# 2.1 Project Description

This chapter describes the proposed action and the design alternatives that were developed to achieve the project purpose and need while avoiding or minimizing environmental impacts. The alternatives are Alternative B and Alternative C; and the "No Build" Alternative. The purpose of the proposed project, described in detail in Chapter 1, is to reduce congestion through the I-80/I-680/SR 12 interchange complex, reduce the amount of cut-through traffic on local roads, accommodate current and future truck volumes on highways, facilitate adequate inspection and enforcement at the westbound truck scales, improve safety conditions, and encourage the use of high occupancy vehicle (HOV) lanes and ridesharing.

The proposed project is located along I-80, I-680, and SR 12 in Solano County, California (Figure 2-1). The proposed project involves improvements on an approximately 4.5-mile-long segment of I-80 between Red Top Road and Abernathy Road, an approximately 3.5-mile-long segment of I-680 between Gold Hill Road and I-80, an approximately 2.0-mile-long segment of SR 12W between 0.5 mile west of Red Top Road and I-80, and an approximately 2.5-mile-long segment of SR 12E between I-80 and Civic Center Boulevard. Within the limits of the project area, I-80 is a six- to ten-lane freeway, SR 12E is a divided four-lane highway, I-680 is a four-lane freeway, and SR 12W is currently an undivided two-lane highway. Because of the geographical extent of the proposed project, for the purpose of discussion in this study, the project area is divided into three segments: western, central, and eastern (Figure 2-1). The western segment begins just west of the I-80/Red Top Road interchange and ends at the I-80/Suisun Valley Road interchange. The central segment begins at the I-80/Suisun Valley Road interchange and ends at the SR 12E/Chadbourne Road interchange. The eastern segment begins at the SR 12E/Chadbourne Road interchange. The eastern segment begins at the SR 12E/Chadbourne Road interchange and ends at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange and ends at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The segment begins at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The central segment begins at the SR 12E/Chadbourne Road interchange. The segment begins at the

# 2.2 Approach to Alternatives

## 2.2.1 Scope of Alternatives in this EIR/EIS

The I-80/I-680/SR 12 Interchange Project is a project by the Department and is subject to state and federal environmental review requirements, including the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). In developing the scope of this environmental impact report/environmental impact statement (EIR/EIS) and the project alternatives, three main factors were considered for the NEPA and CEQA analysis:

• Project alternatives need to meet the future traffic demand within the 20-year planning horizon.

- CEQA project alternatives must be comprehensive enough to allow for a Notice of Determination (NOD) under CEQA to be issued and project right-of-way to be acquired for the first phase and preserved for the full build alternative.
- A Phase 1 for each alternative that is "fundable" must be developed so that a Record of Decision (ROD) under NEPA can be issued.

Two alternatives, Alternative B and Alternative C, have been developed, as well as a fundable first phase for each respective alternative. Completing a CEQA analysis on the full build (albeit not fundable within MTC's RTP 2035 horizon) project alternative also facilitates environmental review of the project in the future, and allows STA and local agencies in the project area to proceed with planning activities and protecting land for future right-of-way needs. Local jurisdictions—in this case the City of Fairfield and Solano County—will be able to use the CEQA analysis in this EIR/EIS for planning purposes. The necessary right-of-way can be taken into account in local planning and development. This approach also provides analysis of a fully fundable first phase for each alternative that meets NEPA and FHWA criteria so that a Record of Decision can be issued while providing analysis and approval of the long-term interchange design for the proposed project.

## 2.2.2 Alternatives Analyzed in the EIR/EIS

In light of these requirements that are unique to CEQA and NEPA, two alternatives (Alternatives B and C) each with a corresponding fundable first phase (Alternative B, Phase 1, and Alternative C, Phase 1) are being evaluated in this EIR/EIS. Alternatives B and C are full build alternatives addressing comprehensive improvements to the I-80/I-680/SR 12 interchange complex; the widening of I-680 and I-80; and the relocation, upgrade, and expansion of the westbound truck scales on I-80. It is anticipated that at the end of the environmental review, the Department, as lead agency under CEQA, will adopt one of the alternatives so that STA and local agencies in the project area (as responsible agencies under CEQA) can proceed with planning activities and protecting land for future right-of-way needs. Additionally, the Department, as the lead agency under NEPA (assigned from FHWA under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users [SAFETEA-LU]), can proceed with issuing a Record of Decision on Alternative B, Phase 1 or Alternative C, Phase 1. The Phase 1s of the alternatives in this EIR/EIS represent the fundable first phases of the alternatives. Phase 1 construction is expected to begin in 2012 and be completed by 2016.<sup>1</sup> There are no projected dates for construction of improvements beyond Phase 1 at this time. The total escalated cost for Alternative B, Phase 1 is estimated to be \$580,000,000 and \$690,000,000 for Alternative C, Phase 1. (Costs are more fully discussed in Section 2.4, and illustrated in Table 2-4.) All of the alternatives are discussed more completely below.

<sup>&</sup>lt;sup>1</sup> This EIR/S uses the analysis year of 2015 to represent the construction-year for the project. The construction year analysis (2015) represents conditions and effects of the project alternatives upon completion of the fundable first phase (Phase 1s). Year 2015 was deemed appropriate for the construction-year because traffic forecasts and other environmental information is readily available for the year 2015 and the fundable first phase is anticipated to be complete in essentially the same time period (year 2016).

Both alternatives and both fundable first phases (Phase 1) meet the logical termini criteria and have independent utility. The intended project approvals are shown in Table 2-1. While the fundable first phases (Phase 1) for both alternatives would not address all project needs, they would reduce congestion and cut-through traffic on local roads, and improve safety conditions (Table 2-2). The fundable first phases (Phase 1) for both alternatives would be usable and function even if the full build project were not constructed.

Agency	Permit, Approval, or Consultation	Status
California Department of Transportation (lead agency under CEQA)	Adopt Alternative B or Alternative C as the interchange alternative and adopt NOD under CEQA	To be adopted upon completion of final EIR/EIS
California Department of Transportation (lead agency under NEPA)	Adopt either Alternative B, Phase 1 or Alternative C, Phase 1 and adopt ROD under NEPA	To be adopted upon completion of final EIS
Solano Transportation Authority (responsible agency under CEQA)	Adopt Alternative B or Alternative C as the interchange and adopt NOD under CEQA	To be adopted after the Department adopts NOD for EIR
California Transportation Commission	Adopt Alternative B and Alternative C as the interchange alternative and adopt NOD under CEQA	To be adopted upon completion of the final EIR/S

#### Table 2-1. Required CEQA and NEPA Approvals

Alternatives B and C differ primarily in the location of the I-80/I-680/SR 12W interchange improvements and the new interchanges on SR 12E. Under Alternative B, the I-80/I-680 and I-80/SR 12W interchanges would be improved in place, and a single interchange would be constructed on SR 12E to serve Beck and Pennsylvania Avenues. Under Alternative C, I-680 would be realigned to the west to connect with the I-80/SR 12W interchange, and two interchanges would be constructed on SR 12E to serve Beck and Pennsylvania Avenues.

Underlying Need	Existing Conditions	No Project 2035	Alternative B 1 2035 Alternative C 1 2035			
Congestion	Duration of Congestion:	Duration of Congestion:	Duration of Congestion:	Duration of Congestion:		
	<b>A.M.:</b> 1–2 hours <b>P.M.:</b> 1.5–2.5 hours	A.M.: 3 hours P.M.: 6 hours	Decrease to <b>A.M.:</b> 1.5 hours <b>P.M.:</b> 4.5 hours	A.M.: 2.5 hours P.M.: 5 hours		
	Accumulated vehicle hours of delay during a.m. peak hour is 1,140 hours and during p.m. peak hour is 1,885 hours	Bottleneck on SR 12E reduces traffic on I-80; not at capacity during a.m. peak Bottleneck on SR 12E at Beck and Pennsylvania, with associated queuing on I-80 back to Green Valley Road in p.m. peak hours Bottleneck on WB I-80 due to breakdown of Suisun Valley Road /I-80 interchange	Nearly 100% reduction of vehicle hours of delay in a.m. and 47% in p.m. peak hours in 2035 Partial relief of bottlenecks on SR 12E during a.m. peak Improved operations on WB I- 80 during a.m. peak hours Partial relief of p.m. bottleneck at SR 12E and improved operations on WB I-80 in p.m. peak hours No improvements to SR 12W, I- 680/Red Top Road Interchange; I-80 Red Top Road Interchange	<ul> <li>18% reduction in vehicle hours of delay in 2035</li> <li>5-20% reduction in travel times during a.m. peak hour; Increase in travel time over no-project in the EB direction (due, to some extent, to increased distances) and 70% decrease in WB direction during p.m. peak hours</li> <li>Improved operations for WB SR 12E from Main Street to Pennsylvania Ave during a.m. peak</li> <li>Queue on WB SR 12E during p.m. hours remains, but is reduced</li> <li>Reduced congestion on WB I-80 and SR 12W during a.m. peak hours</li> <li>Bottleneck at EB SR 12E would result in congestion on EB I-80 during p.m. peak hours</li> </ul>		
Reduce cut through traffic	Congestion on mainline causes freeway traffic to use local roads	Substantial increase in diversions to local roads; Gridlock conditions on freeway would force traffic onto local roads	Reduced congestion on mainline would reduce cut- through traffic to local roads	Reduced congestion on mainline would reduce cut-through traffic to local roads		
Accommodate truck volumes	Substantial congestion from truck weaving and backup to mainline from facility queuing	Congestion to worsen significantly, causing worsened truck weaving conditions	Phase 1 of both alternatives will accommodate current and future truck volumes to the extent that they increase overall highway capacity and reduce overall congestion, but the westbound truck scales will not be constructed in either Phase alternative.			
Facilitate truck inspection and enforcement	Westbound truck scales cause substantial congestion due to truck back up on the mainline and weaving	Westbound truck inspection and enforcement impaired due to substantially worsened conditions on mainline	Phase 1 of both alternatives will r	not address WB Truck Scales		
Improve safety	Fatal/injury accidents rates exceed statewide average	Reduced safety due to increased congestion and weaving	Reduced weaving and congestion would improve safety	Reduced weaving and congestion would improve safety		
Encourage HOV use	No HOV lane connectors proposed	No HOV lane connectors proposed	Direct connectors between HOV lanes on I-80 and I-680 would allow for improved efficacy of HOV lanes	Direct connectors between HOV lanes on I-80 and I-680 would allow for improved efficacy of HOV lanes		

#### Table 2-2. Phase 1 of Alternatives Addressing Key Project Purpose and Need

# 2.3 **Project Alternatives**

This section describes the build alternatives. The alternatives are discussed first, with both common and unique features described in detail. The fundable first phases of the alternatives, subsets of the full build alternatives, have few common features and no discussion of such features is presented. The unique features of the Alternative B, Phase 1 and Alternative C, Phase 1 are described in detail.

## 2.3.1 Features Common to Alternatives (Alternatives B and C)

#### Western Segment

#### Mainline Improvements

Under both alternatives, I-80 and I-680 would be widened. I-80 would be widened to a minimum of ten lanes (four mixed-flow lanes and one HOV lane in each direction) and a maximum of 19 lanes east of the interchange with I-680 (Figures 2-2 and 2-3). I-680 would be widened to a minimum of six lanes (two mixed-flow lanes and one HOV lane in each direction) and a maximum of eight lanes (three mixed-flow lanes and one HOV lane in each direction).

#### Freeway-to-Freeway Interchange Improvements

Under both alternatives, the connector ramps between SR 12W (Jameson Canyon Road) and eastbound I-80 would be reconstructed as two-lane connectors on new alignments. These connectors would also be braided with the new ramps for the I-80/Green Valley Road interchange. The existing UPRR underpass at I-80 would be replaced 45 feet west of the existing structure.

#### Interchange Improvements

## SR 12W/Red Top Road/Business Center Drive Interchange Improvements

A new diamond interchange would be constructed where the relocated Red Top Road and the extension of Business Center Drive meet at SR 12W. The existing Red Top Road undercrossing at I-80 would be widened to accommodate additional HOV lanes on I-80. The westbound onand off-ramps would be realigned. Under both alternatives, traffic in both directions traveling between I-80 west of Red Top Road and SR 12W (Jameson Canyon Road) would use the realigned portion of Red Top Road.

#### I-680/Red Top Road Interchange Improvements

A new interchange would be constructed at I-680/Red Top Road, consisting of an extension of Red Top Road from Lopes Road to an overcrossing over I-680 connecting to on- and off-ramps. Southbound I-680 on- and off-ramps would be located within the existing curve at Lopes Road. Ramsey Road would be realigned to accommodate the northbound on- and off-ramps, but would not be connected to the interchange. There would be a loop on-ramp to northbound I-680. Access between the interchange and Ramsey Road would not be provided.

#### I-80/Green Valley Road Interchange Improvements

The I-80/Green Valley Road interchange would be reconstructed under both alternatives. The general configuration would be the same under each alternative, with diagonal westbound offand on-ramps and a diagonal off-ramp and loop on-ramp in the eastbound direction. The addition of the diagonal westbound off-ramp would allow the removal of Neitzel Road, the frontage road connecting Suisun Valley Road to Green Valley Road.

#### Local Road Improvements

A new road would be constructed to connect the I-80/Red Top Road interchange with Business Center Drive. Between I-80 and SR 12W, Red Top Road would be realigned to cross over the UPRR tracks and SR 12W approximately 0.25 mile west of the existing SR 12W/Red Top Road intersection. From SR 12W to Business Center Drive, the new road would be an extension of Business Center Drive, originally proposed as part of the overall North Connector project. However, improvements to the interchange at SR 12W would necessitate a slight realignment of the extended road. Therefore, this improvement is included as a component in this proposed project. Construction of the new road would necessitate considerable excavation, and the excavated soils would be used as fill in the construction of embankment associated with the proposed project.

#### Bicycle and Pedestrian Facilities

Under both alternatives the existing I-80 bicycle path from Green Valley Road to the vicinity of the SR 12 West/Red Top Road intersection would be closed. After construction is complete, bicyclists and pedestrians would be able to traverse the project area utilizing the new extension of Business Center Drive to cross over SR12W, the UPRR tracks and connect with Red Top and McGary Road.

#### **Central Segment**

#### Mainline Improvements

Both alternatives propose the same basic improvements for I-80 east of Dan Wilson Creek. There would be 19 lanes on I-80 in the central segment, dropping to 12 lanes at the I-80/SR 12E interchange. Single-span bridges would replace existing bridges over Dan Wilson and Suisun Creeks. Additionally, a new single-span bridge would be constructed over Suisun Creek to accommodate traffic from the westbound truck scales.

The westbound truck scales would be relocated east of the existing truck scales and east of Suisun Creek, and they would be upgraded and expanded. The truck scales' connectivity from SR 12E would be improved by a new direct connection from westbound SR 12E to the westbound truck scales. The ramp from I-80 to the truck scales would be braided with (pass under) the connector from SR 12E to westbound I-80.

#### Freeway-to-Freeway Interchange Improvements

The I-80/SR 12E interchange would be improved by grade-separating the I-80/SR 12E connector from the off-ramp from I-80 into the westbound truck scales. Westbound SR 12E would be widened to three lanes, and a separate exit into the westbound truck scales facility would be added. Access from westbound I-80 to eastbound SR 12E and from westbound SR 12E to

eastbound I-80 would continue to be provided by the I-80/Abernathy Road (Suisun Parkway) and SR 12E/Chadbourne Road interchanges.

#### Interchange Improvements

The I-80/Suisun Valley Road overcrossing would be rebuilt with four lanes under each alternative. The ramp configurations are different under each alternative. The I-80/Abernathy Road interchange would be improved. The existing westbound on- and off-ramps would be reconstructed to accommodate a loop on-ramp. This interchange would become the I-80/Suisun Parkway interchange with completion of the eastern segment of STA's North Connector project.

#### Eastern Segment

#### Mainline Improvements

SR 12E would be widened from four to six mixed-flow lanes (three in each direction), and the atgrade intersections of SR 12E with Beck and Pennsylvania Avenues would be replaced with overcrossings. To accommodate additional lanes on SR 12E, two box culverts containing Ledgewood Creek and a drainage canal (Alonzo Drain) west of Ledgewood Creek would be lengthened.

#### Interchange Improvements

The Chadbourne Road undercrossing at SR 12E would be widened on each side to accommodate additional SR 12E lanes.

#### Local Road Improvements

Beck Avenue would be reconstructed on a retaining wall–supported embankment between Meyer and Diamond Ways. Beck Avenue (between Meyer Way and SR 12E) would be widened by one through lane northbound.

Pennsylvania Avenue would be reconstructed on fill from 1,000 feet south of SR 12E to Illinois Street. Between Illinois Street and SR 12E, Pennsylvania Avenue would be widened by one through lane southbound. On the south side of SR 12E, Pennsylvania Avenue would be widened from one through lane in each direction to two through lanes in each direction.

A road located south of SR 12E (the southern frontage road—Meyer Way—under Alternative B, and the eastbound off-ramp to Pennsylvania Avenue under Alternative C) would intersect with Pennsylvania Avenue and then cross above the UPRR tracks, connecting to an extended West Street in Suisun City. West Street in Suisun City would be extended from Solano Street north to Spring Street. It would be on an embankment supported by retaining walls to intersect the roadway crossing over the UPRR tracks.

#### Utilities

As part of both alternatives, utilities within the project area will be relocated, realigned, or extended as necessary to accommodate project construction and operation. Utilities that will be affected include water, electrical, gas, cable/fiber, and telephone lines. Water lines include those owned by the Cities of Fairfield, Vallejo, and Benicia; the California Department of Water Resources; and the Suisun-Solano Water Authority. Irrigation and non-potable water and agricultural drains owned by the Solano Irrigation District are located within the project area.

These water facilities, as well as sewer facilities owned by the Cities of Fairfield and Suisun City and by the Fairfield-Suisun Sewer District, would be realigned or extended, as necessary.

Pacific Gas and Electric Company (PG&E)–owned electrical and gas lines within the project area will be affected by construction and operation. Towers for two 115–kilovolt (kV) electrical transmission lines that cross I-80 at the SR 12E interchange (Vaca-Dixon-Ignacio Line 1 and Line 2) and one tower on Line 1 in the vicinity of the extension of Red Top Road between I-80 and SR 12W would be relocated. Additionally, the Suisun Tap 115–kV line that crosses SR 12E at Pennsylvania Avenue would be relocated perpendicular to the highway. The Vaca-Suisun-Jameson tower line crosses I-680 and Green Valley Road near the eastbound I-80 ramps intersection. Under both alternatives, the line would be raised to accommodate the proposed project. Several other overhead distribution or transmission lines would be realigned, as would a 12-kV underground line that crosses I-80 just east of the existing Green Valley Road overcrossing. Additionally, PG&E gas lines, primarily in the vicinity of the I-80/Green Valley Road and SR 12E/Pennsylvania Avenue interchanges would be modified or realigned, and it may be necessary to acquire new easements. Cable lines belonging to Comcast and located within local roads will be relocated where necessary. Qwest Communications has a fiber conduit mounted on the UPRR bridge that will be relocated along the new bridge.

Kinder Morgan operates a liquid fuel line that runs along the UPRR line near Suisun City and leaves the UPRR right-of-way along the proposed West Street realignment. The extension of West Street would necessitate relocation of this pipeline.

Telephone facilities within the project area include local, long-distance, and local service (i.e., TelNet) lines owned by AT&T. These include both overhead and underground lines and conduit. These facilities will be relocated where they conflict with the proposed project. All relocations of the long distance and TelNet lines will be handled through AT&T California.

Impacts associated with the various utility relocations are addressed in this EIR/EIS pursuant to California Public Utilities Commission (PUC) General Order (GO)-131 D filing requirements. The precise field location of high-risk utilities will be identified during the final design in accordance with the Department's procedures.

## Bicycle and Pedestrian Facilities

As part of the proposed project, existing Fairfield Linear Park would be reconstructed north of the proposed project prior to project construction so that there would be no interruption of use. It would be realigned along the north side of the roadway in the vicinity of the Abernathy Road/I-80 interchange.

## 2.3.2 Unique Features of Alternative B

This section describes improvements under Alternative B that are different from those under Alternative C.

#### Western Segment

#### Mainline Improvements

Eastbound I-80 would be realigned to the south in the vicinity of Green Valley Creek to accommodate both the I-680 connectors and through I-80 HOV lanes in the median (Figure 2-2). The UPRR overhead on I-680 (where I-680 crosses the UPRR tracks) would be widened to accommodate the widening of the highway. Westbound I-80 would be realigned to the north in the vicinity of Green Valley Creek to accommodate both the I-680 connectors and through I-80 HOV lanes in the median.

#### Freeway-to-Freeway Interchange Improvements

Improvements to the I-80/SR 12W interchange would include widening existing facilities and braiding the ramps for SR 12W and Green Valley Road. A new, wider grade-separation structure between SR 12W and I-80 accommodating three mixed-flow lanes would be constructed to provide access from SR 12W to eastbound I-80 and southbound I-680. The connector would split after the bridge, with a two-lane branch providing access to eastbound I-80, and a one-lane branch providing access to southbound I-680 with an undercrossing at Lopes Road. The existing connector ramp from westbound I-80 to westbound SR 12W would be reconstructed to the north and would cross over the on-ramp to westbound I-80 from Green Valley Road.

The I-80/I-680 interchange would be reconstructed at the existing location. Access from northbound I-680 to eastbound I-80 would be via a grade separation crossing the eastbound lanes of I-80 and entering the highway between the mixed-flow and through HOV lanes on eastbound I-80. This connector would have three lanes—two mixed-flow and one HOV—with the mixed-flow lanes adding lanes to I-80 and the HOV lane merging with the through HOV lane on eastbound I-80. A two-lane connector from northbound I-680 would provide access to Suisun Valley Road and eastbound I-80 (for trucks accessing the truck scales). This connector would include single-span bridges over Green Valley Creek and the Suisun Valley Road off-ramp from I-80.

The two left mixed-flow lanes from westbound I-80 would transition to southbound I-680, together with a single HOV lane diverging from the through HOV lane of I-80. A separate right-side connector accommodating trucks leaving the westbound truck scales for southbound I-680 would be provided, crossing underneath the Suisun Valley Road overcrossing before crossing I-80. Access to this connector from Suisun Valley Road would also be provided.

The through HOV lanes on I-80 would pass through the I-680 interchange on their own alignment between the three-lane connectors described above.

Eastbound traffic on I-80 would access southbound I-680 via a slip ramp from the eastbound I-80 off-ramp to Green Valley Road, and then transition to the adjacent connector from westbound SR 12W to southbound I-680.

There would be no freeway-to-freeway connection from northbound I-680 to westbound I-80. This connection would be made via Lopes Road and the Green Valley Road interchange, from a new I-680 interchange to the existing I-80 interchange. The northbound I-680 to westbound I-80 movement is an out-of-direction movement and the traffic volumes for it are forecast to be at or

below 50 vehicles per hour during the peak hour in 2035. A number of alternatives were analyzed to provide a direct connection for this movement, but none were considered feasible due to constrained connection points, out-of-direction movements, high costs of right-of-way acquisition, and impacts, in addition to the low projected traffic demand. However, it should be noted that FHWA's preference is that interstate freeway to interstate freeway interchanges include all movements (connections). Should Alternative B be selected as the Preferred Alternative, the Department would need to request FHWA consideration to grant the Engineering and Operations Acceptability (EOA) on Alternative B without the movement.

## Interchange Improvements

The I-80/Green Valley Road interchange would be reconstructed with a four-lane overcrossing connecting to existing Lopes Road on the south side of I-80. Access from Green Valley Road to southbound I-680 via the loop ramp connecting eastbound I-80 with I-680 would be removed (traffic would continue down Green Valley Road/Lopes Road to the proposed I-680/Red Top Road interchange). See the discussion of common features for a description of the proposed ramps.

The northbound I-680 exit to Central Way would be removed. Alternate traffic routes would be via the new off-ramp from I-680 to Red Top Road and then Lopes Road, or via the new ramp from I-680 to Suisun Valley Road.

The I-80/Suisun Valley Road interchange would be reconstructed, incorporating a loop on-ramp in the eastbound direction. The road would be realigned, and a replacement Suisun Valley Road overcrossing would be constructed over I-80. The right-side connector for trucks from westbound I-80 to southbound I-680 would also pass underneath the Suisun Valley Road overcrossing. In the westbound direction, ramps would be elevated to meet the overcrossing in a tight diamond configuration. The westbound on-ramp would provide access to I-80 and southbound I-680. The eastbound on-ramp would loop under the overcrossing, and the eastbound off-ramp would be accessible from eastbound I-80 and northbound I-680.

#### Local Road Improvements

Central Way would be realigned to accommodate the I-80/I-680 interchange. A new single-span bridge would be constructed on Central Way over Green Valley Creek to accommodate two lanes of traffic.

## Eastern Segment

## Interchange Improvements

Alternative B would construct a combined diamond interchange to serve both Beck and Pennsylvania Avenues, with one-way frontage road couplet between Beck and Pennsylvania Avenues. The existing SR 12E ramps at Jackson and Webster Streets (both in Fairfield) would remain.

The eastbound off-ramp from SR 12E to Beck Avenue would become a two-lane, one-way eastbound frontage road on the south side of the highway between Beck and Pennsylvania Avenues. There would be a two-lane, one-way westbound frontage road on the north side of the highway from Pennsylvania Avenue to Beck Avenue, where it would become the westbound on-

ramp to SR 12E. Midway between Beck and Pennsylvania Avenues, there would be a central overcrossing connecting the one-way frontage road couplet and extending south to intersect the Meyer Way extension. Eastbound traffic to Pennsylvania Avenue would exit SR 12E west of Beck Avenue and continue on the south-side eastbound frontage road, past the on-ramp to SR 12E to access Pennsylvania Avenue. Traffic from Pennsylvania Avenue would access westbound SR 12E via the north-side frontage road and the on-ramp at Beck Avenue. Westbound traffic on SR 12E would exit the highway west of Pennsylvania Avenue to the north-side westbound frontage road and continue onto Beck Avenue. Traffic from Pennsylvania Avenue would access eastbound SR 12E by heading west on the north-side westbound frontage road and then circling back to use the south-side eastbound on-ramp at the central overcrossing.

Separate bridges over Ledgewood Creek would be constructed to support the frontage road couplet.

## Local Road Improvements

The intersection at Beck Avenue and Meyer Way would be widened, and Meyer Way would be extended east from Beck Avenue to Pennsylvania Avenue as a four-lane, two-way road with a new three-span bridge constructed over Ledgewood Creek. A "T" intersection on Meyer Way just east of Ledgewood Creek would provide access to the new central SR 12E interchange. Meyer Way would continue east through a new intersection with Pennsylvania Avenue and over the UPRR tracks to extend West Street in Suisun City.

## 2.3.3 Unique Features of Alternative C

This section describes improvements under Alternative C that are different from those under Alternative B.

## Western Segment

## Mainline Improvements

I-680 would be realigned to the west to connect with SR 12W. The former alignment of I-680 would likely be relinquished to the City of Fairfield and become Lopes Road (Figure 2-3). The existing bridges over Green Valley Creek on eastbound and westbound I-80 would be replaced with single-span structures, and a westbound diagonal off-ramp would be constructed (including a bridge crossing Green Valley Creek).

## Freeway-to-Freeway Interchange Improvements

The I-80/I-680/SR 12W interchange would be consolidated in the location of the existing I-80/SR 12W interchange. Both I-680/SR 12W movements would be via direct connectors. These direct connectors would cross over I-80, the UPRR tracks, and Fulton Drive before merging/diverging with the connectors between I-680 and the eastern leg of I-80.

I-80/I-680 movements would be via freeway-to-freeway connectors. Motorist access from northbound I-680 to westbound I-80 would be served by a loop ramp off the I-680 to SR 12W connector. A separate direct connector structure would be provided for HOV traffic between the median of I-680 and the median of the eastern leg of I-80; the two directions would be separated

by a barrier. A two-lane mixed-flow connector ramp would cross over the UPRR tracks and local roads, and would allow traffic to transfer from northbound I-680 to eastbound I-80. Traffic from eastbound I-80 to southbound I-680 would use a new two-lane ramp. A connector would carry traffic from westbound I-80 to southbound I-680 over I-80, the UPRR tracks, Fulton Drive, and Lopes Road.

## Interchange Improvements

Improvements to I-680 would include the construction of an interchange at Red Top Road. Green Valley Road would be realigned and connected with the former location of I-680 south of I-80 to provide access for local residents, as well as a north-south arterial. The I-80/Green Valley Road interchange would be reconstructed with a seven-lane overcrossing. The westbound onramp to I-80 and eastbound off-ramp from I-80 would be braided with the ramps between I-80 and SR 12W and therefore would not provide access to and from SR 12W (this connection is provided by Business Center Drive connecting to the proposed SR 12W/Red Top Road interchange).

The I-80/Suisun Valley Road interchange would be improved, incorporating a loop off-ramp and diagonal on-ramp in the westbound direction. Suisun Valley Road would be realigned, and the overcrossing at I-80 would be reconstructed. The eastbound on- and off-ramps would be reconstructed in a tight diamond configuration.

## Local Road Improvements

An undercrossing would be constructed at Lopes Road and I-680. Lopes Road would be realigned to the west between Jameson Creek and Red Top Road. Fermi Drive would be realigned to intersect Lopes Road west of I-680. Between the UPRR overhead and the Green Valley Road overcrossing of I-80, Auto Plaza Court would be extended to provide access to Old Lopes Road/Green Valley Road and Central Way. There would be new at-grade intersections on Auto Plaza Court with Old Green Valley Road, Lopes Road (formerly the I-680 embankment), and Central Way. Old Lopes Road would have a cul-de-sac between Fulton Drive and Jameson Creek.

## Eastern Segment

## Interchange Improvements

Alternative C would construct separate interchanges at Beck and Pennsylvania Avenues. The existing SR 12E ramps between Jackson and Webster Streets (both in Fairfield) would be removed.

A tight diamond interchange, including an overcrossing, would be constructed at Beck Avenue. Elevated two-lane on- and off-ramps would intersect the overcrossing of SR 12E. The Ledgewood Creek box culvert would be lengthened to accommodate the westbound off-ramp, eastbound on-ramp, and additional lanes on SR 12E.

The interchange at Pennsylvania Avenue would include an overcrossing and loop on-ramps in both directions. The westbound off-ramp would provide access to northbound and southbound Pennsylvania Avenue.

#### Local Road Improvements

Jackson Street would terminate at Illinois Street. Webster Street would continue south under SR 12E, connecting to the proposed south-side frontage road west of the proposed UPRR crossing. A two-way street would connect to Pennsylvania Avenue at the eastbound ramp terminal, providing access to Suisun City (as under Alternative B) and also to an extension of Webster Street.

## Utilities

In addition to the utility modifications and relocations common to both alternatives, under Alternative C, further modifications would be made to the Vaca-Suisun-Jameson tower line that runs parallel to and southeast of I-80. To accommodate the proposed connectors, one tower would be relocated, two to six existing truss towers would be replaced with steel-tube towers, and the line height would be raised by 90 feet (twice the height of the existing line) between Dittmer Road and the Jameson substation on Watt Court.

The existing power line south of Fulton Drive would be raised by 40 feet to accommodate the height of I-680 as it rises to pass over Fulton Drive. Two existing utility towers will be replaced by four towers.

PG&E gas transmission facilities would need to be relocated in the vicinity of the I-80/I-680 interchange and at Green Valley and Lopes Roads. It may be necessary to acquire a parcel adjacent to I-680, just south of the I-80/I-680 interchange, to house a gas transmission facility. The Vaca-Dixon 115–kV line that crosses I-680 between Fermi and Fulton Drives tower would be relocated and potentially raised by 40 feet.

## 2.3.4 Unique Features of Alternative B, Phase 1

The discussion below describes a subset of Alternative B that represents a fundable first phase with logical termini and independent utility; it is being analyzed in this document as the fundable first phase of Alternative B for the purposes of federal approval. It includes improvements to the I-80/Green Valley Road interchange, the I-80/I-680 interchange, and the I-80/Suisun Valley Road interchange, as well as improvements to the SR 12E/Beck Avenue interchange (Figure 2-4).

## Western Segment

#### Mainline Improvements

Eastbound I-80 would be widened from six lanes to eight lanes between I-680 and the eastbound truck scales off-ramp, where it would conform to the existing lane configuration after construction of the I-80 Eastbound Cordelia Truck Scales project. Westbound I-80 would be widened from six lanes to seven lanes between the existing westbound truck scales and I-680. New single-span bridges over Green Valley Creek would replace the current bridges to accommodate the realignment of the through lanes on I-80 and the separate HOV lane in the new interchange with I-680. The existing bridge for I-80 at Dan Wilson Creek would be widened on both sides to accommodate the additional through lanes between I-680 and the truck scales.

A third mixed-flow lane would be added to northbound I-680 beginning about 1,000 feet south of the Cordelia overhead, and an HOV lane would be added just north of the Cordelia overhead. Southbound I-680 would be widened per the full build Alternative B in the vicinity of the I-80/I-680 interchange, continuing with four lanes (three mixed-flow and one HOV) from just after the merge from the outside truck connector to around the future I-80/Red Top Road interchange. From that point to just north of the I-680/Gold Hill Road interchange, there will be three mixed-flow lanes, with the third lane dropping at the Gold Hill Road exit. The southbound HOV designation will drop within the limits of the I-80/Red Top Road interchange.

#### Freeway-to-Freeway Interchange Improvements

Improvements to the I-80/I-680 interchange would include all four connectors between I-680 and I-80 to the east described in Alternative B, and would provide for direct connection between HOV facilities on I-80 to the east and I-680 (see the detailed discussion of this interchange in the Alternative B discussion above). The improvements include the direct ramp from northbound I-680 to Suisun Valley Road. The outside truck connector from westbound I-80 to southbound I-680 would exit from I-80 just west of the Suisun Valley Road overcrossing in this phase, forcing the postponement of the direct connection from Suisun Valley Road to westbound I-80 and southbound I-680 until the full build. (This movement will continue to use a relocated Neitzel Road to Green Valley Road to I-680 or westbound I-80.)

The ramp from northbound I-680 to westbound I-80 would be removed, consistent with improvements for Alternative B. Traffic from northbound I-680 to westbound I-80 and SR 12W would exit on the Suisun Valley Road off-ramp, cross over the freeway on the overcrossing, take Neitzel Road to Business Center Drive to Green Valley Road, and use the westbound Green Valley Road on-ramp.

#### Interchange Improvements

The Green Valley Road overcrossing at I-80 would be replaced to accommodate the proposed realignment and widening of I-80. The overcrossing would consist of the four western lanes of the seven-lane structure described in the full build alternative. Green Valley Road approaching from the north would be widened. The on- and off-ramps would be realigned in Phase 1 and changed in later phases, as would the Neitzel Road off-ramp at Suisun Valley Road.

Improvements to the I-80/Suisun Valley Road interchange would include reconstructing the Suisun Valley Road interchange and realigning the eastbound on- and off-ramps. Eastbound on- and off-ramps would be the same as under the full build Alternative B, incorporating a loop on-ramp. The westbound off-ramp and access to Neitzel Road (the westbound frontage road) would be realigned slightly to accommodate the widening of westbound I-80 and the Suisun Valley Road overcrossing. This realignment would be temporary, and Neitzel Road would be removed under the full build Alternative B when a new westbound I-80 off-ramp is built to Green Valley Road.

## Eastern Segment

#### Interchange Improvements

A tight diamond interchange with an overcrossing would be constructed at Beck Avenue on SR 12E. Improvements to the associated on- and off-ramps would include lengthening the existing culverts carrying Ledgewood Creek and the Alonzo Drain.

#### Local Road Improvements

The intersections at Beck Avenue/Diamond Way (north of the highway) and Beck Avenue/Courage Drive (south of the highway) would be improved.

#### Utilities

As part of the proposed project, utilities within the project area will be relocated, realigned, or extended as necessary to accommodate project construction and operation. Utilities that will be affected include water, electrical, gas, cable/fiber, and telephone lines. Water lines include those owned by the Cities of Fairfield and Vallejo. Irrigation and non-potable water and agricultural drains owned by the Solano Irrigation District are located within the project area. These water facilities, as well as sewer facilities owned by the Cities of Fairfield and Suisun City and by the Fairfield-Suisun Sewer District, would be realigned or extended, as necessary.

PG&E-owned electrical and gas lines within the project area will be affected by construction and operation. The Vaca-Suisun-Jameson (115-kV) power line crosses I-680 and Green Valley Road near the eastbound I-80 ramps intersection. The line would be raised by 25 feet to accommodate the project. Several other overhead distribution or transmission lines would be realigned, as would a 12-kV underground line that crosses I-80 just east of the existing Green Valley Road overcrossing. Additionally, PG&E gas lines, primarily in the vicinity of the I-80/Green Valley Road and SR 12E/Pennsylvania Avenue interchanges, would be modified or realigned, and new easements will likely need to be acquired. Although the specific plan lines of the new easements have not been established, they are expected to be within the proposed project limits. Cable lines belonging to Comcast and located within local roads will be relocated where necessary.

Telephone facilities within the project area include local, long–distance, and local services (i.e., telnet) lines owned by AT&T. These include both overhead and underground lines and conduit. These facilities will be relocated where they conflict with the proposed project. All relocations of the long-distance and TelNet lines will be handled through AT&T California.

Impacts associated with the various utility relocations are addressed in this EIR/EIS pursuant to California Public Utilities Commission (PUC) General Order (GO)-131 D filing requirements. The precise field location of high-risk utilities will be identified during the final design in accordance with the Department's procedures.

## 2.3.5 Unique Features of Alternative C, Phase 1

The discussion below describes a subset of Alternative C that represents a fundable phase with logical termini and independent utility; it is being analyzed in this document as the fundable first phase of Alternative C for the purposes of federal approval. It would improve the connections

from westbound I-80 to I-680 and SR 12W; directly connect northbound I-680 and SR 12W; connect the I-80/Red Top Road interchange with Business Center Drive; and construct or improve interchanges at SR 12W/Red Top Road, I-80/Red Top Road, I-80/Green Valley Road, and I-680/Red Top Road (Figure 2-5).

#### Western Segment

#### Mainline Improvements

Westbound I-80 would be realigned between a point west of Suisun Valley Road to just west of the SR 12W/I-680 interchange by constructing a new six-lane highway alignment north of the existing highway alignment. The realignment would create space in the median for direct HOV connector ramps to be built between I-80 and I-680, as well as future widening of the eastbound lanes. The realigned westbound I-80 would have six lanes, including an HOV lane and an auxiliary lane matching the existing cross section at the existing Suisun Valley Road overcrossing. Immediately west of the Suisun Valley Road overcrossing, a seventh lane would be added, as well as an eighth lane with the on-ramp from Suisun Valley Road. A ninth lane would be added immediately west of the Green Valley Road off-ramp. The four right lanes would exit from I-80 to connect to SR 12W and I-680. There would be a left exit from the HOV lane to an HOV connector to I-680. A wider, single-span bridge would replace the existing bridge over Green Valley Creek. The existing loop on-ramp from northbound I-680 to SR 12W would be constructed to replace this movement. The segment of I-680 north of Red Top Road would be realigned.

#### Freeway-to-Freeway Interchange Improvements

New connector ramps from westbound I-80 to westbound SR 12W and southbound I-680 would be constructed, similar to those described under Alternative C. The proposed westbound I-80 to southbound I-680 connector would cross over I-80, the eastbound SR 12W connector to eastbound I-80, the UPRR tracks, Fulton Drive, and the realigned Lopes Road. Access from westbound I-80 to westbound SR 12W would be braided with (cross over) the Green Valley Road on-ramp to westbound I-80. A separate direct connector structure would be built to carry the HOV lanes in both directions between I-680 and I-80 east of the I-80/I-680/SR 12 interchange. Direct connectors between northbound I-680 and westbound I-80 and eastbound I-80 and southbound I-680 would be constructed similar to those described under Alternative C. Motorist access from northbound I-680 to westbound I-80 to southbound I-680 would use a new two-lane ramp.

The direct connection from SR 12W to southbound I-680 would not be built as part of Phase 1; traffic would use Red Top Road from the new SR 12W/Red Top Road interchange to the new I-680/Red Top Road interchange. Motorists traveling eastbound on SR 12W who wish to go to southbound I-680 would exit SR 12W at the proposed SR 12W/Red Top Road interchange and continue along Red Top Road to an on-ramp at the new I-680/Red Top Road interchange.

#### Interchange Improvements

The I-80/Green Valley Road interchange would have a tight diamond configuration westbound and a partial cloverleaf (loop on-ramp) configuration eastbound. The same interchange and

overcrossing would provide access to the existing alignment of I-680 (which would be relinquished as a local arterial, as described earlier in this chapter).

The connection from eastbound SR 12W and eastbound I-80 to southbound I-680 would be removed, with traffic expected to use Red Top Road from the new SR 12W/Red Top Road interchange to the new I-680/Red Top Road interchange. A new on-ramp at Green Valley Road would provide access to the new westbound I-80 alignment.

The I-80/Red Top Road interchange would be partially reconstructed to have a westbound exit loop. Red Top Road would be realigned to connect this interchange on I-80 with a new SR 12W/Red Top Road interchange, as under Alternative C. The I-680/Red Top Road interchange would be constructed as under Alternative C.

#### Local Road Improvements

During the initial construction of Phase 1, a bicycle path would be relocated along the western boundary of the business park at the west end of the existing Business Center Drive parking lot, and along the north side of the new connector from westbound I-80 to westbound SR 12W to maintain access between the existing bicycle path along Jameson Canyon Road (SR 12W) and Business Center Drive. This path would be removed when Business Center Drive is extended to the SR 12W/Red Top Road interchange because bicyclists would be able to utilize the extension of Business Center Drive to reach Red Top Road and points west. The existing Green Valley Road overcrossing at I-80 would be removed, and a new one would be constructed on a different alignment. The overcrossing would consist of the western four lanes of the seven-lane structure described in the full build alternative.

## Eastern Segment

#### Mainline Improvements

A third lane would be added to eastbound SR 12E. This lane would connect (start) at the eastbound SR 12E/Chadbourne Road interchange and would extend east, connecting and ending at the eastbound SR 12E/Webster Street exit.

## Utilities

As part of the proposed project, utilities within the project area will be relocated, realigned, or extended as necessary to accommodate project construction and operation. Utilities that will be affected include water, electrical, gas, cable/fiber, and telephone lines. Water lines include those owned by the Cities of Fairfield, Vallejo, and Benicia. Irrigation and non-potable water and agricultural drains owned by the Solano Irrigation District are located within the project area. These water facilities, as well as sewer facilities owned by the Cities of Fairfield and Suisun City and by the Fairfield-Suisun Sewer District, would be realigned or extended, as necessary.

PG&E-owned electrical and gas lines within the project area will be affected by construction and operation. One 115-kV electrical transmission line that crosses I-680 between Fermi and Fulton Drives would be realigned, and towers would be relocated. The Vaca-Suisun-Jameson tower line crosses I-680 and Green Valley Road near the eastbound I-80 ramps intersection. The line would be raised by 45 feet to accommodate the project. Additionally, to accommodate the proposed connectors, one tower would be relocated and the line height raised by 90 feet between Dittmer

Road and the Jameson substation on Watt Court. Several other overhead distribution or transmission lines would be realigned, as would a 12-kV underground line that crosses I-80 just east of the existing Green Valley Road overcrossing. Additionally, PG&E gas lines, primarily in the vicinity of the I-80/Green Valley Road and SR 12E/Pennsylvania Avenue interchanges, would be modified or realigned, and it may be necessary to acquire new easements.

PG&E gas transmission facilities would need to be relocated in the vicinity of the I-80/I-680 interchange and at Green Valley and Lopes Roads. It may be necessary to acquire a parcel adjacent to I-680, just south of the I-80/I-680 interchange, to house a gas transmission valve lot.

Cable lines belonging to Comcast and located within local roads will be relocated where necessary. Qwest Communications has a fiber conduit mounted on the UPRR bridge that will be relocated along the new bridge.

Telephone facilities within the project area include local, long–distance, and local services (i.e., TelNet) lines owned by AT&T. These include both overhead and underground lines and conduit. These facilities will be relocated where they conflict with the proposed project. All relocations of the long distance and TelNet lines will be handled through AT&T California.

Impacts associated with the various utility relocations are addressed in this EIR/EIS pursuant to California Public Utilities Commission (PUC) General Order (GO)-131 D filing requirements. The precise field location of high-risk utilities will be identified during the final design in accordance with the Department's procedures.

# 2.3.6 Transportation System Management and Transportation Demand Management Alternatives

## Transportation System Management

Transportation System Management (TSM) strategies focus on improving the efficiency of existing facilities without increasing the number of through lanes. Options such as ramp metering, auxiliary lanes, and reversible lanes are generally implemented under TSM and help reduce traffic congestion. TSM strategies are a critical component of STA's Comprehensive Transportation Plan (CTP) as part of the Arterials, Highways, and Freeways Element. The CTP integrates TSM strategies into a comprehensive approach to address transportation needs within the County over the next 20 years. Some TSM strategies, such as the Interstate 80 High-Occupancy Vehicle Lane Project, which consisted of high-occupancy lanes, auxiliary lanes, and ramp metering, are identified in the CTP as standalone projects. Other TSM strategies are identified as critical components of larger improvements. For example, the I-80/I-680/SR 12 Interchange Project includes specific TSM measures such as direct ramps to HOV lanes and auxiliary lanes.

## Transportation Demand Management

STA is implementing numerous Transportation Demand Management (TDM) strategies as part of its ongoing operations and programs to reduce the number of vehicle trips and vehicle miles travelled and increase vehicle occupancy in its service area. TDM strategies are critical components of STA's CTP as part of the Transit and Alternative Modes Elements. The CTP integrates TDM strategies into a comprehensive approach to address the transportation needs within the County over the next 20 years.

One of STA's primary goals is improving mass transit systems (bus and train) and providing incentives for carpooling and using alternate forms of transportation, and many such programs are currently offered by STA through its Solano Napa Commuter Information (SNCI) program. The SNCI program focuses on encouraging the use of non-drive alone travel modes to maximize roadway efficiencies, improve air quality, present mobility options, and address climate change issues. The program includes nine major elements: Customer Service, Employer Program; Vanpool Program; Incentives, Emergency Ride Home, SNCI Awareness Campaign; Bike to Work Campaign; General Marketing, and Partnerships (Solano Transportation Authority 2009).

Additionally, the following TDM programs and plans are currently being implemented by STA, Solano County, and communities within the project area to reduce vehicle trips and promote alternative modes of transportation:

- Intercity Express Bus Plan.
- SR 12 Transit Corridor Plan.
- Employer programs (e.g., Emergency Ride Home, vanpool support, bike-to-work week, Solano Commute Challenge, commuter tax benefits).
- Rideshare measures (HOV lanes, park-and-ride lots, rideshare matching).
- Alternative Modes Element in the Solano County Comprehensive Transportation Plan.
- Community-Based Transportation Plan for Cordelia/Fairfield/Suisun Project Area.
- Solano Countywide Bicycle Plan.

## No-Project (No-Build) Alternative

NEPA, CEQA, and the State CEQA Guidelines require that an EIS and EIR include an evaluation of a no-project/no-build alternative. The purpose of including a no-project/no-build alternative is to allow the lead agencies to consider the effects of not implementing the proposed project. Under the No-Project Alternative for the proposed project, the facilities associated with the interchange project (freeway lanes, interchanges, ramps, westbound truck scales, and HOV lane direct connectors from I-80 to I-680) would not be constructed, and impacts that would occur from project construction would be avoided. However, traffic congestion in the project vicinity would deteriorate substantially, extending the peak periods up to six hours forcing traffic onto local roads. These effects would occur during the 3+ hour a.m. and p.m. peak commute periods, for both the immediate near-term, construction year (2015) and design year (2035). Worsened congestion will further exacerbate congestion from truck weaving and backup to the freeway mainlines from the truck scale facilities in the westbound direction, and truck inspection and enforcement would be impaired because of substantially deteriorated conditions on the mainline in both directions. Fatal/injury accidents in the project limits, which already exceed the statewide average, will likely worsen from the increased congestion.

# 2.4 Comparison of Build Alternatives

The primary difference between the build alternatives is that Alternative B would improve the I-80/I-680 and I-80/SR 12W interchanges in their current locations. Alternative C would relocate I-680 north of Red Top Road to combine the interchanges into a single interchange in the current location of the I-80/SR 12W interchange. Though the configurations of the Green Valley and Suisun Valley interchanges would be different, they would both provide equal access. On SR 12E, the alternatives would take different approaches to providing access to the highway. Under Alternative B, there would be a single, central interchange with access provided by frontage roads. Under Alternative C, there would be interchanges at both Beck and Pennsylvania Avenues. While both alternatives would provide access to Suisun City via an overcrossing over the Union Pacific Railroad, access to that overpass under Alternative B would be from an extension of Myer Lane.

Overall, Alternative C has a slightly smaller footprint than that of Alternative B, allowing it to have a lesser impact on agricultural land than Alternative B would have, and to result in the acquisition of less acreage (though more parcels) than Alternative B would require. Impacts on hydrology and floodplain, water quality, geology, air quality, traffic, and visual resources are essentially the same for both alternatives. The fundable first phases of the alternatives would have a lesser impact on these resources.

Both alternatives would result in one residential relocation, though Alternative B would result in seven more business relocations than Alternative C. Alternative C (and Alternative C, Phase 1) would result in the acquisition of a small portion of Rodriguez High School. More sensitive receptors would experience increased noise levels as a result of Alternative B, than would as a result of Alternative C.

Generally, both alternatives would result in similar impacts on most biological resources. Alternative B would result in more California red-legged frog upland and critically habitat being temporarily affected, but the permanent impact acreages would be slightly higher under Alternative C. Alternative B would have a greater impact on Swainson's hawk habitat, and on seasonal and alkalai marsh. Alternative C would have a greater impact on pappose tarplant and Contra Costa goldfields. Alternative C would affect slightly more acreage of seasonal wetlands and perennial drainage, while Alternative B would affect slightly more jurisdictional seasonal drainages.

The STA Board of Directors formally identified the Locally Preferred Alternative as Alternative C (and the fundable first phase) on July 14, 2010.

Both full build alternatives meet the project purpose and need in its entirety. The initial phases of the alternatives do not address inspection and enforcement of truck traffic at the truck scales. However, both fundable first phases meet the remaining purpose and need elements, thought not to the degree that would be realized under the full build alternatives. The fundable first phases of the alternatives will reduce congestion, reduce cut through traffic, accommodate current and future truck volumes, improve safety, and encourage HOV use. An analysis of the impacts and consideration of comments from agencies and the public will be considered in selecting a preferred alternative.

After the public circulation period, all comments will be considered, and the preferred alternative will be selected by the Project Development Team, documented in the Project Report, and then approved by the Department. In accordance with CEQA, the Department will certify that the proposed project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. The Department will then file a Notice of Determination with the State Clearinghouse that will identify whether the proposed project will have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that a Statement of Overriding Considerations was adopted. With respect to NEPA, the Department, as assigned by FHWA, will document and explain its decision regarding the selected alternative, project impacts, and mitigation measures in a Record of Decision in accordance with NEPA.

# 2.5 Alternatives Considered but Eliminated from Further Discussion

## 2.5.1 Overview of Alternatives Screening Process

The Department, in working with FHWA and STA, developed a preliminary set of potential alternatives that could meet the project purpose and need. Alternative screening was used to determine a set of reasonable and feasible alternatives to be studied in detail in this EIR/EIS. Information used in the screening process was based on preliminary studies and evaluations, including traffic forecast modeling, field studies and mapping, literature and data reviews, and discussions with federal, state, and local agency officials.

## 2.5.2 First-Level Screening and Alternatives Eliminated

Through an initial screening evaluation, 12 different interchange alternatives and variations were developed and evaluated. These original 12 alternatives were reduced to four feasible alternatives through a first-level screening process. The first-level screening process involved weighing the initial alternatives qualitatively for fatal flaws against critical criteria, including ability to meet the proposed project's defined purpose and need, potential for unavoidable environmental impacts, overall project cost, and ability to provide adequate traffic operation improvements.

Several of the initial alternatives included elimination of various interchanges with local roadways. However, traffic analysis of these alternatives showed that elimination of even one local road interchange within the greater project limits would push so much local traffic to an adjacent local interchange that the affected interchange would then operate at level of service (LOS) F, even with modifications to improve traffic flow and capacity. An LOS F for any interchange was considered an unacceptable result of implementing an alternative.

Alternatives that included I-680 connecting with I-80 on the outside (i.e. right-side connections) at the current I-80/I-680 interchange location were determined to be operationally unacceptable

because there are too many vehicles using the outside (right) lanes of I-80 entering from SR 12W and SR 12E. Because the I-680 ramps are connecting with I-80 between them, there is not enough distance for the incoming traffic from SR 12W and SR 12E to shift to median lanes, and the weaves with I-680 traffic become problematic.

Additionally, transit-oriented and non-traditional alternatives were considered in the initial set of alternatives. These alternatives, as stand-alone alternatives, were determined insufficient to meet the project purpose and need. These alternatives, and the reasons for eliminating them as stand-alone alternatives, are described below.

## Eliminate I-80/Green Valley Road Interchange Alternative

This alternative would have involved removing the I-80/Green Valley Road interchange and routing traffic through Suisun Valley Road, two proposed Red Top Road interchanges (SR 12W, I-680), and the existing Red Top Road interchange on I-80. This alternative was removed from further consideration because it would not sufficiently address traffic operations.

## Combine I-80/Green Valley Road and I-80/Suisun Valley Road Interchanges Alternative

This alternative would have combined the I-80/Green Valley Road and I-80/Suisun Valley Road interchanges as a couplet by eliminating the ramps between them and routing traffic through frontage roads to the adjacent interchange. This alternative was removed from further consideration because it would not sufficiently address traffic operations.

## Eliminate I-80/Suisun Valley Road Interchanges Alternative

This alternative would have removed the I-80/Suisun Valley Road interchange and routed traffic through Green Valley Road and two of the three proposed Red Top Road interchanges (SR 12, I-680). This alternative was removed from further consideration because it would not sufficiently address traffic operations.

## South Parkway—Four-Lane Arterial Alternative

This alternative would have involved widening Cordelia Road to a four-lane facility to connect I-680 and SR 12E. This alternative was rejected because of the proposed use of the local road network for regional trips and because it would place a transportation facility within the Primary Suisun Marsh, which is prohibited by state law (the Suisun Marsh Preservation Act of 1974).

## South Parkway—Expressway/Freeway Alternative

This alternative proposed a parallel arterial south of I-80 intended to connect I-680 and SR 12E. This alternative was rejected because it would place a transportation facility within the Primary Suisun Marsh, which is prohibited by state law (the Suisun Marsh Preservation Act of 1974).

## South Parkway—Frontage Alignment Alternative

This alternative would have constructed a new alignment parallel to the existing freeways east of I-680 and south of I-80, to connect I-680 and SR 12E. This alternative was rejected because of impacts on historic resources and its limited ability to improve traffic operations, which provided minimal incentive for commuters to travel an arterial with multiple signals instead of a freeway segment of the same length.

## Transportation System Management (TSM) Alternative

The objective of TSM is to reduce congestion using the existing infrastructure. A stand-alone TSM alternative would typically involve construction of auxiliary lanes, reversible HOV lanes, and ramp metering facilities to improve the efficiency of the existing facilities without increasing the number of through lanes on the freeways. However, HOV lanes, auxiliary lanes, and ramp metering are already in operation or planned in the project area under other, separate projects (i.e., I-80 HOV lanes, auxiliary lanes associated with I-80 improvements through Fairfield) which are the primary TSM strategies for maximizing efficiency of the existing facilities. In addition, the project alternatives include specific TSM components such as construction of HOV lanes on I-680 within the project limits and HOV direct connector ramps between I-680 and I-80. As a result, TSM measures would not be effective as a stand-alone alternative to meet the purpose and need to reduce congestion and improve safety within the corridor. STA also will continue to implement TSM strategies throughout the County guided by plans and programs contained in the CTP regardless of the proposed project. Based on this assessment, the TSM alternative was withdrawn from further consideration.

#### Transportation Demand Management (TDM) Alternative

A stand-alone TDM alternative would consist of programs and projects to improve mass transit systems (i.e., bus and train) by providing incentives for using alternate forms of transportation to reduce the number of vehicle trips and reduce vehicle miles traveled within the project area. As discussed in Section 2.3.6, STA is already implementing numerous TDM strategies as part of its ongoing programs and projects. TDM strategies are critical components of STA's CTP, as part of both the Transit and Alternative Modes Elements. The CTP integrates TDM strategies into a comprehensive approach to address transportation needs within the County over the next 20 years.

STA and its member and partner agencies currently operate or are planning rail, ferry and intercity bus systems that serve the project area.

The Capitol Corridor intercity rail service which is operated by the Capitol Corridor Joint Powers Authority (CCJPA) provides train service paralleling the I-80 corridor between Sacramento and Oakland/San Francisco and is the third busiest intercity passenger rail service in the nation with a 12-month ridership of 1,723,422 between March 2008 and February 2009. The Capitol Corridor currently operates 32 weekday trains between Sacramento and Oakland, and 14 daily trains between Oakland and San Jose. The CCJPA has a Capital Improvement Program intended to increase reliability and capacity, upgrade track infrastructure, build or renovate stations, add rolling stock, and reduce travel times.<sup>2</sup>

Nine public intercity bus routes are presently operated by Solano County transit agencies. One route (Route 20) connects Fairfield-Vacaville, another (Route 30) connects to Davis and Sacramento, two routes (Routes 40 and Benicia Route 1) connect to the Pleasant Hill BART Station, two routes (Route 85 and Benicia Route 1) connect to the Vallejo Ferry Terminal and three routes (Routes 80, 90 & 91) connect to the El Cerrito del Norte BART Station. Public intercity bus connections to Napa from Vallejo are provided by VINE Transit and YoloBus

<sup>&</sup>lt;sup>2</sup> Capitol Corridor Intercity Passenger Rail Service, Business Plan Update, FY 2009-10 – FY 2010-11, March 2009

provides connections to Winters and Davis from Vacaville. No Sunday service is currently provided on these lines. Each of the transit providers that serve the project area have short-term plans focused on upgrading existing service and equipment. The Solano Comprehensive Transportation Plan, Transit Element (STA 2005) sets forth the long-term plan for improving transit, rail and ferry service in the region. A critical component of the local transit system is the Fairfield Transportation Center which was opened in 2001 with 400 parking spaces and has proven very successful. A 234 space Phase 2 expansion to the Center was completed at the end of 2004.

The I-80/I-680/I-780 Transit Corridor Study (STA July 2004) analyzes existing transit services and demand, and provides short and long range transit plans for intercity express bus services and auxiliary facility improvements, such as direct access ramps to center median High Occupancy Vehicle (HOV) lanes, park and ride, and transit center demand & site planning. This study indicated that bus service quality and efficiency along with patronage are all impacted by congestion. Under current traffic conditions, there are hot spots of peak period congestion on Solano County's freeways. Without investment in the transportation infrastructure, this congestion will worsen and spread. In the a.m. peak period, congestion occurs in the following locations: I-80 westbound from east of SR 12E to the SR 12W exit and westbound from I-780 to the Carquinez Bridge; I-680 southbound to the Benicia Bridge; and I-780 eastbound leading up to the Benicia Bridge. In the p.m. peak period, congestion occurs in the following locations: I-680 northbound and I-80 eastbound before the I-80/680 merge; and I-80 eastbound from SR 12E to North Texas. At the time of this study there were no HOV lanes in Solano County. The report concluded that the buses are simply delayed along with general traffic on these segments at peak commute times.<sup>3</sup> Since this study was published in 2004, HOV lanes have been constructed along the portion of I-80 between SR 12W and Airbase Parkway. The proposed I-80/I-680/SR 12 Interchange project would include HOV direct connector ramps between I-80 and I-680 which are specifically called out in the Transit Corridor Study as important to improving transit efficiency.

As described above, numerous TDM programs are already in place within the project area including substantial rail and transit options and programs. As indicated in the I-80/I-680/I-780 Transit Corridor Study, transit service is greatly affected by existing and future congestion on the freeway system. The proposed project alternatives would involve substantial improvements to reduce congestion and include HOV direct connectors which would directly benefit transit users. In addition, there are well established existing rail and transit options available to the public in the project area and plans to continue to improve and expand these services. Finally, a standalone TDM alternative would not be able to meet key elements of the project purpose and need, particularly the need to reduce truck congestion and improve automobile safety and truck inspection. For these reasons, a stand-alone TDM alternative was withdrawn from further study.

## Smart Growth/Sustainable Communities Land Use Policy Alternative

A smart-growth alternative would help redefine commuter's transportation choices by providing them with more options in housing, shopping, communities, and transportation, which is a key objective of smart growth. Communities are increasingly seeking these choices (especially a wider range of transportation options) in an effort to improve congested roadways and stressed

<sup>&</sup>lt;sup>3</sup> STA I-80/I-680/I-780 Transit Corridor Study, Wilbur Smith Associates, July 2005, page 1.

transportation systems. Under a smart-growth alternative, new approaches to transportation planning, such as better coordinating land use and transportation; increasing the availability of high-quality transit service; creating redundancy, resiliency and connectivity within the local road networks; and ensuring connectivity between pedestrian, bike, transit, and road facilities, would be implemented. Essentially, a multi-modal approach to transportation with supportive development patterns would be implemented to create a variety of transportation options. This alternative was considered as a stand-alone option, but removed because it would not achieve many of the objectives of the proposed project, and neither the Department nor STA has the authority to require local governments to implement specific land use policies tied to smart growth. Therefore this is not a viable alternative for the proposed project. However, as explained above under TSM/TDM alternatives, elements of this stand-alone alternative are being implemented by STA, including providing transit service and incentives for carpooling and using alternate forms of transportation. These programs include an employer program; a vanpool program; emergency ride home, an outreach /awareness campaign; a bike to work campaign; a general marketing; and partnerships. These programs are being implemented by STA as part of its overall operations program, independent of any particular project.

## 2.5.3 Second-Level Screening and Alternatives Eliminated

Only four of the 12 alternatives were determined feasible from the initial first-level screening process and were carried forward for further analysis as Alternatives A to D. Alternative A would realign I-680 to connect with I-80 in the I-80 median with parallel collector-distributor (C-D) roads constructed along the outside edges of I-80. Alternative B would realign I-680 to connect with I-80 median, but with minor variations to allow the C-D roads to be eliminated. Alternative C would realign I-680 westward to connect with I-80 at the existing I-80/SR 12W interchange. Alternative D would realign I-680 along a viaduct to connect with I-80 east of the existing truck scales.

Alternatives A to D were then further developed and evaluated along with a no-project/no-build alternative through a second-level screening process, which involved a more rigorous and quantitative assessment of the alternatives against several measures and objectives. Alternatives A and D were eliminated from further consideration, and are described below. The second-level screening process identified Alternatives B and C as the two most reasonable and feasible alternatives to be carried forward and studied in detail in this EIR/EIS.

## Alternative A—I-680 to Median with Collector-Distributor Roads Alternative

Alternative A would have retained the same basic alignments that exist today, but would have included eastbound and westbound C-D roads parallel to I-80 to handle local traffic from the I-80/Green Valley Road and Suisun Valley Road interchanges. The I-80/SR 12W interchange would have been braided with C-D roads. The I-80/I-680 interchange would have been reconfigured so that the I-680 connectors come into and out of the median of I-80, along with the HOV connectors. Local traffic would have used C-D roads to access the I-80/Suisun Valley Road interchange, and trucks would have used them to travel between the truck scales and I-680 without having to weave across the median or I-80. There would have been no direct connections from northbound I-680 to westbound I-80 or westbound SR 12. Traffic would have needed to use local arterial roads. The truck scales would have been reconstructed and braided ramps with the

C-D roads and the SR 12E interchange would have been provided. All proposed project changes on I-80 east of Suisun Creek would have been identical to Alternatives B and C.

Traffic analysis indicated that Alternative A would have greater environmental and right-of-way impacts than Alternative B would have but with little added benefit. This alternative had the highest anticipated impact on wetlands and waters of the United States, and would have been the most problematic for effective operation of the truck scales. Additionally, this alternative had the second-highest estimated overall cost after Alternative D. Because of the higher cost and greater environmental impacts and right-of-way acquisition, this alternative was eliminated.

#### Alternative D—I-680 Viaduct Alternative

Alternative D would have retained the same basic alignment as the existing interchange complex, but would have replaced the I-80/I-680 connectors with parallel viaducts running along the outside of I-80 between I-680 and SR 12E to allow traffic commuting between I-680 and I-80 to bypass the I-80/Suisun Valley Road interchange and the truck scales. The viaducts would have connected to I-80 near the relocated truck scales and would have been braided with SR 12E. Direct connector ramps would have also been maintained between eastbound I-80 and southbound I-680, allowing access from I-680 to the I-80/Suisun Valley Road interchange, the truck scales, and SR 12E via I-80. There would have been no direct connections from I-680 northbound to I-80 westbound and SR 12 westbound. Traffic would have needed to use local arterials. HOV connectors between I-680 and I-80 would have been provided. The I-80 viaduct would have been braided with the SR 12E connector ramps. The truck scales would have been reconstructed and would have braided ramps on the east. SR 12W would have been braided with the I-80/Green Valley Road interchange, and the slip ramps would have been braided with the I-80/Suisun Valley Road interchange.

Although Alternative D would have provided some operational benefits during peak-hour traffic periods, it would have performed less effectively during uncongested travel periods. This alternative would have had the greatest negative visual impact because of the elevated structures (viaducts) and would have affected a much larger area of wetlands, waters of the United States, and riparian habitat than Alternatives B and C. This alternative also lacked political support because it reduced access to commercial land uses in the area. Finally, it was the most expensive of the alternatives. Therefore, Alternative D was removed from consideration because the significant visual impact, alteration of access to commercial areas, greater environmental impacts, and high cost.

# 2.6 Permits and Approvals Needed

Table 2-3 lists the permits and other approvals that would likely be necessary for the various project elements.

Δαρηςγ	Permit Approval or Consultation	Status
U.S. Fish and Wildlife Service	Consultation under Section 7 of the federal Endangered Species Act for Phase 1 project	To be completed before NEPA is completed
National Marine Fisheries Service	Consultation under Section 7 of the federal Endangered Species Act for Phase 1 project	To be completed before NEPA is completed
U.S. Army Corps of Engineers	Clean Water Act Section 404 individual permit for placement of fill for Phase 1project	Application to be submitted after NEPA is completed
California Department of Fish and Game	California Fish and Game Code Section 1602 streambed alteration agreement for waters of the state; potential consultation under Section 2081 of the California Endangered Species Act (CFG Code, Sections 2050 et seq.); CEQA trustee agency for Phase 1 project	To be completed after CEQA is completed
San Francisco Bay Regional Water Quality Control Board	Non-point Clean Water Act Section 402 National Pollutant Discharge Elimination System permit (General Construction Permit), Clean Water Act Section 401 water quality certification for Phase 1 project	Application to be submitted after CEQA is completed
Bay Area Air Quality Management District	Permit for air pollutant emission–generating equipment for Phase 1 project	Application to be submitted if portable engines and certain other equipment have not previously been registered with the California Air Resources Board after CEQA is completed
California Public Utilities Commission	General Order 131-D filing requirements for high-voltage electrical lines	Application to be submitted after CEQA is completed
Solano County	Marsh development permit	Application to be submitted after CEQA is completed
Federal Highways Administration	Air Quality Conformity Concurrence	To be completed before NEPA is completed

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# 2.7 Project Cost, Funding and Schedule

## 2.7.1 Cost

Two alternatives were developed for this project. These were developed to meet the transportation demands of the project area, taking into consideration engineering, environmental, and other constraints with little focus on near-term financial constraints (i.e., to meet local agency CEQA and right-of-way acquisition needs). The fundable first phase of each alternative (Phase 1) was developed as a subset of the alternative and represents a fundable project based on near-term Department and FHWA financial constraints.

The total escalated cost is \$2.24 billion for Alternative B and \$2.12 billion for Alternative C. The total escalated cost for Alternative B, Phase 1 is \$580 million and \$690 million for Alternative C, Phase 1. The cost estimates for the project alternatives are provided in Table 2.4.

	(lı E	Alternative B ncluding SR12 East Option 2)	(lı E	Alternative C ncluding SR12 East Option 1)	Alternative B1 (Fundable First Phase of Alternative B)		Alternative C1 (Fundable First Phase of Alternative C)	
Total roadway items	\$	654,000,000	\$	595,000,000	\$	226,000,000	\$	232,000,000
Total structure items	\$	200,000,000	\$	258,000,000	\$	96,000,000	\$	152,000,000
Truck scales	\$	25,000,000	\$	25,000,000	\$	-	\$	-
Subtotal construction costs	\$	879,000,000	\$	878,000,000	\$	322,000,000	\$	384,000,000
Total right of way items	\$	175,000,000	\$	167,000,000	\$	81,000,000	\$	115,000,000
Support	\$	209,000,000	\$	209,000,000	\$	77,000,000	\$	86,000,000
Environmental mitigation	\$	13,900,000	\$	13,700,000	\$	1,400,000	\$	5,100,000
Subtotal	\$	223,000,000	\$	223,000,000	\$	78,000,000	\$	91,000,000
Total alternative cost (2010 \$)	\$	1,277,000,000	\$	1,268,000,000	\$	481,000,000	\$	590,000,000
Escalated total alternative cost	\$	2,208,000,000	\$	2,092,000,000	\$	577,000,000	\$	686,000,000

#### Table 2-4. Construction Cost Estimate Summary

The cost escalation was calculated beginning with 2010 dollars. No escalation was assumed through the year 2013. An escalation rate of 2% was used for both right-of-way and construction and support costs for 2014. For 2015 through 2019 an escalation rate of 2% for right-of-way costs and 5% for construction and support costs was used. After 2019, an escalation rate of 2% for right-of-way costs and 3% for construction and support costs was assumed.

## 2.7.2 Funding

Revenues for transportation improvement projects are generated from a variety of sources. The primary traditional sources for state transportation projects are state gasoline and diesel fuel taxes, vehicle weight fees, and federal revenues. Additional sources include regional bridge toll funds, local funds, and private funds.

In order for a project to obtain federal transportation funding, it must be included in the Regional Transportation Plan (RTP). The Metropolitan Transportation Commission (MTC) is responsible for adopting the Bay Area's RTP. The current version is titled as the Transportation 2035 Plan. Adopted by MTC on April 22, 2009, the Transportation 2035 Plan describes the strategies and investments required to maintain, manage, and improve the transportation network within the nine-county San Francisco Bay Area. MTC now updates the RTP every four years.

The I-80/I-680/SR12 Interchange Project is included in the current RTP, in the Financially Constrained Element, as part of several identified improvements, with a combination of programmed and planned local, state, and federal funds available over the long term of the Transportation 2035 Plan. Table 2-5 presents proposed funding types and sources and associated amounts for the Phase 1 of the alternatives.

Funding Type and Source	Funding Amount
Bridge Toll Funds	\$ 99.0
CMIA	24.0
STIP	11.4
Committed Funds	261.2
Discretionary Funds	362.0
Total Funding	\$757.6

Table 2-5 F	Project Funding	Sources	dollars in	millions and	escalated)
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## 2.7.3 Schedule

This Draft EIR/S will be available for public comment for 60 days. After the public circulation period, all comments from the public and reviewing agencies will be considered. At that time, the Department, as assigned by FHWA, may (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the preferred alternative will be selected, and documented in the Project Report. After the preferred alternative has been selected, a Notice of Determination will be issued on one of the alternatives under CEQA, and a Record of Decision will issued on the corresponding fundable first phase under NEPA.

Construction of Phase 1 of the selected project is expected to begin in 2012 and be completed by  $2016^4$ .

<sup>&</sup>lt;sup>4</sup> This EIR/S uses the analysis year of 2015 to represent the construction-year for the project. The construction year analysis (2015) represents conditions and effects of the project alternatives upon completion of the fundable first phase (Phase 1s). Year 2015 was deemed appropriate for the construction-year because traffic forecasts and other environmental information is readily available for the year 2015 and the fundable first phase is anticipated to be complete in essentially the same time period (year 2016).



Source: Circle Point 2008.



Figure 2-1 Project Area Map



Figure 2-1a Project Area Map - Western Segment



Figure 2-1b Project Area Map - Central Segment



Figure 2-1c Project Area Map - Eastern Segment







