would be implemented to avoid and minimize impacts. Construction activities would be conducted following applicable local regulations and would be short-term and intermittent. Therefore, the project would not result in adverse temporary impacts on noise and vibration.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed in **Table 3-2**, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to hydrology and floodplains. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

The NSR identified three additional development projects within 500 feet of the project footprint, the University Research Park development, the Plaza 2555 development, and the 3820 Chiles Road Apartments development. It was determined that the development projects would not contribute cumulatively to noise within the project area.

During construction of the Project, there would be an increase in noise and vibration due to the use of construction equipment. BMPs would be implemented to avoid and/or minimize impacts, which may include the following: providing that equipment is properly maintained and

equipped with mufflers, limiting idling, installing temporary noise barriers, and locating staging and queuing areas away from noise-sensitive land uses. All relevant projects would be required to comply with local noise ordinances and implement BMPs as necessary to avoid and minimize temporary impacts to noise. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to noise and vibration.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.15. ENERGY**

The information in this section is based on the Energy Memorandum (Caltrans, 2023) completed for the project.

#### **Resource Study Area**

The RSA for energy is the overall SACOG region. SACOG is a designated Metropolitan Planning Organization that encompasses 28 cities and counties in the Sacramento region. Land use change and the transportation system would influence the demand for future energy development or the location and need for new or additional energy infrastructure across the Sacramento region. The provision of energy can be linked to jurisdictions, but often service providers and their infrastructure cover large areas. Therefore, it is necessary to consider the Sacramento region as a whole and the overall amount of development that would generate additional pressure and demand on energy use and generation facilities.

#### **Current Condition and Historical Context**

According to the U.S. Energy Information Administration, in 2019, California's per capita energy consumption ranked 50th in the United States due to the state's mild climate and energy efficiency programs (U.S. Energy Information Administration, 2019). Transportation accounts for approximately 43 percent of all energy consumed in California with gasoline and diesel fuel being the largest transportation fuels used in California. Overall, California was the second largest consumer of gasoline in the country in 2020 (U.S. Energy Information Administration, 2020). Because of concerns about energy security and GHG emissions, other sources of motor vehicle fuels are being explored, including renewable fuels and alternative fuels.

#### **Project Impacts**

The Build Alternatives would result in short-term indirect energy consumption during the approximately five-year construction period related to the manufacture of construction materials, the use of construction equipment that requires petroleum fuels, and the use of construction workers' motor vehicles as they travel to and from the site. With the

implementation of project features, there would be no adverse temporary impacts on indirect energy use associated with the Project. The Project would not require a permanent new source of energy demand, and demand for fuel would have no noticeable effect on peak or baseline demands for energy. Construction indirect energy consumption would result from traffic delays due to construction of the Project. However, with implementation of a Traffic Management Plan, impacts would be substantially minimized.

The Energy Memorandum (Table 1) compares energy consumption of existing conditions, the No-Build Alternative, and the Build Alternatives in Opening Year 2029 and Horizon Year 2049 (Caltrans, 2023). Build Alternatives 2 and 3 would result in a minimal increase of energy consumption (less than one percent). Build Alternatives 4 through 7 would result in a nominal decrease of energy consumption (approximately one to four percent). All Build Alternatives would result in improved roadways operations and reduced traffic delays as compared to the No-Build Alternative. Therefore, the Project would not result in adverse permanent impacts related to energy.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in **Table 3-2**. These actions include the transportation and development projects listed in **Table 3-2**, as well as all other projects that are planned and programmed in the land use and transportation plans listed in **Table 3-2**.

### **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that would result in increased energy consumption during construction and operation. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

The demands on energy associated with the Project would be temporary and cease with completion of construction-related activities and appropriate BMPs would be implemented to reduce the demand on energy. According to the Energy Memorandum, energy consumption associated with Build Alternatives 2 through 7 represents a small demand on local and regional fuel and supplies that would be accommodated by local energy suppliers (Caltrans, 2023). Development of the projects listed in Table 3-2 would be required to assess project-specific impacts related to energy consumption and include design measures consistent with the most recent building code as it relates to energy use. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact on energy.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternatives for cumulative impacts.

### **4.3.16. NATURAL COMMUNITIES**

The analysis in this section is based on the Natural Environment Study (NES) prepared for the project (Stantec Consulting Services, Inc., 2023).

#### **Resource Study Area**

The RSA for natural communities is consistent with the Biological Study Area (BSA) established for the project, which is located in the counties of Solano, Yolo, and Sacramento and is approximately 1,137-acres in size. The RSA includes all areas needed for the currently proposed project improvements and ancillary construction areas (e.g., staging areas, access roads, etc.).

#### **Current Condition and Historical Context**

The landscape within the RSA is characterized by a flat alluvial valley landform with wetlands, uplands, floodplains, fields, major rivers, and riparian habitats. Developed areas account for more than half (about 587 acres) of the RSA and include highways, on-ramps, off-ramps, frontage roads, commercial areas, and other urbanized areas. The primary topographic features in the RSA are the channel of the Sacramento River and the Yolo Bypass. The Yolo Bypass is within the Yolo Basin, which was once a nearly 80,000-acre wetland area. In more recent history, the majority of land within the Bypass has been used for grazing and farming with limited wetland management. The Yolo Bypass area was designated as a Wildlife Area by the Fish and Game Commission in 1994, which encompasses 16,000-acres of protected land (CDFW 2022). In 1997, the U.S. Army Corps of Engineers restored wetlands and associated habitats within the Wildlife Area (Yolo County 2009).

A total of 11 habitat types were identified in the RSA including Developed, Ornamental, Cropland, Annual Grassland, Perennial Grassland, Coastal Oak Woodland, Valley Oak Woodland, Valley Foothill Riparian, Saline Emergent Wetland, Fresh Emergent Wetland, and Open Water. Ornamental vegetation is the most represented vegetation type in the RSA.

Within Yolo County, riparian woodland and shrub communities occur near the Sacramento River. According to the 2018 Yolo Final Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP), there is fresh emergent wetland natural communities along the project limits. Sacramento County contains a variety of native tree and grassland habitats (Sacramento County 2017). This native vegetation has been declining due to the cumulative effects of overgrazing, the introduction of non-native exotic competitive grasses, decreased deer populations, climate change, and fuel wood harvesting. Within Solano County, land use within the RSA is predominantly composed of irrigated agriculture natural communities, which

are mostly used to grow grains and vegetables (Solano County Water Agency 2012). Alfalfa is the most commonly planted field crop in Solano County, comprising approximately one-third of the field crop acreage in 2009. From 1990 to 2009, the production acreage for alfalfa has nearly doubled. There are valley floor grassland and vernal pool system grasslands located near the northeast of the project limits within Solano County. Valley floor grassland constitute 12 percent (71,700 acres) of natural communities found within Solano County. Historically, Solano County contained approximately 118,000 acres of vernal pool system grassland. Today, there is approximately 40,300 acres of potential vernal pool system grassland remaining due to disturbance from past land use practices.

Based on the vegetation communities mapped in the RSA, seven alliances are considered California Department of Fish and Wildlife (CDFW) Sensitive Natural Communities including Oregon ash groves, California sycamore woodlands, Fremont cottonwood forest and woodland, valley oak woodland and forest, Gooding's willow riparian woodland and forest, gum plant (*Grindelia hirsutula*) patches, and hardstem bulrush (*Schoenoplectus acutus*) marshes. These alliances correspond to the valley foothill riparian, valley foothill woodland, fresh emergent wetland, and annual/perennial grassland habitat types mapped in the RSA.

## **Project Impacts**

As described in the NES, the Project would result in temporary and permanent impacts to sensitive natural communities as defined by CDFW (Stantec Consulting Services, Inc., 2023). All Build Alternatives would result in 2.39 acres of temporary impacts and 0.14 acre of permanent impacts to Sensitive Natural Communities. This includes 1.87 temporary impacts to Oregon ash groves, California sycamore woodlands, and Fremont cottonwood (*Populus fremontii*) forest and woodland, 0.51 acre of temporary impacts and 0.14 acre of permanent impacts to valley oak (*Quercus lobata*) woodland forest, and 0.0007 temporary impacts to gum plant patches. With the implementation of standard measure BR-4, as described in the NES, impacts would not be adverse.

## **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include relevant transportation, bicycle and pedestrian facilities, I-80 Corridor Major Developments, as well as other projects that are planned and programmed in the General Plans or Specific Plans listed in Table 3-2.

## **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to natural communities. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range

Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

As discussed above, the Project would result in permanent or temporary impacts on sensitive natural communities. The Project would include standard measures and implement the AMMs as recommended in the NES to reduce impacts on natural communities. Information on impacts to natural communities were not available for several of the current and reasonably foreseeable future actions. Similar to the Project, relevant projects that would result in impacts to sensitive natural communities, as defined by CDFW, would be required to conduct biological surveys and evaluation under the guidance of CDFW, as applicable. If a relevant project would result in impacts to sensitive natural communities, that project would be required to consult with the applicable agencies and implement measures as required to avoid and minimize impacts. Application of AMMs recommended in the Project's NES in combination with measures that would be applied for the current and reasonably foreseeable projects are anticipated to reduce impacts to natural communities. Therefore, the Project would not result in a cumulatively considerable impact to natural communities.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.17. WETLANDS AND OTHER WATERS**

The analysis in this section is based on the NES (Stantec Consulting Services, Inc., 2023), Aquatic Resources Survey Report and Preliminary Jurisdictional Assessment (Stantec Consulting Services, Inc., 2021), and the Water Quality Assessment (Caltrans, 2020b) prepared for the project.

#### **Resource Study Area**

The RSA for wetlands and other waters is consistent with the BSA established for the project, which is located in the counties of Solano, Yolo, and Sacramento and is approximately 1,137-acres in size. The RSA includes all areas needed for the currently proposed project improvements and ancillary construction areas (e.g. staging areas, access roads, etc.).

#### **Current Condition and Historical Context**

The RSA is within the Cache Slough Watershed in Solano County and the Knights Landing Ridge Cut-Tule Canal Watershed in Yolo and Sacramento Counties. Major rivers within these watersheds include Valley Putah-Cache and the Sacramento Delta. Major tributaries to these rivers include Elmira, Lower Putah Creek, and an undefined tributary. The nearest waterways that could potentially be impacted by the project include Putah Creek, Willow Slough Bypass, and Sacramento Delta waterways.

The primary topographic features in the RSA include the channel of the Sacramento River and the Yolo Bypass. The Yolo Bypass is within the Yolo Basin, which was once a nearly 80,000-acre wetland area. In more recent history, the majority of land within the Bypass has been used for grazing and farming with limited wetland management. The Yolo Bypass area was designated as a Wildlife Area by the Fish and Game Commission in 1994, which encompasses 16,000-acres of protected land (CDFW, 2022). In 1997, the U.S. Army Corps of Engineers restored wetlands and associated habitats within the Wildlife Area (Yolo County 2009).

Within Yolo County, wetland and marsh communities are generally found within the Yolo Basin, which includes the Yolo Bypass, private lands, and the Conaway Ranch north of I-80. Wetland and riparian areas within Sacramento County are found in backwater basins along the Sacramento River.

There are approximately 28.271-acres of aquatic resources within the RSA including approximately 0.399-acre of fresh emergent marsh, 4.002-acres of seasonal wetlands, 7.553-acres of vegetated ditches, and 5.050-acres of woody riparian wetlands totaling 17.004-acres of wetlands within the RSA. There is approximately 11.267-acres of other waters in the RSA including approximately 0.230-acre of ephemeral drainages, 0.369-acre of intermittent drainages, 5.645-acres of perennial drainages, 1.523-acres of canals, and 3.500-acres of ponds.

### **Project Impacts**

An aquatic resources delineation was conducted in December 2020, February 2021, and July 2022. All Build Alternatives would include roadway improvements such as replacing culverts and installing a fiber optic line and vaults, which would result in direct impacts to wetlands and other waters. Build Alternatives 2b–7b would require construction of a connector ramp that would result in permanent impacts on Canal 31, which would not result from implementation of Build Alternatives 2a–7a. Under Build Alternatives 2a–7a, there would be a total of 0.022 acre of permanent impacts to other waters, 0.002 acre of temporary impacts to wetlands, and 0.12 acre of temporary impacts to other waters. Under Build Alternatives 2b–7b, there would be a total of 0.055 acre of permanent impacts to other waters, 0.002 acre of temporary impacts to wetlands, and 0.12 acre of temporary impacts to other waters. As described in the NES, avoidance and minimization measures would be implemented to avoid or minimize the potential for adverse impacts on wetlands and other waters. Therefore, the Project would not result in adverse impacts to wetlands and other waters.

### **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include relevant transportation, bicycle and pedestrian facilities, I-80 Corridor Major Developments, as well as other projects that are planned and programmed in the General Plans or Specific Plans listed in Table 3-2.

## **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to wetlands and other waters. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard/Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

As discussed above, the Project would result in minor temporary impacts on wetlands and other waters. The Project would comply with the requirements of Nationwide Permit No. 14 for Linear Transportation Projects. A preconstruction notification would be required due to the discharge of fill into a wetland. In addition, a Section 401 Water Quality Certification would be obtained from the Central Valley Regional Water Quality Control Board (RWQCB). The Project would include avoidance and minimization measures and would follow all regulatory requirements to reduce impacts on wetlands and other waters. Wetland and aquatic resource delineations were not available for several of the current and reasonably foreseeable future actions. Similar to the Project, all relevant projects would be required to conduct wetland delineations under the guidance of the USACE, CDFW, and/or the RWQCB, as applicable. If a relevant project would result in impacts to wetlands or other waters, that project would be required to consult with the applicable agencies and implement measures as required to avoid and minimize impacts. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to wetlands and other waters.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

### **4.3.18. ANIMAL SPECIES**

The analysis in this section is based on the NES prepared for the project (Stantec Consulting Services, Inc., 2023).

## **Resource Study Area**

The RSA for natural communities is consistent with the BSA established for the project, which is located in the counties of Solano, Yolo, and Sacramento and is approximately 1,137-acres in size. The RSA includes all areas needed for the currently proposed project improvements and ancillary construction areas (e.g. staging areas, access roads, etc.).

## **Current Condition and Historical Context**

A large portion of Solano County remains undeveloped as agricultural and open space land uses. Part of the project would be within Solano County's Resource Conservation Overlay, which is known to contain giant garter snake (*Thamnophis gigas*) priority conservation area. The Solano Multi-Species HCP would apply to the project, which requires conservation measures to be implemented in order to comply with federal and state regulations for endangered species. Within Yolo County, the Yolo HCP/NCCP helps to facilitate Endangered Species Act permits and associated mitigation for planned covered activities, including infrastructure.

## **Project Impacts**

All Build Alternatives would result in temporary and permanent impacts to animal species due to vegetation removal, grubbing and grading, pile driving, operation of vehicles, heavy equipment operation, and earth-moving operations. These construction activities would result in degradation of animal habitat and have the potential to directly impact animal species. A more detailed analysis of potential impacts to animal species is provided in Section 4.13.19. As described in the NES, avoidance, minimization, and compensatory mitigation measures would be implemented. Therefore, there would be no adverse permanent or temporary impacts to animal species.

## **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include relevant transportation, bicycle and pedestrian facilities, I-80 Corridor Major Developments, as well as other projects that are planned and programmed in the General Plans or Specific Plans listed in Table 3-2.

## **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to animal species. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

The relevant projects that would be constructed within the project construction period could result in permanent and temporary impacts on animal species if these projects would require vegetation removal, grubbing and grading, pile driving, operation of vehicles, heavy equipment operation, and earth-moving operations. Each relevant project would be required

to implement avoidance, minimization, and mitigation measures as necessary. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to animal species.

### **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

#### **4.3.19. THREATENED AND ENDANGERED SPECIES**

The analysis in this section is based on the NES prepared for the project (Stantec Consulting Services, Inc., 2023).

#### **Resource Study Area**

The RSA for threatened and endangered species is consistent with the BSA established for the project, which is located in the counties of Solano, Yolo, and Sacramento and is approximately 1,137-acres in size. The RSA includes all areas needed for the currently proposed project improvements and ancillary construction areas (e.g. staging areas, access roads, etc.).

#### **Current Condition and Historical Context**

A large portion of Solano County remains undeveloped as agricultural and open space land uses (Solano County, 2008). Part of the project would be within Solano County's Resource Conservation Overlay, which is known to contain California red-legged frog critical habitat and core recovery areas, priority habitat corridors, vernal pool conservation areas, as well as Callippe silverspot butterfly (*Speyeria callippe callippe*) and giant garter snake priority conservation areas. The Solano Multi-Species HCP would apply to the project, which requires conservation measures to be implemented in order to comply with federal and state regulations for endangered species. Within Yolo County, the Yolo HCP/NCCP helps to facilitate Endangered Species Act permits and associated mitigation for planned covered activities, including infrastructure.

#### **Project Impacts**

As described in the NES, it was determined that 23 special status animal species have the potential to use habitats there were present within the RSA. These species include the following:

- valley elderberry longhorn beetle
- green sturgeon
- Central Valley DPS steelhead
- mountain plover
- least Bell's vireo
- western yellow-billed cuckoo

- Chinook salmon-Central Valley spring-run ESU
- Chinook salmon-Central Valley spring-run ESY
- delta smelt
- longfin smelt
- giant garter snake
- Swainson’s hawk
- northern harrier
- white-tailed kite
- western burrowing owl
- purple martin
- grasshopper sparrow
- song sparrow (Modesto population)
- tricolored blackbird
- yellow-headed blackbird
- western pond turtle
- pallid bat
- western red bat

Swainson’s hawk (*Buteo swainsoni*) is listed as threatened under California Endangered Species Act (CESA). Protocol-level Swainson’s hawk surveys were performed on January 12, February 17, March 22–26 and 29, and April 5–9 and 12, 2021. Direct disturbance from construction activities, such as pile driving, operation of vehicles, heavy equipment operation, and earth-moving operations around active nests could result in stress, injury, or mortality to individuals. Under all Build Alternatives, temporary impacts on foraging habitat would result through the staging of equipment, temporary construction access, and other construction activities. Permanent loss of foraging habitat would result from the proposed Park and Ride, proposed bike path improvements, connector ramp, and other road widening. A total of approximately 10.0 acres of Swainson’s hawk foraging habitat consisting of grassland and croplands (hayfield) would be permanently lost. As described in the NES, avoidance, minimization, and compensatory mitigation measures would be implemented. In addition, there are currently no trees with active Swainson nests slated for removal. Therefore, there would be no adverse permanent or temporary impacts to Swainson’s hawk.

Giant garter snake is protected under the Federal Endangered Species Act (FESA) and. Under all Build Alternatives, approximately 4.265 acres of giant garter snake habitat would be permanently impacted due to bike path improvements and 3.669 acres of temporary giant garter snake habitat would be impacted from installation of the fiber optic line, bike path improvements, and staging areas. Direct impacts on giant garter snake could result from the increase in hazardous materials required for construction (tar, asphalt, oil, and other hazardous materials), habitat loss, and the crushing of individuals from construction equipment. Indirect impacts could result from removal of terrestrial vegetative cover which could increase microclimate temperatures and the potential introduction of invasive plant species by construction equipment. As described in the NES, avoidance, minimization, and compensatory mitigation measures would be implemented; therefore, there would be no adverse permanent or temporary impacts to giant garter snake.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is protected under FESA. All Build Alternatives would result in approximately 2.4 acres of temporary impacts and

3.1 acres of permanent impacts to suitable non-riparian valley elderberry longhorn beetle habitat. As described in the NES, avoidance, minimization, and compensatory mitigation measures would be implemented; therefore, there would be no adverse permanent or temporary impacts to valley elderberry longhorn beetle.

Central Valley DPS steelhead (*Oncorhynchus mykiss irideus pop. 11*) is listed as threatened under FESA. Central Valley spring-run ESU Chinook salmon is listed as threatened under FESA and CESA. Sacramento River winter-run ESA Chinook salmon is listed as endangered under the FESA and CESA. Green sturgeon is listed as threatened under FESA and is designated as a special status species of concern by CDFW. Delta smelt is listed as threatened under FESA. Longfin smelt is listed as a candidate species under FESA and as threatened under CESA. Suitable habitat and migration habitat is present for all of these species in the Sacramento River at the eastern end of the RSA and in Prospect Slough within the Yolo Bypass. However, none of the Build Alternatives would involve work within the Sacramento River or in Prospect Slough. Therefore, there would be no direct or indirect impacts on these species under any Build Alternatives.

Western pond turtle (*Emys marmorata*) is listed as a special status species of concern by CDFW. Aquatic habitat for western pond turtle is present in Putah Creek, the vegetated ditches, and canals identified throughout the RSA. Under all Build Alternatives, installation of the fiber optic line at Putah Creek has the potential to temporarily impact aquatic and upland habitat for western pond turtle. Impacts would result from temporary habitat loss, noise disturbance, increase in hazardous materials, and potential introduction of invasive plant species by construction equipment. As described in the NES, AMMs would be implemented; therefore, there would be no adverse permanent or temporary impacts to western pond turtle.

Tricolored blackbird (*Agelaius tricolor*) is listed as State Threatened, and yellow-headed blackbird (*Xanthocephalus xanthocephalus*) is designated as a special status species of concern by CDFW. No tricolored blackbirds or yellow-headed blackbirds were observed during the biological surveys. The most suitable nesting habitat identified during surveys was the patch of willows, labeled as valley foothill riparian, at the northwest corner of the Kidwell Road Interchange at the western end of the RSA. With limited habitat available, the likelihood of either species nesting with or adjacent to the RSA is low. However, if nesting tricolored blackbird or yellow-headed blackbird are present within or adjacent to construction areas, they could be disturbed and abandon their nests. As described in the NES, AMMs would be implemented; therefore, there would be no adverse permanent or temporary impacts to tricolored blackbird or yellow-headed blackbird.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is listed as Federal Threatened and State Endangered. Least Bell's vireo (*Vireo bellii pusillus*) is listed as FE under the ESA, and SE under CESA. Based on the biological surveys, the riparian habitats present within the RSA may provide potential foraging and migratory stopover habitat for western yellow-billed cuckoo and least Bell's vireo. The suitable migratory stopover and foraging habitat for western yellow-billed cuckoo and least Bell's vireo is located within the existing Caltrans ROW where there are frequent disturbances from vehicles. The riparian

vegetation within these areas would not be removed, and the activities proposed in the staging areas would be similar to those already occurring in the area (e.g., high volumes of traffic and other disturbances associated with the highway). Therefore, there would be no impact on western yellow-billed cuckoo or least Bell's vireo under any Build Alternatives.

Burrowing owl (*Athene cunicularia*) is designated as a special status species of concern by CDFW. Protocol-level burrowing owl surveys were performed on February 10, April 16, May 13 and 20, June 3, 2021, and January 13, 20–21, and 25, 2022. None of the potential burrowing owl habitat identified is located within the permanent construction footprint under any Build Alternative and approximately 0.03 acre of concentrated burrows is located within the staging area adjacent to Kidwell Road at the west end of the RSA. As described in the NES, AMMs would be implemented; therefore, there would be no adverse permanent or temporary impacts to burrowing owl.

White-tailed kite (*Elanus leucurus*) is listed as fully protected by CDFW. Northern harrier is designated a Species of Special Concern (SSC) by CDFW. During biological surveys, white-tailed kite and northern harrier (*Circus hudsonius*) were observed throughout the RSA. All Build Alternatives could result in temporary and permanent loss of foraging habitat and displacement during construction. As described in the NES, AMMs would be implemented; therefore, there would be no adverse permanent or temporary impacts to white-tailed kite or northern harrier.

Grasshopper sparrow (*Ammodramus savannarum*), song sparrow (*Melospiza melodia*), mountain plover (*Charadrius montanus*), and purple martin (*Progne subis*) are designated as special status SSC by CDFW. Under all Build Alternatives, construction activities (e.g., vegetation removal, bridge and road construction, earth-moving, equipment noise) may be scheduled during the nesting season (i.e., February 1 to September 31, depending on the species) and could disturb nesting birds in or adjacent to the RSA. As described in the NES, AMMs would be implemented; therefore, there would be no adverse permanent or temporary impacts to grasshopper sparrow, song sparrow, mountain plover, or purple martin.

Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), and western red bat (*Lasiurus blossevillii*) are designated as SSC by CDFW. All Build Alternatives would involve replacing culverts, which has the potential to remove a large portion of bat roosting habitat. In addition, trees that provide roosting habitat for individual bats are slated for removal. If culvert work or tree removal takes place during the reproductive season (early May to late August), there is a potential for direct mortality of young bats to occur. Temporary impacts on bats would result from construction-related noise, lights during night work, and vibration disturbance to bats roosting adjacent to active construction. As described in the NES, AMMs would be implemented; therefore, there would be no adverse permanent or temporary impacts to special status bat species.

## **Current and Reasonably Foreseeable Future Actions**

The current and reasonably foreseeable future actions considered in this analysis are presented in Table 3-2. These actions include relevant transportation, bicycle and pedestrian facilities, I-80 Corridor Major Developments, as well as other projects that are planned and programmed in the General Plans or Specific Plans listed in Table 3-2.

## **Cumulative Impacts**

Current and reasonably foreseeable future actions could result in land use activities that could result in impacts to threatened and endangered species through degradation of habitat. Of the transportation projects within the RSA, the construction timing for Yolo Pavement Rehabilitation Project (T-1) and Richards Boulevard / Olive Drive Circulation Improvements (T-5) could overlap with the Project. Of the development projects within the RSA, the construction timing for River Oaks Phase (D-8), Bell Avenue Warehouses Project (D-9), and Bretton Woods (D-12), and U.C. Davis Long Range Development Plan (D-13) could overlap with Project construction. Land use and transportation plans may also include planned and programmed projects that overlap with Project construction.

Detailed biological studies were not available for several of these projects. However, if these relevant projects result in impacts to giant garter snake, valley elderberry longhorn beetle, or Swainson's hawk, there could be a cumulative impact to these species. Similar to the Project, all relevant projects would be required to conduct biological surveys if the project or plan would be developed in an area where sensitive species may occur. If threatened and endangered species or suitable habitat is found within a project site, that project would be required to consult with the applicable agencies and implement measures as required to avoid and minimize impacts. Therefore, in conjunction with relevant projects, the Project would not result in a cumulatively considerable impact to threatened and endangered species.

## **Avoidance, Minimization, and/or Mitigation Measures**

No avoidance and minimization and/or mitigation measures would be required under any Build Alternative for cumulative impacts.

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