Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance Under CEQA

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS), or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the Department to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report (EIR) must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in

this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Standard Measures, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. All Standard Measures are included in Appendix E. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

Where potential impacts are anticipated to be significant, avoidance and mitigation measures (AMMs) will be required, so that impacts may be avoided or reduced to insignificant levels. AMMs are included in Appendix C.

3.2.1 Aesthetics

Chapter 2.1.10 provides a comprehensive discussion of the visual/aesthetic resources in the project area. The following is an evaluation of the potential impacts on aesthetics from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact aesthetics in the project area and is therefore not discussed further.

a) Have a substantial adverse effect on a scenic vista?

a) Less-than-Significant Impact

Solano County considers views of the Coast Range and nearby hills as scenic vistas. The project does not propose features in Solano County that would substantially impact this vista. No locally or state-designated scenic vistas were identified in Yolo or Sacramento counties from which the project would be visible. Rice Point in the Yolo Bypass Wildlife Area (YWBA) is a wildlife viewing area but is not designated scenic. Some project temporary construction and overhead signage components would have visibility from Rice Point; however, at a distance of 0.5 mile or more, it would not have a substantial effect on views from this location.

The visual impact assessment (VIA) completed for the project (Caltrans 2022a) identified skyline views of downtown Sacramento to be a visual resource for southbound travelers and pedestrians using overpasses within the corridor. The project proposes to introduce new or replaced overhead signage elements that would constitute visual intrusions that could partially obscure the skyline from select vantage points, primarily on the Yolo Causeway and US-50. However, the infrequency of these elements, short duration of visual obstruction, the elevated position of pedestrians and cyclists on bridges above the structures would not result in a substantial visual change on a scenic vista.

The impact on scenic vistas would be less than significant for all Build Alternatives. AMMs 1 through 5 (Appendix C) will be used to avoid or reduce potential project impacts on visual resources and aesthetics associated with the project.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

b) No Impact

The project corridor is not designated scenic or eligible by Caltrans. For purposes of this analysis, eligible and designated State Scenic Highways, as well as locally designated highways/roadways/corridors near the project were identified and reviewed for potential visual impacts that could result from the project. A summary of each county follows.

3.2.1.1 Solano County

Caltrans has not officially designated any State Scenic Highways in Solano County. However, both I-80 and SR-113 have been designated by the County as local scenic roadways. Temporary construction staging activities are proposed at the I-80/Kidwell Road loop ramp, which is within the County-designated scenic roadway segment of I-80. While tree and vegetation removal would occur as part of the project, it is unlikely that trees would be removed from this staging area since ample staging areas are available within the project corridor; and Caltrans policy is to preserve these resources where feasible.

3.2.1.2 Yolo County

In Yolo County, Caltrans has not officially designated any State Scenic Highways within or near the project limits.

3.2.1.3 Sacramento County

In Sacramento County, the County has designated I-80, I-5 (at US-50), Garden Highway and the Sacramento River as scenic corridors. Sacramento County states that beautifying the freeways makes travel more pleasant and creates a more attractive environment.

As discussed above, the project would have no impact on state-designated or eligible scenic highways.

C) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

c) Less-than-Significant Impact

The project traverses both non-urbanized and urbanized areas. The Solano County visual assessment unit (VAU) mostly includes agricultural lands uses, and the Yolo County VAU mostly includes wildlife preserve land uses. Therefore, the Solano County VAU and the Yolo County VAU are in non-urbanized areas. The Davis VAU and the West Sacramento VAU mostly include suburban land uses such as residential, commercial, and industrial. Therefore, the Davis VAU and the West Sacramento VAU are in urbanized areas.

Build Alternatives 2a and 2b

Highway users would experience short-term visual impacts due to construction. Short-term impacts would add visual intrusion and disturbances to the corridor and would reduce the intactness and unity of the visual resources in the visual resources study area. Equipment and machinery would be stationed at staging areas within the project limits, and traffic control signage would be used as needed. Temporary visual effects from the construction would be typical of any major corridor improvement.

Build Alternative 2a would expand paving, add managed traffic components, add overhead signage, remove trees, install rock slope treatments, and remove existing median plantings, all of which would degrade the visual character and quality of the site/corridor and its surroundings through the increased urbanized aesthetic change. However, in non-urbanized areas, the project components would be less than in urbanized areas.

Tree and median vegetation removal proposed has the potential to degrade the existing visual character and quality of public views of the site and its surroundings. Trees and bushes would be removed to accommodate off-ramp widening (Davis/Richards Boulevard), bike path extension (at CR 32A in the Yolo VAU), the Park-and-ride facility (east of Harbor Boulevard in West Sacramento), the I-80 connector ramp (West Sacramento), and a drainage facility in West Sacramento. The precise number of trees and bushes proposed to be removed is included in the Natural Environment Study and other documents associated with biological resources prepared for the project.

In the Davis VAU, median oleander vegetation removal would occur over 3.6 miles. Their value as a visual resource is moderate-high, and the visual impacts of their removal would be moderate-high. This value is related to their position within the visual environment and the notable effect they have of breaking down the scale of the roadway for highway users by screening oncoming traffic with a living vegetative visual barrier. They also add a defining element of vegetative character to the VAU and introduce year-long seasonal interest by being evergreen in the winter when most of the vegetation region-wide is deciduous, and by flowering from spring through fall.

Implementation of AMM AES-3 would replace highway plantings and vegetation, including oleander. Landscaping and revegetation plans would be prepared to maintain, repair, and expand corridor landscaping and vegetation where proper setbacks exist and where feasible. Plantings would occur as close to the original impacts as possible. When native, naturally occurring, or specimen trees are removed, replacement plantings would reflect the visual importance of the plantings lost. This measure would reintroduce the lost vegetative character to the corridor which would recover and improve as the plantings mature.

Overhead signage has the potential to degrade the existing visual character and quality of public views of the site and its surroundings. As depicted in several KVs, new overhead signage can reduce the character and quality of a view. The proposed managed traffic components and overhead signage would be consistent with existing similar features in the corridor, but they would also increase the dominance of the freeway in the visual environment of the corridor. However, sensitivity to these additional signs would be moderate for many highway users since they are consistent with expectations of traveling on an interstate, and proposed signage elements are visually comparable with existing signage elements. Implementation of AMM AES-4 would avoid or minimize views of new overhead signage from visually sensitive locations. Where new overhead signage is proposed, refinements to their final location would be considered to avoid or screen direct views from sensitive viewsheds such as those of homeowners and recreationalists.

The rock slope protection strategies proposed have the potential to degrade the existing visual character and quality of public views of the site and its surroundings. However, these impacts would be less than significant. This is primarily in the area of the new bike lane extension at CR-32A that is proposed under Bicycle Option “b” (see KV YO 1). AMM AES-2 would minimize high-contrast rock slope protection by specifying rock colors and/or stains which match or complement the predominant, immediately adjacent landscape color. Alternatively, planted options at this location would be considered.

Many of the project corridor improvements proposed by the project would be largely consistent with the existing visual environment. However, in the Davis VAU (approximately 3.6 miles) the removal of the median vegetation would have the impact of increasing the dominance of the existing highways features. When combined with the increase in signage and paving, the project would alter the character of the roadway. Although the 42-inch-tall concrete median would buffer some of those views, its character is not comparable with the character of the existing vegetation. However, as described previously, implementation of AMMs AES-1 through AES-4 would reduce the magnitude of these effects.

Build Alternative 2b would include the proposed I-80 connector structure in the West Sacramento VAU. The visual condition through this 1-mile segment of the project would be altered by the addition of an elevated, I-80 connector structure which would include significant tree removal (70 trees), grading, new landforms, aerial structures, columns, and walls. Elements on the structure may be visible from adjacent residential areas, though this visibility is expected to be limited by combinations of distance, vegetative screening, and screening of existing built forms such as other homes and existing sound walls. The proposed I-80 connector structure would introduce walls of significant height into the center median of the freeway, which is unprecedented in the VAU, the project corridor, and the broader regional freeway system. This landform and the walls in the center median of the mainline would reduce visual access in segments of the corridor which are currently open. Additionally, existing overhead power lines and structures may need to be relocated or increased in height to maintain required clearances.

Implementation of AMMs would reduce the magnitude of these effects. AMM AES-3 would require replacement trees be planted on the I-80 connector structure’s earthen berm. AMM AES-4 would reduce views of any new overhead signage that may be proposed on the I-80

connector structure. AMM AES-5 would refine the design of the I-80 connector structure to prioritize solutions which reduce visual impacts and limit potential to require power line relocation.

Build Alternatives 3a and 3b

In addition to the impacts noted in Build Alternative 2a, Build Alternative 3a includes the installation of 35 additional overhead signs and read points. These signs would be similar in scale to existing signage; but they would be inconsistent with existing signage color and would result in an increased frequency of signage throughout the corridor. The read points are mounted on poles similar to pole lighting; however, the equipment mounted to them and their pronounced position over the number one lane every 0.5 mile would be a notable and unprecedented visual intrusion. Sensitivity to these additional signs and read points would be moderate for many highway users since they are somewhat consistent with expectations of traveling on an interstate through an urbanized area. For highway neighbors, new overhead signs visible from sensitive locations would degrade the character and quality of the surroundings. Implementation of AMM AES-4 would reduce the magnitude of these effects by requiring that the location of all new overhead signage and read points be reviewed and that sensitive locations are avoided or screened to the extent possible. Furthermore, read points would be integrated into existing and proposed overhead structures where feasible.

Build Alternative 3b would include the proposed I-80 connector structure. Accordingly, with implementation of AMMs AES-3 through AES-5, impacts on visual character and quality in the project area would be reduced. Impacts would be less than significant.

Build Alternatives 4a and 4b

Build Alternatives 4a and 4b propose similar project components within the same project area as Build Alternatives 3a and 3b. Therefore, impacts would be similar to those described for Build Alternatives 3a and 3b.

Build Alternatives 5a and 5b

Build Alternatives 5a and 5b propose similar project components within the same project area as Build Alternatives 3a and 3b. Therefore, impacts would be similar to those described for Build Alternatives 3a and 3b.

Build Alternatives 6a and 6b

Build Alternatives 6a and 6b propose similar project components within the same project area as Build Alternatives 2a and 2b. Therefore, impacts would be similar to those described for Build Alternatives 2a and 2b.

Build Alternatives 7a and 7b

For Build Alternative 7a the visual character and quality of the site and its surroundings would be altered by the project, but to a lesser degree than Build Alternatives 2a–6a since this alternative does not propose impacts on the median vegetation in the Davis VAU nor does it

propose an I-80 connector structure in the West Sacramento VAU (Alternative 7b). Impacts and measures noted above, which Alternative 7a shares with other “a” Alternatives would apply. With implementation of AMMs AES-3 through AES-4, effects would be reduced.

Build Alternative 7b would also include the proposed I-80 connector structure in the West Sacramento VAU. With implementation of AMMs AES-3 through AES-5, effects would be reduced. Impacts would be less than significant.

D) Would the project create a new source of substantial light or glare that would adversely affect day or nighttime public views?

For Build Alternatives 2a and 2b through 6a and 6b, temporary sources of light and glare would occur during the construction phase which would include nighttime work. Permanent bridge deck lighting with Type 21 Barrier-Rail-Mounted Lighting Standards would be added to the Bryte Bend Bridge at approximately 150 feet on center along the outside barrier rails. Lighting may also be added at proposed auxiliary lane locations and the new bike lane near CR-32A. The luminary style is set by Caltrans standards for roadway safety and maintenance and has standard features to limit light and glare impacts. In some instances, such as at the Bryte Bend Bridge, new lights may be visible from sensitive public viewing areas, such as residential areas, at angles which bypass standard cut-off and shielding features. This new lighting would introduce views of new sources of light into nighttime public views. These views currently include lights associated with vehicle traffic, though most direct views are shielded by the bridge barrier rail. The level of lighting would not be substantial, and only a few residents would be in proximity to the light.

Where median vegetation is not present, or the current barrier height is being raised by the project, exposure to light and glare from oncoming traffic is anticipated to decrease. However, throughout most of the Davis VAU, the changes proposed by the project to remove center median vegetation would permanently expose users to increased sources of light and glare (except Build Alternatives 7a and 7b). The center median vegetation currently provides a dense evergreen visual buffer through segments of the project corridor. Its removal would create or increase exposure to light and glare associated with vehicles and their headlights. The barrier itself may also become a source of glare on bright sunny days if the concrete color is too light. Glare impacts would occur to highway users during the day and would be primarily associated with sunlight reflecting off vehicles or the barrier rail. Light and glare impacts would also occur in the evening and would primarily be associated with vehicle headlights. Impacts would be variable by time of day, weather conditions, traffic volume, and other factors. Impacts would be experienced primarily and most notably by highway users. The 42-inch center median barrier would provide an effective screen for some highway users where the barrier blocks their line of sight to sources of light and glare. The center median concrete barrier would also provide some screening for lower profile vehicles but less for higher profile vehicles. The barrier would provide reduced screening where variations in any combination of topography, distance, vehicle size, vehicle profile (user position), superelevation, and/or roadway grading create lines of sight greater than its height from the perspective of a given observer. The median vegetation in the Davis VAU is most commonly more than 42 inches, and through some segments of the corridor exceeds 12 feet; therefore, exposure is anticipated to increase. These conditions would be

similar to the immediately adjacent segments of the corridor and are common throughout the interstate system. Although light and glare exposure would increase, the impact would be less than significant. AMM AES-1 would require the concrete color selected reduce glare potential and the impact would remain less than significant.

Build Alternatives 7a and 7b light and glare impacts would be similar to the other Build Alternatives, except that changes to the median are not proposed so impacts in the Davis VAU would be reduced. Impacts would be less than significant.

3.2.2 Agriculture and Forest Resources

Section 2.1.4, Farmlands, provides a comprehensive discussion of the agricultural resources (farmland) in the project area. The project area is not located within areas designated for forest land or timberlands. The following is an evaluation of the potential impacts on agricultural resources from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact agricultural resources and is therefore not discussed further.

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

a), b), e) No Impact.

As summarized in Section 2.1.3 and shown in Figure 2.1-1, the Land Use Study Area includes several farmland areas, mostly located within unincorporated portions of Sacramento, Yolo, and Solano Counties. Build Alternatives 2a through 7a would occur almost entirely within the Caltrans right-of-way and would include a new permanent easement for construction of a Park-and-Ride Facility. However, because this area is not designated as agricultural, the project would not result in the conversion of any important farmland or Williamson Act land to non-agricultural uses. Therefore, there would be no impacts on agriculture or forestry using Build Alternatives 2a and b through 7a and b.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

d) Result in the loss of forest land or conversion of forest land to non-forest use?

c), d) No Impact.

Because the project area is not located within areas designated for forest land or timberlands, there would be no impact on forest land or timberlands resulting from Build Alternatives 2a and 2b through 7a and 7b.

3.2.3 Air Quality

Section 2.6, Air Quality, provides a comprehensive discussion of the air quality in the project area. The following is an evaluation of the potential impacts on air quality from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact air quality and is therefore not discussed further.

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

a) Conflict with or obstruct implementation of the applicable air quality plan?

a) Less than Significant Impact

The goal of the project is to improve mobility by implementing managed lane strategies and improving transit access along the corridor, which would reduce traffic congestion, improve traffic flow, reduce travel time, and increase travel time reliability by actively managing recurrent and non-recurrent congestion. Construction associated with the project would result in short-term emissions of criteria pollutants, and long-term operations for Alternatives 2 through 7 are expected to result in increases of criteria pollutants, primarily due to associated increases in VMT.

The project area is in the Sacramento Valley Air Basin (SVAB) and under the jurisdiction of the Sacramento Metro Air Quality Management District (SMAQMD), Yolo-Solano Air Quality Management District (YSAQMD), and Sacramento Area Council of Governments (SACOG). The SMAQMD and YSAQMD are the designated local authorities responsible for monitoring air pollution within the applicable portion of the SVAB, where the project would occur.

Ambient air quality standards have been established at both the state and federal levels. The area meets all federal ambient air quality standards except for ground-level ozone and fine particulate matter (PM2.5). At the state level, the region meets all ambient air quality standards except those for ground-level ozone and respirable particulate matter (PM10).

The SMAQMD and YSAQMD develop and administer plans and programs, including state implementation plans and redesignation requests, to reduce air pollution levels below the health-based standards established by the state and federal governments. SMAQMD has developed a construction mitigation protocol and standard levels. SMAQMD has also prepared several implementation/maintenance plans and redesignation requests for multiple criteria pollutants. Both the PM2.5 Implementation/ Maintenance Plan and Redesignation Request and the Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment Plan and Reasonable Further Progress Plan have exhaust and dust control measures for construction-related emissions. The U. S. Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) have adopted rules and emission standards that would reduce diesel particulate matter emissions from on-road and off-road engines for construction equipment.

For project operations, future emissions would generally decrease as older vehicles are replaced by newer vehicles with more stringent emissions and fuel economy standards. Based on the operational period emission data in Table 2.2-9 and Table 2.2-10 in Section 2.2.6 Air Quality, the magnitude of the emissions estimates for each of the Build Alternatives is very similar.

Project implementation will include Standard Measures GHG-1 through GHG-6 (see Appendix E), which would minimize emissions associated with construction activities. As such the project would not conflict with or obstruct implementation of the applicable air quality plan, and impacts would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?

b) Less-than-Significant Impact

An analysis of the regional emissions that would result from each Build Alternative was conducted using CT-EMFAC 2017 (Version 1.0.2) and regional traffic projections, truck percentages, and speeds from the SACOG SACSIM regional travel demand model to compute an emission “burden.” The analysis, presented in in Table 2.2-9 and Table 2.2-10 in Section 2.2, includes the cumulative and indirect travel demand impacts of the project, and shows that the Build Alternatives would have emissions similar to, or lower emissions than those of the No-Build Alternative and lower emissions than the baseline; therefore, impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

c) Less-than-Significant Impact

The areas adjacent to the project corridor primarily include both single-family and multifamily residential developments, commercial developments (e.g., restaurants, retail spaces, and offices), and some light industrial uses. Emissions from construction equipment and on-road vehicles powered by gasoline and diesel engines are anticipated. Construction activities in the area may also temporarily increase traffic congestion and slow the speed of traffic, resulting in a

temporary increase in on-road emissions. These emissions would be limited to the immediate areas (about 500 feet from the project footprint).

There are a limited number of receptors within 500 feet of the project footprint. Additionally, project construction will include Standard Measures GHG-1 through GHG-6, which would minimize emissions associated with construction activities, and impacts would be less than significant.

The project would not change the traffic mix and would not move major roadways closer to sensitive receptors. Additionally, all Build Alternatives would improve traffic operations and efficiency, which would help to reduce pollutant emissions, and impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

d) Less-than-Significant Impact

The project would not create objectionable odors affecting many people. Minor sources of odors (e.g., diesel engines) would be present during construction of the project. However, because odors would be temporary and would disperse rapidly with distance from the source, construction-generated odors are not anticipated to result in the adverse exposure of receptors to objectionable odorous emissions. Operational odors would be consistent with those under existing conditions, and impacts would be less than significant.

3.2.4 Biological Resources

Chapter 2.3, Biological Environment, provides a comprehensive discussion of the biological resources that occur, or have the potential to occur in the project area. The following is an evaluation of the potential impacts on biological resources from the Build Alternatives.

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

a) Less-than-significant impact with mitigation.

3.2.4.1 Special-Status Plant Species

As discussed in Chapter 2.3, Biological Environment, during the site surveys conducted in May 2021 and July 2022, none of the 25 special-status plant species that have potential to occur in the project area were observed. Standard Measure BIO-4 has been incorporated into the project to prevent the potential for the spread or introduction of non-native plants in the biological study area (BSA).

During construction, vegetation would be cleared only where necessary, and grubbing would be minimized to the maximum extent possible as required by Standard Measure BIO-11. Once construction is completed, disturbed areas would be replanted, reseeded, and restored in accordance with Standard Measure BIO-4. As such, impacts on special-status plant species would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

3.2.4.2 Special-Status Animal Species

During the site surveys conducted throughout 2021, Swainson's hawk, white-tailed kite, and northern harrier were identified in the BSA during the protocol-level Swainson's hawk and burrowing owl surveys. One bald eagle was incidentally observed flying over the BSA during the field surveys. None of the other 20 special-status animal species that have potential to occur in the project area were observed. However, the project area contains suitable habitat for these species; therefore, there is potential for these special-status animal species to occur within the project footprint.

Valley Elderberry Longhorn Beetle

The project would result in direct and indirect impacts on valley elderberry longhorn beetle (VELB). Standard Measures BIO-1, BIO-3, and BIO-4 have been incorporated into the project that would help to avoid adverse effects on VELB; however, impacts could be significant. AMMs BIO-16 through BIO-21 would further minimize impacts on VELB and impacts would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Giant Garter Snake

Approximately 4.265 acres of giant garter snake (GGS) habitat would be permanently impacted. Permanent habitat impacts would result from the bike path improvements. Approximately 3.669 acres of temporary habitat impacts would result from installation of the fiber-optic line, GSRD installation, bike path improvements, and staging areas. Direct impacts on GGS could result from the increase in 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, which would reduce potential habitat for the species. Standard Measures BIO-1, BIO-2, BIO-3, and BIO-4 have been incorporated into the project that would help to avoid adverse effects on GGS; however, impacts could be significant. AMMs BIO-22 through BIO-30 would be implemented to further minimize impacts on GGS and impacts on GGS would be reduced to less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Western Pond Turtle

Construction activities are not likely to impact breeding and nesting activities directly or indirectly since construction would occur outside the turtle nesting season; and certain construction activities, such as vegetation removal and soil compaction stemming from grading, would not affect areas where potential nesting habitat is present (e.g., open water and valley foothill riparian habitats along Putah Creek). Standard Measures BIO-1, BIO-2, BIO-3, and BIO-4, listed

in Appendix E, would minimize potential impacts to western pond turtle. In addition, AMM BIO-4 would allow for construction to cease until western pond turtles have left the work area, and AMM BIO-5 would require species-specific training for workers and impacts on western pond turtle would be reduced to less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Burrowing Owl

Suitable burrowing owl habitat was identified during protocol-level surveys. However, no active burrowing owl nests were observed during the nesting season surveys. None of the potential burrowing owl habitat identified is located within the permanent construction footprint and approximately 0.03 acre of concentrated burrows is located within the staging area adjacent to Kidwell Road at the west end of the BSA. However, if burrowing owls are present within the 500-foot buffer during construction activities, the project could result in temporary displacement due to project activities affecting potential burrow sites. Although no burrowing owl were observed during the 2021 nesting season, burrowing owl have a potential to nest in the areas mapped as suitable habitat and concentrated burrows as well as other areas, depending on-site conditions, in the future. Standard Measure BIO-1 requires the species to be covered in the Worker Environmental Awareness Training, which would help to avoid impacts on burrowing owl, but impacts could be significant. AMMs BIO-7 through 9 would be implemented, which require preconstruction surveys for burrowing owl and the implementation of buffers if active burrows are identified. As such, impacts on burrowing owl would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Swainson's Hawk

Twenty-four active Swainson's hawk nests were observed within 0.5-mile of the BSA during the protocol-level surveys in 2021. The project could result in a temporary and permanent loss of foraging habitat and displacement of nesting Swainson's hawk (SWHA) due to project activities. 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. The project would have temporary impacts on foraging habitat 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 Facility, proposed bike path improvements, connector ramp, and other road widening. About 10.0 acres of Swainson's hawk foraging habitat consisting of grassland and croplands (hayfield) would be permanently lost. Based on current project designs and the protocol survey results, no trees with active Swainson's hawk nests have been slated for removal. Standard Measures BIO-1 and BIO-2 have been incorporated into the project that would help to avoid adverse effects on Swainson's hawk; however, impacts could be significant. Implementation of AMMs BIO-31 through BIO-32 would minimize impacts on Swainson's hawk and as such, impacts on Swainson's hawk would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Western Yellow-Billed Cuckoo and Least Bell's Vireo

Western yellow-billed cuckoo and least Bell's vireo could use the riparian habitat surrounding Putah Creek, Sacramento River, and portions of the Yolo Bypass within and adjacent to the BSA as migratory stopover habitat. The suitable migratory stopover and foraging habitat (i.e., riparian vegetation) for western yellow-billed cuckoo and least Bell's vireo is located within existing Caltrans right-of-way where there are frequent anthropogenic 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 will be no impact on western yellow-billed cuckoo or least Bell's vireo.

Additionally, Standard Measures BIO-1 and BIO-2 have been incorporated into the project, which will further minimize potential impacts on migratory stopover and foraging habitat for western yellow-billed cuckoo and least Bell's vireo. As such, impacts on western yellow-billed cuckoo and least Bell's vireo would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Tricolored Blackbird and Yellow-Headed Blackbird

Nesting habitat identified for tricolored blackbird and yellow-headed blackbird within and adjacent to the BSA is minimal and in small, isolated patches. The most suitable nesting habitat identified during the assessment is the patch of willows, labeled as valley foothill riparian, at the northwest corner of the Kidwell Road interchange at the western end of the BSA. Both species typically nest in more extensive patches of vegetation. With limited habitat available, the likelihood of tricolored blackbird or yellow-headed blackbird nesting within or adjacent to the BSA 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.

Standard Measures BIO-1 and BIO-2 have been incorporated into the project which will help to minimize adverse effects on tricolored blackbird and yellow-headed blackbird; however, impacts could be significant. AMMs BIO-6 would minimize impacts on tricolored blackbird and yellow-headed blackbird, and as such, impacts on tricolored blackbird and yellow-headed blackbird would be reduced to less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Raptors, Other Nesting Birds, and Migratory Birds

Tree and vegetation removal would result in a temporary loss of nesting and foraging habitat for raptors, nesting birds, and migratory birds. Tree and vegetation removal may also affect foraging success, food sources for herbivorous birds, and reduction in prey density for carnivorous or insectivorous birds. Following completion of construction, trees would be replanted, and the surrounding habitat would be restored. Standard Measure BIO-2 would require preconstruction nesting surveys and the establishment of buffers for nesting raptors and all other birds. AMM BIO-2 would require minimizing the amount of riparian vegetation removed. Standard Measure BIO-4 require replanting, reseeding, and restoration of disturbed areas along with minimizing vegetation removal. Standard Measures would minimize the temporary impact from the loss of nesting and foraging habitat; however, impacts on raptors and migratory birds

could potentially be significant. AMM BIO-10 would require consultation with California Department of Fish and Wildlife (CDFW) if creating a no disturbance buffer around a white-tailed kite or northern harrier nest is not practicable. AMM BIO-11 would prohibit activities that would result in take of a white-tailed kite nest. Implementation of Standard Measure BIO-2, Standard Measure BIO-4, AMM BIO-2, AMM BIO-10, and AMM BIO-11 would further reduce impacts and as such, impacts on raptors, other nesting birds, and migratory birds would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Special-Status Bat Species

Construction would lead to temporary increases in noise, dust, and human disturbance. The project would result in temporary displacement of bats and temporary loss of bat roosting habitat due to culvert removal and tree removal. Standard Measures BIO-1 and BIO-2 have been incorporated into the project and would reduce impacts on special-status bat species; however, impacts could be potentially significant. Implementation of AMM BIO-12 would require trees to be removed after young bats are volant to avoid impacts to maternity colonies, AMM BIO-13 would require preconstruction bat surveys, AMM BIO-14 would require a bat protection plan, and AMM BIO-15 minimizes impacts to bats from structural changes to potential roosting habitat.

Standard Measure BIO-4 would also be required to further reduce impacts on special-status species. Once construction is completed, all disturbed areas will be restored to the maximum extent feasible. Therefore, impacts on special-status animal species would be less than significant with mitigation incorporated. As such, impacts on special-status bats would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

b) Less-than-significant impact.

Impacts on CDFW sensitive natural communities would only occur on those within the valley foothill riparian and valley oak woodland California Wildlife Habitat Relationships (CWHR) communities. Temporary and permanent impacts on CDFW sensitive natural communities and the riparian communities considered sensitive by the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB) are summarized in Table 3.2-1. Impacts are expected to be similar between all build alternatives. Impacts on riparian habitat and sensitive natural communities would be minimal and would therefore be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

Table 3.2-1. Summary of Sensitive Natural Community Approximate Impacts within the Biological Study Area

CWHR Community Type	CDFW Sensitive Natural Community	Temporary Impact (Acres)	Permanent Impact (Acres)
Valley Foothill Riparian	Oregon ash groves California sycamore woodlands Fremont cottonwood forest and woodland	1.87	—
Valley Oak Woodland	Valley oak woodland and forest	0.51	0.14
Annual/Perennial Grassland	Gum plant patches	0.007	—
Total	—	**2.39**	**0.14**

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

c) Less-than-significant impact.

The project includes roadway improvements such as replacing culverts and installing a fiber-optic line and vaults. As discussed in Section 2.3.2, Wetlands and Other Waters, 0.12 acre (58.296 linear feet) of jurisdictional waters is estimated to be temporarily affected, and approximately 0.055 acre (377.98 linear feet) is estimated to be permanently affected by the project. Prior to construction, Caltrans would obtain a Section 404 permit from the USACE, a Section 401 Water Quality Certification from the RWQCB, which would require the purchase of compensatory mitigation for the permanent loss of waters. Caltrans would also obtain a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Also, Standard Measures BIO-1, BIO-3, and BIO-4 have been incorporated into the project, including measures to minimize water quality and erosion during construction, as such impacts would be less than significant. Further, with incorporation of AMMs BIO-1, BIO-2, and BIO-3, impacts on aquatic resources would be minimized; and the project would not result in substantial adverse effects to aquatic resources.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

d) Less-than-significant impact with mitigation.

The project is located in areas with high levels of anthropogenic disturbances within and near the Caltrans right-of-way. The project would not remove a substantial amount of habitat. The project would not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites and impacts would be less than significant.

Further, bat maternity roosts are located within the project area. With implementation of Standard Measures BIO-1 and BIO-2 as well as AMM BIO-12 through BIO-15, the project would not result in substantial adverse effects to bat maternity roosts.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Tree ordinances and policies protecting trees are in place in the City of Sacramento, City of West Sacramento, City of Davis, and Sacramento County.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

f) Less-than-significant impact with mitigation.

The project is located within the boundaries of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP). There is a Solano Multispecies Habitat Conservation Plan that is under development but not yet finalized. With implementation of Standard Measures BIO-1 through BIO-4 and AMMs BIO-1 through BIO-32, the construction and operation of the project would not conflict with HCP/NCCP, or other approved local, regional, or state habitat conservation plans, and there would be no impact under these criteria.

The following goals and policies under the Yolo HCP/NCCP Conservation and Open Space Policies would be applicable to the project:

City of Davis

Goal HAB 1: Identify, protect, restore, enhance, and create natural habitats. Protect and improve biodiversity consistent with the natural biodiversity of the region.

- **Policy HAB 1.1.** Protect existing natural habitat areas, including designated Natural Habitat Areas.

City of West Sacramento

Goal NRC-2: To protect sensitive native vegetation and wildlife communities and habitats in West Sacramento.

- **NRC-2.7 Rare, Threatened, & Endangered Species Protection.** The City shall preserve rare, threatened, and endangered species by ensuring that development does not adversely affect such species or by fully mitigating adverse effects. For developments where adverse impacts cannot be mitigated, the City shall not approve the project.

- **NCR-2.9 No Net Loss.** The City shall require new development to ensure no net loss of State and Federally regulated wetlands, other waters of the United States (including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands), and

associated functions and values by regulating development in and near these habitats and promoting projects that avoid sensitive areas. Where habitat loss is unavoidable, the City shall require replacement consistent with State and Federal regulations protecting wetland resources.

- **NCR-2.10 Wetland and Riparian Habitat Protection.** The City shall seek to minimize the loss or degradation of wetland and riparian habitats at the following sites: Lake Washington and associated wetlands, Bee's Lake and associated riparian woodlands, riparian woodlands along the Sacramento River north of the I Street Bridge and south of the barge canal, and riparian woodlands along the Deep Water Ship Channel and the Yolo Bypass.

County of Yolo

Goal CO-2. Biological Resources. Protect and enhance biological resources through the conservation, maintenance, and restoration of key habitat areas and corresponding connections that represent the diverse geography, topography, biological communities, and ecological integrity of the landscape.

- **Policy CO-2.1.** Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.
- **Policy CO-2.3.** Preserve and enhance those biological communities that contribute to the county's rich biodiversity including blue oak and mixed oak woodlands, native grassland prairies, wetlands, riparian areas, aquatic habitat, agricultural lands, heritage valley oak trees, remnant valley oak groves, and roadside tree rows.
- **Policy CO-2.9.** Protect riparian areas to maintain and balance wildlife values.
- **Policy CO-2.10.** Encourage the restoration of native habitat.
- **Policy CO-2.13.** Promote the use of oak woodlands conservation banks to mitigate for losses due to development impacts and to provide carbon sequestration for greenhouse gas emissions under applicable State programs.
- **Policy CO-2.14.** Ensure no net loss of oak woodlands, alkali sinks, rare soils, vernal pools or geological substrates that support rare endemic species, with the following exception. The limited loss of blue oak woodland and grasslands may be acceptable, where the fragmentation of large forests exceeding 10 acres is avoided, and where losses are mitigated.
- **Policy CO-2.16.** Existing native vegetation shall be conserved where possible and integrated into new development if appropriate.
- **Policy CO-2.30.** Protect and enhance streams, channels, seasonal and permanent marshland, wetlands, sloughs, riparian habitat and vernal pools in land planning and community design.

- **Policy CO-2.31.** Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.
- **Policy CO-2.34.** Recognize, protect, and enhance the habitat value and role of wildlife migration corridors for the Sacramento River, Putah Creek, Willow Slough, the Blue Ridge, the Capay Hills, the Dunnigan Hills and Cache Creek.
- **Policy CO-2.37.** Where applicable in riparian areas, ensure that required State and Federal permits/approvals are secured prior to development of approved projects.
- **Policy CO-2.41.** Require that impacts to species listed under the State or Federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.
- **Policy CO-2.42.** Projects that would impact Swainson's hawk foraging habitat shall participate in the Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County entered into by the CDFG and the Yolo County subsequent adopted mitigation requirements consistent with applicable local, State, and federal requirements.

3.2.5 Cultural Resources

Section 2.1.11, Cultural Resources, provides a comprehensive discussion of the cultural resources in the project area. The following is an evaluation of the potential impacts on cultural resources from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact cultural resources and is therefore not discussed further.

a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?

a) Less-than-significant impact.

A Reclamation District (RD) 900 canal was identified within the area of potential effect (APE) and was assumed eligible for inclusion in the National Register of Historic Places (NRHP) for the purpose of this undertaking, under Criterion A, as a large linear resource associated with historic themes of agriculture/irrigation and land reclamation in the Sacramento Valley.

Construction would result in temporary visual impacts, increased noise levels, and increased air pollutants such as dust and particulate matter due to excavation, grading, hauling, and other ground-disturbing activities. In addition, all "B" Build Alternatives would include pile driving for construction of the I-80 connector structure, which would be undertaken for installation of footings. Each cast-in-place drilled footing would be excavated to a depth of up to 40 feet. However, Caltrans determined that construction of the project, regardless of alternative would not adversely effect the RD 900. The Finding of No Adverse Effect Document was submitted to the State Historic Preservation Officer (SHPO) in November 2021. The SHPO Determination of

Eligibility and Finding of No Adverse Effect concurrence were received September 30, 2021 and January 12, 2022, respectively (Appendix K).

Caltrans, pursuant to Section 106 PA Stipulation X.B.2, found that there will be no adverse effect. The undertaking will not destroy or alter any contributing feature of RD 900 and will not affect the resource's integrity or ability to convey its historical significance.

The overall impact for the project, regardless of alternative, was determined to be less than significant.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? or

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

b), c) Less-than-significant impact.

Seven built environment resources were identified within the APE: MR1, MR2, MR3, MR4, MR5, MR6, and MR7. Caltrans PQS evaluated the built environment resources and determined that they were not eligible for inclusion in the NRHP/CRHR. On September 30, 2021, Caltrans received concurrence from SHPO that the seven built environment resources were ineligible (Appendix K).

Project construction would create subsurface disturbances that could result in damage to or destruction of previously undiscovered subsurface archaeological deposits or unmarked burials. Although all the areas of construction and access roads have been subject to the cultural resources survey, the potential remains for previously unidentified archaeological remains to be discovered below the visible ground surface. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find as outlined in Standard Measure CR-3. Standard Measure CR-4 outlines requirements in the event human remains are discovered. If human remains are discovered, all work within 60 feet of the discovery would halt and Caltrans' Cultural Resource Studies office would be called. Caltrans' Cultural Resources Studies Office Staff would assess the remains and, if determined human, would contact the County Coroner as per Public Resources Code (PRC) Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be Native American, the Coroner will contact the Native American Heritage Commission who would then assign and notify a Most Likely Descendant. Caltrans would consult with the Most Likely Descendant on respectful treatment and reburial of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

With the implementation of Standard Measure CR-3 and CR-4, Build Alternatives 2a and 2b through 7a and 7b would have a less-than-significant impact.

AB52 consultation was initiated in 2020 with California Native American tribes included on the Native American Heritage Commision's (NAHC) list of groups and individuals that may have a traditional or cultural affiliation with the geographic area of the project. Tribes that have

requested that they be included on the NAHC list were sent written notification of the project on June 4, 2020. The record of correspondence, including a consultation log are presented in Appendix L.

3.2.6 Energy

Section 2.2.8, Energy provides a comprehensive discussion of energy resources. The following is an evaluation of the potential impacts on energy from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact energy and is therefore not discussed further.

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

a) Less-than-significant impact with mitigation.

The project would result in short-term energy consumption related to related to manufacturing 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. Construction is anticipated to take approximately 24 to 42 months to complete, depending on the Build Alternative. Thus, construction-related energy consumption would be finite and limited and would have an incremental impact on area energy supplies. As indicated above, energy use associated with project construction under Build Alternatives is conservatively estimated to result in the short-term consumption of 370,520 gallons of diesel and 164,688 gallons of gasoline from construction equipment. This represents a small demand on local and regional fuel supplies that would be easily accommodated, and this demand would cease once construction is complete. Moreover, construction-related energy consumption would be temporary and not a permanent new source of energy demand, and demand for fuel would have no noticeable effect on peak or baseline demands for energy.

Indirect energy consumption would result from traffic delays due to construction. The project's Transportation Management Plan (TMP), as required per Standard Measure TRA-1, would reduce construction-related traffic impacts. The TMP would help manage traffic congestion and provide signage to affected residents and businesses if temporary closures or detours are warranted during construction. Compared with direct energy use by construction vehicles and equipment, indirect energy use due to construction-related traffic delays would be minimal and would be reduced with implementation of the TMP. Additionally, AMM Energy-1 would be implemented to help conserve energy during construction, which would further reduce impacts. For indirect energy, the project would incorporate the use of energy efficient lighting, such as LED traffic signals and streetlights, to the extent feasible. LED lights consume 10 percent of the electricity of traditional lights.

The project would increase capacity, and thus add more traffic using the managed lanes and associated I-5/US 50 interchange and I-80/US 50 connectors, so a net increase in energy consumption is anticipated for Build Alternatives 2a and 2b through 6a and 6b. No new lanes would be constructed as part of Build Alternatives 7a and 7b and thus there would be no

increase in capacity. Furthermore, intelligent transportation system (ITS) elements within the project limits would give travelers information about special events such as traffic congestion, accidents, and other incidents that may impact traffic flow on a specific highway segment. Such ITS would save energy by notifying vehicles to take alternative routes, limit travel speed, warn of duration and location of the incidents, or inform of the traffic conditions. Therefore, the project would not result in an inefficient, wasteful, and unnecessary consumption of energy and impacts would be less than significant with mitigation incorporated.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

b) Less-than-significant impact.

The project is within the jurisdiction of the SACOG, which is the Regional Transportation Planning Agency for Sacramento, Sutter, Yolo, and Yuba Counties. The 2020 MTP identifies a path for improving air quality, preserving open space and natural resources, and helping California achieve its goal to reduce GHG emissions that contribute to climate change (SACOG 2019). The regional reduction target for passenger vehicle GHG emissions per person from 2005 levels for SACOG is 19 percent by 2035 (ARB 2019c). The project is included in the SACOG MTP/SCS 2020.

Estimates of energy consumption indicated that the Build Alternatives 2 and 3 result in a minimal increase less than 1 percent in energy consumption and Build Alternatives 4-7 would result in a nominal decrease ranging between 0.8 to 7 percent in energy consumption in opening year 2029. Although there is a modeled increase in VMT identified in Section 2.2.8, Energy, during operation of the project over the long-term, newer and more fuel-efficient vehicles and electric vehicles would enter the fleet, resulting in an overall lower potential for an increase in energy consumption due to vehicle traffic. Additionally, as noted above, the project would incorporate energy efficient lighting, to the extent feasible, and ITS elements that would save energy. The project would implement managed lanes to manage traffic congestion, accommodate travel demands, and improve modality and travel time reliability. By helping to provide a continuous managed lane system, the project, combined with other in-progress and proposed managed lane projects, would provide reliable travel times, and help contribute to the completion of the regional transportation network envisioned in the SACOG MTP/SCS. Energy consumption during project construction would be temporary and minimized to the maximum extent practicable. Operation of the project would not conflict with a state or local plan for renewable energy or energy efficiency. Project construction would not conflict with a state or local plan for renewable energy or energy efficiency.

3.2.7 Geology and Soils

Section 2.2.3, Geology, Soils, Seismic, Topography, provides a comprehensive discussion of geology and soil resources. In addition, the section provides a comprehensive discussion of the paleontological resources that occur in the project area. The following is an evaluation of the potential impacts on geology and soils and paleontological resources from the Build

Alternatives. The No-Build Alternative would not change existing conditions and would not impact geology and soils and is therefore not discussed further.

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

a)i) No Impact.

The potential for surface fault rupture at the site is absent since there are no known faults of Holocene or younger age that fall within 1,000 feet of the project limits, or trend toward the project limits, nor does the project limits fall within an Alquist-Priolo Fault Zone. Therefore, there would be no impact under these criteria for Build Alternatives 2a and 2b through 7a and 7b.

ii) Strong seismic ground shaking?

a)ii) Less-than-significant impact.

The project is not located within an Alquist-Priolo Fault Zone. Construction of the project would be designed, engineered, and built in accordance with applicable standards and within the recommended ground motion parameters for each section described in the Geotechnical Report. With implementation of these design, engineering, and building standards, impacts related to ground shaking would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

iii) Seismic-related ground failure, including liquefaction?

a)iii) Less-than-significant impact with mitigation.

Soil liquefaction can occur when saturated, loose to semi-compact, granular soils, or specifically defined cohesive soils are subjected to ground shaking sufficient to increase pore pressures to trigger liquefaction. In general, liquefaction hazard is most severe within the upper 50 feet of the ground surface.

The depth of groundwater varies throughout the project area due to variations in ground surface elevations and groundwater conditions. Based on groundwater depths and elevations, depth of groundwater decreases from west to east along the project route. Measured groundwater during the April 2021 and August 2020 subsurface investigation and review of the existing log of test borings show that the groundwater depth is shallow in most of the project area, except the west section where groundwater was measured to be deeper than 25 feet.

The groundwater depth is shallow in most of the project area, and the soil throughout comprises clayey or fill material with layers of medium dense to dense silts and sands. There are also isolated thin layers of saturated, loose, granular soils present. Combined, these factors indicate

the potential for liquefaction. There is low potential for seismic activity to occur during construction due to the distance from active faults. Seismic shaking creates opportunities for liquefaction, which could impact construction workers during construction, or result in safety issues to people and structures because of soil erosion, subsidence, expansive soils, corrosive soils, surface fault rupture, seismic shaking, liquefaction, and landslides.

Standard Measures GS-1 and WQ-1 through WQ-3 have been incorporated into the project and would be implemented during construction to minimize soil erosion or the loss of topsoil. Additionally, AMM GEO-2 would reduce potential impacts from construction-related to worker safety and AMM GEO-3 would help ensure any new or modified structure is designed and constructed to current standards, including seismic design standards, and includes consideration of liquefaction potential in the design of foundation and retaining systems. With implementation of these Standard Measures and AMMs, impacts related to liquefaction are less than significant for all Build Alternatives.

iv) Landslides?

a)iv) No Impact.

The project is not located in an area that has historically been prone to landslides. All earthwork will be in conformance with Section 19 of the Caltrans 2018 Standard Specifications, which reduces the potential for impacts related to landslides for all Build Alternatives.

b) Result in substantial soil erosion or the loss of topsoil?

b) Less-than-significant impact.

Construction of Build Alternatives 2a and 2b through 7a and 7b would involve land-disturbing activities such as clearing and grading, excavation, and temporary staging or stockpiling of materials. Build Alternatives 2a and 2b through 7a and 7b could result in disruptions, displacements, compaction, or overcrowding of on-site soils, and changes in topography or ground surface features that could result in wind or water erosion of on-site or off-site soils.

In accordance with Standard Measure WQ-1, Caltrans would implement a Stormwater Pollution Prevention Plan (SWPPP) during construction which would include implementation of site BMPs to avoid and reduce potential impacts related to erosion or siltation. The SWPPP would include BMPs to protect sensitive areas. With implementation of Standard Measure WQ-1, potential construction and operational impacts on erosion, siltation, and runoff would be minimal and impacts under Build Alternatives 2a and 2b through 7a and 7b would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

c) Less-than-significant impact with mitigation.

The project is not in an Alquist-Priolo Fault Zone or in an area that has historically been prone to landslides, lateral spreading, or subsidence. However, soil characteristics and shallow groundwater within the project area contribute to the potential for liquefaction. AMM GEO-3 would help ensure any new or modified structure is designed and constructed to current standards, including seismic design standards, and includes consideration of liquefaction potential in the design of foundation and retaining systems. With implementation of these design, engineering, and building standards, impacts related to liquefaction would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

d) Less-than-significant impact.

Expansive soils are not present within the project area. New embankment fill would be required for the bike pathway extension from I-80 along the Yolo Causeway to connect to CR-32A for Build Alternatives 2a and 2b. The Build Alternative 2b connector structure would include a retaining wall on either side and would travel underneath the existing eastbound connector from US-50 to I-80. Accordingly, the connector structure would require new embankment fill. The underlining clay layer which extends up to 16 to 20 feet below the original ground ranges in consistency from medium stiff to very stiff and is less susceptible to consolidation settlements. However, the proposed large embankment fill consolidation settlement could be considerable. All earthwork on the connector structure would be done in conformance with Section 19 of the 2018 Standard Specifications and would follow the recommendations associated with construction settlement in the geotechnical analyses (AMM GEO-3). With implementation of these design and building specifications, impacts related to expansive soil would be less than significant for all Build Alternatives.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

e) No Impact.

No on-site wastewater treatment systems are proposed. There would be no impacts to waste water disposal systems for Build Alternatives 2a and 2b through 7a and 7b.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

f) Less-than-significant impact with mitigation.

Caltrans uses a tripartite system to rank the risk of encountering significant fossil resources: no, low, and high risk. If significant fossil resources have been previously discovered within a geologic unit (formation), then that formation in its entirety is considered high risk. Searches of the University of California, Berkeley, Museum of Paleontology, and the PaleoBiology databases were performed and returned records of numerous fossil collections from the vicinity

of the project in both Solano and Yolo Counties. In the immediate vicinity of the project boundary, significant fossil discoveries have occurred in formations. While the discoveries were not found at the surface directly beneath the project activities, the depth of excavation required for structures work increases the risk of encountering these formations.

Build Alternative 2b proposes pile driving during construction for installation of connector ramp footings to about 40 feet deep. Such activities would be deep enough to reach potentially unknown sensitive paleontological resources. In addition, foundation work for signs, structures, underground utilities, and culvert/drainage installations deeper than 4 feet could also encounter sensitive paleontological resources. Standard Measures GS-2, Unanticipated Discovery of Paleontological Resources, has been incorporated into the project that outlines actions to be taken in the event of a paleontological discovery during construction. If unanticipated paleontological resources are discovered during construction, they would not be disturbed. Work within a 60-foot radius of the discovery would stop; the area would be secured; and the work would not resume until appropriate measures are taken. However, the inadvertent discovery of a unique paleontological resource during construction could be significant.

AMM PALEO-1 would require preparation of a Paleontological Evaluation Report (PER) during the design phase and AMM PALEO-2 would require that a Paleontological Mitigation Plan be prepared and executed during project construction in areas of high sensitivity. In addition, paleontological construction monitoring would be required in areas with high paleontological sensitivity with implementation of AMM PALEO-3. With implementation of AMMs PALEO-1 through PALEO-3, construction of Build Alternatives 2a and 2b would not have significant impact on paleontological resources.

3.2.8 Greenhouse Gas Emissions

Chapter 3.4, Climate Change, provides a comprehensive discussion of greenhouse gas. The following is an evaluation of the potential impacts on greenhouse gas emissions from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact greenhouse gas and is therefore not discussed further.

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

a) Less-than-significant impact with mitigation.

A quantitative analysis of daily CO_2 emissions was performed using the Caltrans CT-EMFAC2021. GHG emissions and VMT comparisons were calculated for the Build Alternatives the existing year (2019), in opening year (2029), and design year (2049). As anticipated with new fleet and electric vehicles penetration, in design year 2049, GHG emissions of the Build Alternatives were assessed to be less, with the greatest reduction being Build Alternative 7a with 6.3 percent difference and the least reduction being Build Alternative 2a with 2.6 percent difference. As discussed in Section 2.2.8, Energy, the project would implement measures to reduce construction emissions, such as using newer, more energy efficient equipment, where feasible, and promotion of employee carpooling. As noted in Section 2.2.8, Energy, a TMP would be required to reduce construction-related traffic impacts and manage traffic congestion.

GHG emissions impacts would be less than significant with mitigation incorporated. GHG Standard Measures would include GHG-1: Comply with local regulations, GHG-2: Idling restrictions, GHG-3: Comply with CARB regulations, GHG-4: Use of a TMP, GHG-5: Revegetation, GHG-6: Maintain pedestrian and bicycle access.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

b) Less-than-significant impact.

Section 3.2.8 question "a" and Section 3.2.6, describes the various plans, policies, and regulations adopted for the purpose of reducing the emissions of greenhouse gases that are applicable to the project and describes how the project would be consistent. By helping to provide a continuous managed lane system, the project, combined with other in-progress and proposed managed lane projects, would provide reliable travel times, and help contribute to the completion of the regional transportation network envisioned in the SACOG MTP/SCS and would be consistent with it. GHG emissions for the Build Alternatives would be lower for design year 2049 compared to existing year (see Table 3.4-2); therefore, the project would align with policies to keep the state on a trajectory for progress toward the Executive Order (EO) S-3-05 2050 emission reduction target. Additionally, Caltrans is involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set an interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases and there would be no impact

3.2.9 Hazards and Hazardous Materials

Section 2.2.5, Hazardous Waste and Materials, provides a comprehensive discussion of the hazards and hazardous materials in the project area. The following is an evaluation of the potential impacts on hazards and hazardous materials from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact hazards and hazardous materials and is therefore not discussed further.

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

a and b) Less-than-significant impact.

Initial Site Assessment was completed for this project in February 2021 (Caltrans 2021h). The Initial Site Assessment included assessments pertaining to naturally occurring asbestos (NOA), aerially deposited lead (ADL), Lead-Containing Paint (LCP) and thermoplastic traffic striping and pavement markings, and treated wood waste (TWW). A geologic evaluation did not indicate the

presence of altered ultramafic bedrock, alluvium derived from ultramafic rock, or rock commonly associated with NOA. ADL also exists along roadways throughout California from the historical use of leaded gasoline and has the potential to be encountered during project construction. LCP and asbestos-containing materials have the potential to be encountered during project construction. TWW has the potential to be encountered during construction in the form of posts associated with metal beam guard railing three-beam barrier, and roadside signs. Construction would also involve the use and storage of fuels, lubricants, solvents, and other possible contaminants.

Standard Measures HW-1, HW-2 and HW-3 and AMM HAZ-1, AMM HAZ-2, AMM HAZ-3, and AMM HAZ-4 have been incorporated into the project that minimizes potential impacts related to hazards during construction of Alternatives 2a and 2b through 7a and 7b, and impacts would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

c) Less-than-significant impact.

Standard Measures HW-1, HW-2 and HW-3 and AMM HAZ-1, AMM HAZ-2, AMM HAZ-3, and AMM HAZ-4 have been incorporated into the project that minimizes potential impacts related to hazards during construction of Alternatives 2a and 2b through 7a and 7b, and impacts would be less than significant.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

d) No Impact.

The Cortese List was reviewed as part of the Initial Site Assessment (see Section 2.2.5, Hazardous Waste and Materials). Neither Envirostor and Geotracker databases returned hazardous waste/sources within the project footprint, therefore, there would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

e) No Impact.

The project is not located within an airport land use plan or within 2 miles of a public airport therefore, there would be no impact.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

f) Less-than-significant impact.

Yolo County's office of emergency services and the City of West Sacramento's Emergency Management division have identified evacuation zones and routes for given neighborhoods. US-50 and I-80 are dedicated evacuation routes in Yolo and Sacramento Counties. City of Sacramento has detailed maps showing hypothetical levee breaks at various locations for a 200-year flood event[1] and the recommended flood evacuation routes (Caltrans 2021a). I-80 and US-50 are identified evacuation routes on the Yolo County evacuation zone maps and under many levee break scenarios for the City of Sacramento. I-80 is a critical route for the West Sacramento area.

Temporary traffic delays and ramp closures on I-80/US-50 during construction of all Build Alternatives could result in temporary delays in emergency services or evacuations. Because Build Alternatives 7a and 7b would not add new lanes, but would rather repurpose existing lanes as managed lanes, the Build Alternatives 7a and 7b construction period may have shorter duration and therefore result in fewer delays than those under than those under Build Alternatives 2a and 2b, respectively. Since Build Alternative 2b, 3b, 4b, 5b, and 6b would construct the elevated I-80 connector structure, the construction period would have a longer duration and require additional lane closures than Build Alternatives 2a, 3a, 4a, 5a, and 6a. All Build Alternatives would improve circulation and reduce congestion along I-80/US-50 in the project corridor, which could result in improved efficiency for evacuations and emergency services.

Standard Measures TT-3has been incorporated as part of the project, which requires that a traffic management plan be developed by Caltrans consistent with Caltrans' standard procedures to maintain access for emergency services throughout all phases of construction. The TMP would include elements such as traffic controls to minimize speeds/congestion and other measures to maintain access for police, fire, and medical services along I-80/US-50 in the project area during construction, and as such impacts from all Build Alternatives would be less than significant. Standard Measure UE-3 would require that all emergency response agencies in the project area would be notified of the project construction schedule and would have access to I-80 and US 50 throughout the construction period.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

g) Less-than-significant impact with mitigation.

The project area is surrounded by mostly developed areas near the City of Davis and City of West Sacramento, but traverses natural open space, vegetation, and agricultural lands within unincorporated Solano County near the City of Dixon as well as the near the Yolo Causeway. The project is not located within a very high fire hazard severity zone and would be entirely within a local responsibility area (LRA).

As discussed in Section 3.3, Wildfire, the project may be located near and around vegetated areas and would involve the use of flammable materials including fuels such as gasoline or

[1] A 200-year flood event is the probability of a flood level or peak that has a one in two hundred, or 0.5 percent, chance of being equaled or exceeded in any year.

diesel, hydraulic oils, paints, solvents, or other industrial chemicals necessary for maintaining vehicles and equipment. The risk of fire associated with these materials is generally related to improper use or storage which could increase the potential for wildfire ignition. During construction, Build Alternatives 2a and 2b through 7a and 7b would incorporate fire prevention practices during construction (AMM WF-1) to reduce wildfire impacts. The project would not expose people or structures to post-fire instability or change drainage patterns and would comply with Caltrans Standard Specifications for electrical systems (Section 87) for installation and operation.

Additionally, Standard Measure TT-3 has been incorporated as part of the project, which would maintain emergency access during construction. Build Alternatives 2a and 2b through 7a and 7b also propose a Park-and-Ride Facility that could provide areas for emergency vehicle staging during wildfires or other emergencies. Standard Measure UE-3 would require the contractor to submit a jobsite fire prevention plan as required by Cal OSHA before starting job site activities. In the event of an emergency or wildfire, the contractor would cooperate with fire prevention authorities. Build Alternatives 2a and 2b would also implement bioswales and other drainage features that could potentially provide firebreaks during a wildfire event. Therefore, operation of the project would not exacerbate wildfire risks or result in temporary or ongoing impacts to the environment. Once project construction is completed, the roadway corridor would continue to serve the same use as existing conditions and would not create a new roadway alignment within a high fire severity zone. Therefore, impacts related to wildfire would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

3.2.10 Hydrology and Water Quality

Section 2.2.1, Hydrology and Floodplain, provides a comprehensive discussion of hydrology and Section 2.2.2 provides a comprehensive discussion of water quality in the project area. The following is an evaluation of the potential impacts on hydrology and water quality from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact hydrology and water quality and is therefore not discussed further.

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

or

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

a), e) Less-than-significant impact.

The discharge of storm water runoff from construction sites can affect water quality standards and degrade surface or ground water quality. Potential pollutants and sources would include sediment; non-storm water (groundwater, waters from cofferdams, dewatering, water diversions) discharges from vehicle and equipment cleaning agents, fueling, and maintenance; and waste materials from storage activities.

The primary pollutant of concern is sediment and siltation from the disturbed construction areas. Standard Measure WQ-1 has been incorporated as part of the project, which requires the preparation of a SWPPP that includes construction site BMPs to avoid potential water quality impacts. The SWPPP would include BMPs to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges. Standard Measure WQ-1 requires that Caltrans follows all applicable guidelines and requirements in the 2018 Caltrans Standard Specifications (2018 CSS), Section 13, regarding water pollution control and general specifications for preventing, controlling, and abating water pollution to Caltrans-owned storm sewers, streams, waterways, and other bodies of water.

In addition, as required by Standard Measure WQ-2, Caltrans would comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Standard Measure WQ-3 requires the coordination with the Caltrans District NPDES coordinator during design to prepare a dewatering and discharge work plan if dewatering is anticipated as a construction activity.

All Build Alternatives would result in an increase of impervious surfaces, as described in Section 2.2.2, Water Quality and Stormwater Runoff. In accordance with the Caltrans MS4 permit, Standard Measure WQ-1 incorporates post-construction water quality treatment BMPs and low-impact development controls to reduce non-point source pollutants as needed. Additionally, Standard Measure WQ-4 has been incorporated into the project and requires the preparation of a Stormwater Data Report (SWDR) during the design phase to describe whether permanent treatment BMPs will be considered.

Temporary construction impacts related to water quality would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?

b) Less-than-significant impact.

The depth of groundwater varies throughout the project limits due to variations in ground surface elevations and groundwater conditions. Based on groundwater depths and elevations, depth of groundwater decreases from west to east along the project route.

Groundwater is anticipated to be encountered in excavations as shallow as 1 to 2 feet below ground surface within the Yolo Bypass, and 5 feet below ground surface east of the Yolo Bypass. Groundwater is expected to be deeper than 25 feet in the project's western section. However, groundwater conditions can be expected to fluctuate in response to seasons, storm events, and other factors. Dewatering may be required if encountered during construction of the connector structure. AMM GEO-1 states that during construction, all trenching and earthwork will be performed in accordance with Section 19 of the 2018 Standard Specifications.

None of the Build Alternatives would substantially decrease groundwater supplies since groundwater extraction would only be conducted during excavation and would cease once construction is complete and impacts would be less than significant.

All Build Alternatives would result in an increase of impervious surfaces, as described in Section 2.2.2, Water Quality and Stormwater Runoff, and would slightly reduce the total permeable area for groundwater recharge. The amount of new, impermeable surfaces Build Alternatives 2a and 2b through 7a and 7b would add is negligible. In accordance with the Caltrans MS4 permit, the Build Alternatives would implement Standard Measure WQ-1 and incorporate post-construction water quality treatment BMPs and low-impact development controls to reduce non-point source pollutants as needed. Additionally, Standard Measure WQ-4 requires preparation of a Stormwater Data Report during the design phase, which would describe whether permanent treatment BMPs should be incorporated. Therefore, construction and operation of the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin, and impacts would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on- or off-site;

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

c)i), ii), iii) Less-than-significant impact with mitigation.

Construction of all Build Alternatives would involve land-disturbing activities, use of construction equipment, clearing and grading, excavation, and temporary staging of materials. As a result, during construction, all Build Alternatives would potentially result in changes in topography or ground surface features; an increase in wind or water erosion of on-site or off-site soils, resulting in changes to soil deposition and/or erosion; and the discharge of storm water runoff and pollutants which have the potential to affect water quality in Putah Creek, Willow Slough Bypass, Sacramento River, and Delta Waterways.

In addition, Build Alternatives 2a and 2b through 7a and 7b All Build Alternatives would result in an increase of impervious surfaces, as described in Section 2.2.2, Water Quality and Stormwater Runoff. During construction, the Build Alternatives would require full structural reconstruction and cut/fill of embankments. New culverts or culvert replacements would be installed to accommodate additional runoff due to the increased pavement area. Construction activities related to culvert replacement may contribute to soil instability. As previously described, Standard Measures WQ-1 through WQ-4 have been incorporated into the project,

which would minimize construction-related erosion and siltation. Additionally, AMM GEO-1 (monitoring during culvert replacement) will be implemented to reduce adverse effects related to erosion, siltation, and runoff for all Build Alternatives. Potential construction and operational impacts related to erosion, siltation, and runoff would be less than significant.

iv) impede or redirect flood flows?

c)iv) Less-than-significant impact.

The project is in areas designated by the Federal Emergency Management Agency (FEMA) as Special Flood Hazard Area (SFHA) Zone A, SFHA Zone AE, and SFHA Zone 99A. Additionally, the project limits are also located within areas designated by FEMA as Other Areas of Flood Hazard Zone X (both shaded and unshaded). The shoulder widening planned for the bike path for Alternative 2 will occur within a SFHA, specifically within Zone A floodplains. This encroachment into the floodplain will be identical at each bridge location. The current scope of the project encroaches transversely into the floodplain and will not raise or change the profile of any of the highway, thus it is anticipated that there would be no negative impacts on the FEMA mapped floodplain in this area.

The Hydrology Study (Wood Rodgers 2022) determined the magnitude of increased peak flow rates arriving at existing drainage infrastructure caused by the project improvements. Under Build Alternatives 2a and 2b, AMM HF-1 would be used to reduce the potential for adverse impacts resulting from increased peak flow. AMM HF-1 would require installation of a detention basin riser to tie into existing storm drains on the upstream side at two locations in Davis—one detention basin rise inlet is proposed at the storm drain crossing on Mace Boulevard south of I-80 and the other will be at the westbound I-80 off-ramp to Chiles Road.

All “B” Build Alternatives propose to construct a concrete median barrier on I-80 in Yolo County from PM 0.21 to PM 4.3. (A median barrier is not proposed under Build Alternative 2a.) At this location, I-80 is in a Zone A floodplain. This location is behind the west levee of the Yolo Bypass, and the floodplain was determined using the above methodology. Flooding at this location is likely due to a failure of the Yolo Bypass, upstream and/or downstream of I-80. Therefore, to determine the depth of flooding on I-80 from PM 0.21 to PM 4.3, the published base flood elevation (BFE) in the Yolo Bypass adjacent to the project was used. An elevation of 29.5 feet (NAVD 88) was used to determine that this area of I-80 is completely submerged during the 100-year flood event and would continue to be so after the construction of the proposed concrete median under “B” Build Alternatives. Thus, Build Alternative 2a or 2b would have no effect on the FEMA mapped floodplain in this area. The project does not constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105.

Although there is a potential for short-term adverse effects to riparian habitat during construction activities, no long-term effects to natural and beneficial floodplain values are anticipated as a result of the Build Alternatives. The bike path extension would involve rehabilitation of the existing bike path on the crown of the west levee of the Yolo Bypass, which classifies the project as falling under the jurisdiction of Section 408. Therefore, Caltrans would get an encroachment permit from Central Valley Flood Protection Board (CVFPB) and Section 408 permission from USACE before the project's construction.

Potential construction and operational impacts related to flooding would be minimal for all Build Alternatives and impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

d) Less-than-significant impact.

The project is not in an area that could be inundated by seiche, tsunami, or mudflow. Project limits are in areas designated by the FEMA as SFHA Zone A, SFHA Zone AE, and SFHA Zone 99A, and SFHA Zone X, which FEMA characterizes as areas subject to inundation by the 100-year flood event. Though unlikely to occur, inundation of the project area during construction or operations could result in the release of sediment, non-storm water (groundwater, waters from cofferdams, dewatering, water diversions) discharges, and pollutants (fuels, lubricants, solvents, and other possible contaminants) and waste materials (construction debris). Standard Measures WQ-1 through WQ-4 and HAZ-5 have been incorporated as part of the project to reduce the potential for erosion and pollutant discharge during construction. Following construction, all construction-related sediment, wastes, and pollutants would be removed from the project area, leaving no risk of discharge in the event of inundation during operations. As a result, the project would not increase the risk of the release of pollutants due to inundation and impacts would be less than significant for all Build Alternatives.

3.2.11 Land Use and Planning

Section 2.1.1, Existing and Future Land Use, provides a comprehensive discussion of land use in the project area. The following is an evaluation of the potential impacts on land use and planning from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact land use or planning and is therefore not discussed further.

a) Physically divide an established community?

a) Less-than-significant impact.

As discussed in Section 2.1, Human Environment, the project would not physically divide an established community. Under Build Alternatives 2a and 2b through 7a and 7b, there would be minimal changes to the community character or neighborhoods present. Build Alternatives 2a and 2b through 7a and 7b would occur almost entirely within the existing Caltrans right-of-way and would not result in access changes.

Since all “b” Build Alternatives would construct the elevated I-80 connector, the construction period for Build Alternatives 2b, 3b, 4b, 5b, and 6b would have a longer duration and require additional lane closures than “a” Build Alternatives. With “a” Build Alternatives, a temporary full closure may be needed on westbound US-50; the primary detour for westbound US-50 traffic would be to use northbound I-5 to westbound I-80. With a planned public outreach program to keep the area residents, businesses, emergency service providers, and transit operators informed of the project construction schedule (Standard Measure COM-1), impacts would be less than significant.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

b) Less-than-significant impact.

As discussed in Section 2.1, Human Environment, Build Alternatives 2a and 2b, 3a and 3b, 4a and 4b would be consistent or partially consistent with local and regional plans and policies.

Overall, Build Alternatives 5a and 5b are partially consistent with local policies related to improved transportation infrastructure. Build Alternatives 5a and 5b would create an express lane in each direction where all users pay a fee regardless of vehicle occupancy. Therefore, it would not encourage increased vehicle occupancy unless there were discounted fees for carpools and would be inconsistent with the City of Sacramento 2035 General Plan policies to encourage increased vehicle occupancy. Build Alternatives 6a and 6b would add a transit lane in each direction which could improve the attractiveness of riding transit. Build Alternatives 6a and 6b would be consistent or partially consistent with a majority of local and regional plans and policies; however, they remain inconsistent with several policies because they would result in degraded functionality in the project corridor compared to the No-Build Alternative 1. For Build Alternatives 7a and 7b, consistency with local and regional plans would be mostly the same as described under Build Alternatives 2a and 2b, respectively, because Build Alternatives 7a and 7b do not propose a priced lane. However, they are inconsistent with several policies because they would result in degraded functionality in the project corridor compared to the No-Build Alternative 1. If inconsistency with land use policies will require Caltrans to work with local agencies to update existing land use plans to achieve consistency. With implementation of AMM EJ-1, EJ-2, and EJ-3, and VMT reducing measures, impacts would be less than significant.

3.2.12 Mineral Resources

The following is an evaluation of the potential impacts on mineral resources from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact mineral resources and is therefore not discussed further.

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

a), b) No Impact.

The project area does not contain any known mineral resource zones but does traverse several gas fields near the Cities of Davis and West Sacramento (Yolo County 2009, Sacramento County 2011). Implementation of Build Alternatives 2a or 2b through 7a or 7b would not change or convert existing land uses resulting in new development activity that would potentially disrupt continued management of mineral resources. Accordingly, Build Alternatives 2a or 2b through

7a or 7b would not conflict with a resource recovery plan and would not result in the loss of availability of a locally important mineral resource recovery site. There would be no impact.

3.2.13 Noise

Noise Section 2.2.7, Noise, provides a comprehensive discussion of noise in the project area. The No-Build Alternative would not change existing conditions and would not impact noise and is therefore not discussed further.

Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

a) Less-than-significant impact with mitigation.

Construction activities would result in temporary increases to noise levels at adjacent sensitive receptors. Project construction would include road cut/fill, grinding, grubbing/land cleaning, grading/excavation, drainage/utilities, and paving. Pile driving would be planned to be used for the construction of I-80 connector structure under Build Alternatives 2b, 3b, 4b, 5b, 6b, and 7b. Construction noise would result from heavy construction equipment and the arrival and departure of heavy-duty trucks. Noise levels would not exceed quantitative noise limits established by Caltrans except for nighttime work, which could result in an exceedance.

Except for possible nighttime construction involving heavy equipment, construction noise levels would not be expected to exceed the quantitative noise limits established by Caltrans. AMM NOI-1 would require noise-generating construction activities to be restricted to between 7:00 a.m. and 7:00 p.m. on weekdays, with no construction occurring on weekends or holidays. If work is necessary outside of these hours, a construction noise monitoring program and additional noise controls would be implemented.

Caltrans Standard Specifications Section 14-8.02 would require that noise levels not exceed 86 dBA within 50 feet of the job site from the hours of 9:00 p.m. to 6:00 a.m. (Standard Measure NOI-1). Build Alternatives 2a and 2b would also implement Standard Measures NOI-2 through NOI-5 to further reduce temporary construction noise levels. Therefore, temporary construction noise would have a less-than-significant impact on nearby receptors for Build Alternatives 2a and 2b through 7a and 7b.

Under Build Alternatives 2a and 2b through 7a and 7b, traffic noise levels would approach or exceed the Noise Abatement Criteria (NAC) at Category B receptors located north of US-50 westbound travel lanes between Harbor Boulevard and Jefferson Boulevard, south of US-50 eastbound travel lanes between Harbor Boulevard and Jefferson Boulevard, east of the US-50 and I-5 interchange, east of the US-50 westbound ramp onto I-80 eastbound, to the east and west of I-80 at the Sacramento River, and to the east of I-80 eastbound between Sacramento River and West El Camino Avenue. Some of these receptors are behind existing noise barriers. Traffic noise levels are predicted to approach or exceed the NAC at Category C receptors located east of the US-50 westbound ramp onto I-80 eastbound and south of US-50 eastbound travel lanes between Harbor Boulevard and Jefferson Boulevard.

Build Alternatives 2b, 3b, 4b, 5b, 6b, and 7b propose the I-80 connector structure. Accordingly, these Build Alternatives would have a slight increase in noise levels in comparison to Build Alternatives 2a, 3a, 4a, 5a, 6a, and 7a as further described in Section 2.2.7. Noise. Accordingly, noise abatement was considered for impacted receptors. Noise barriers are the only form of noise abatement considered for exterior land uses in the project area (Caltrans 2022b).

Generation of excessive groundborne vibration or groundborne noise levels?

b) Less-than-significant impact.

Due to the short-term nature of construction, the primary concern is the potential for vibration to damage a structure. Critical factors pertaining to the impact of construction vibration on sensitive receptors include the proximity of the existing structures to the project site, soil conditions, the soundness of the structures, and the methods of construction used.

Construction activities with the greatest potential of generating perceptible vibration levels would include the removal of pavement and soil, the dropping of heavy objects, and the movement of heavy tracked equipment. As further described in Section 2.2.7, Noise, construction vibration limits would not be exceeded during periods of construction. Therefore, temporary construction vibration would have a less-than-significant impact on nearby receptors for Build Alternatives 2a and 2b through 7a and 7b.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

c) Less-than-significant impact.

The project is in the Sacramento International Airport Land Use Compatibility Plan area (SACOG 2013). However, the project would not result in a conversion of land uses as the project area would continue to serve as a transportation corridor. As described under a) and b), Build Alternatives 2a and 2b through 7a and 7b would not expose people residing or working in the project area to excessive noise levels during construction or during the operation phase. Therefore, the impact would be less than significant.

3.2.14 Population and Housing

Section 2.1.5, Growth, provides a comprehensive discussion of growth related to population and housing in the project area. The following is an evaluation of the potential impacts on population and housing from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact population and housing and is therefore not discussed further.

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

a) Less-than-significant impact.

It is anticipated that, for Build Alternatives 2a and 2b through Build Alternatives 7a and 7b, construction workers would be drawn from either existing Caltrans staff or contractors in the local area who would commute from the neighboring cities. Therefore, the construction workforce would relocate to the area and thus would not result in an increased demand for housing. As discussed in Section 2.1, although implementing Build Alternatives 2a and 2b through 6a and 6b would increase freeway capacity, it would not alter planned regional development or growth trends. Build Alternatives 7a and 7b would repurpose an existing lane to HOV but would not increase capacity.

By improving access and highway capacity, Build Alternatives 2a and 2b through 7a and 7b would accommodate planned growth on a regional level and could indirectly change development patterns surrounding the project area by changing the rate at which planned development would occur along the corridor. However, Build Alternatives 2a and 2b through 7a and 7b would not directly increase development of residential land uses, encourage growth outside of existing growth boundaries, or alter existing access to residential and employment areas; therefore, associated with population growth would be less than significant for Alternatives 2a and 2b through 7a and 7b.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

b) No Impact.

As discussed in Section 2.1, construction of Build Alternatives 2a and 2b through 7a and 7b would occur mostly within existing Caltrans right-of-way, with one permanent right-of-way easement and five temporary construction easements. No displacement of any residences would be required. There would be no impact.

3.2.15 Public Services

Section 2.1.8, Utilities and Emergency Services, provides a comprehensive discussion of the public services, including emergency services, in the project area. The following is an evaluation of the potential impacts on public services from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact public services and is therefore not discussed further.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

a) Less-than-significant impact.

Temporary traffic delays and ramp closures on I-80/US-50 during construction of Build Alternatives 2a and 2b through 7a and 7b could result in temporary delays in emergency services. As described in Section 2.1.6, Community Character and Cohesion, Standard Measure TT-3 has been incorporated into the project that would require preparation of a TMP which would maintain access for emergency services throughout all phases of construction. The TMP would include elements such as traffic controls to minimize speeds/congestion and other measures to maintain access for police, fire, and medical services along I-80/US-50 in the project area during construction. Standard Measure COM-1 would require a planned public outreach program to keep the area residents, businesses, emergency service providers, and transit operators informed of the project construction schedule.

The project would help accommodate planned growth on a regional level. However, Build Alternatives 2a and 2b through 7a and 7b would not result in a use that would directly induce population and employment growth in Sacramento, Yolo, or Solano Counties. Therefore, the project would not result in the need for new or physically altered schools, parks, or other public facilities. Impacts on fire and police protection services would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

3.2.16 Recreation

Section 2.1.3, Parks and Recreational Facilities, provides a comprehensive discussion of parks and recreational facilities in the project area. The following is an evaluation of the potential impacts on recreation from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact recreation and is therefore not discussed further.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

a) No Impact.

The project would help accommodate planned growth on a regional level. However, the project would not increase demand or use of surrounding recreational facilities. There would be no impact for any of the Build Alternatives.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

b) Less-than-significant impact.

The project does not involve the construction or expansion of recreational facilities. The project would occur almost entirely within the existing Caltrans right-of-way; however, several parks and recreational facilities are located within proximity of the project area and thus, users could be subject to potential air quality and noise impacts during construction. Build Alternatives 2b, 3b, 4b, 5b, and 6b would have a longer duration of construction than Build Alternative 2a, 3a, 4a, 5a, and 6a and thus result in longer duration of exposure to potential impacts. All Build Alternatives would also implement visual (Standard Measures AR-1, AR-2, and AR-3, and AMM AES-4), noise (Standard Measure NOI-1, AMM NOI-1), and air quality (Standard Measure GHG-1) Standard Measures and AMMs during construction.

Construction activities may result in temporary traffic delays and ramp closures on I-80/US-50 that could cause temporary delays in accessing recreation facilities in and near the project area. However, Standard Measure TT-3 would require a traffic management plan to maintain access. The TMP would plan construction in sections, with no more than one lane closed at a time and no successive ramp closures. The contractor would implement a planned public outreach program to keep area residents, businesses, emergency service providers, and transit operators informed of the project construction schedule as part of Standard Measure COM-1. With these standard practices, no AMMs are required.

As a result, potential impacts to recreational facilities would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

3.2.17 Transportation

Section 2.1.9, Traffic and Transportation, provides a comprehensive discussion of transportation in the project area. The following is an evaluation of the potential impacts on transportation from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact transportation and is therefore not discussed further.

a) Conflict with program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities

a) Less-than-Significant Impact

The project area is surrounded by rural and urban areas in Yolo, Sacramento, and Solano County. While Yolo, Sacramento and Solano County have plans and policies regarding local circulation; I-80, and US 50 are part of the California State Highway System and under Caltrans Jurisdiction. The segment of the I-80 and US 50 corridor within the project limits are identified as requiring capital improvements in the SACOGMTP/SCS.

Build Alternatives 2a through 7b would add capacity to I-80, US 50 within the project area. The purpose of the project is to improve traffic flow and help relieve congestion on the highway network; therefore, the project would not conflict with a program, plan, ordinance, or policy related to transportation, and impacts would be less than significant.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)

b) Significant and Unavoidable Impact

SB 743 (2013) requires the Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts under CEQA. Under SB 743, CEQA Guidelines Section 15064.3(b) was revised to identify VMT as the most appropriate measure of assessing transportation impacts.

Based on the estimates in the project Traffic Analysis Report (TAR), although Build Alternatives 2a through 7b would result in improved vehicular operational conditions that would result in reduced vehicular delays and congestion within the project corridor; however, these alternatives, with the exception of Alternatives 6a and 6b (which add a transit-only lane), would result in induced VMT (Section 2.2.10.7 Table 2.1-26), which would represent a significant impact. The annual induced auto vehicle miles traveled (VMT) from the build alternatives (roughly 128-133 million annual auto VMT for the added-lane alternatives and roughly 3-9 million annual auto VMT for the general purpose lane conversions to HOV) would need to be reduced through the action of VMT reducing measures. Caltrans has identified the following approaches to reduce regional VMT.

- Implement a Voluntary Trip Reduction Program in Yolo County
- Build 1,000 Housing Units in Downtown Davis
- Build 700 Housing Units at Nishi Development in City of Davis
- Build 4,442 Housing Units at Bridge District in West Sacramento
- Implement microtransit in Yolo County
- Subsidize Monthly Transit Passes in Yolo County
- Reduce Transit Fares
- Expand Causeway Connection Route 138
- Expand Unitrans

Caltrans proposes to work with the California Department of Housing and Community Development, the City of Sacramento Housing Trust, and the City of Davis Housing Trust by providing various amounts of funding to help facilitate building the measures mentioned above. If the measures are completed as expected, regional VMT would be reduced by approximately 86 million annual auto VMT. Caltrans is making a commitment to the above-mentioned agencies to contribute $50 million toward the indicated measures. However, full implementation of these VMT reducing measures is outside the regulatory authority of Caltrans and is not sufficient to fully offset the induced VMT impact of Alternatives 2a/b through 5a/b. It would be sufficient to fully offset only the alternatives that would convert an existing lane to an HOV-only lane (Alternatives 7a and 7b).

AMMs TRANS-1 will be used to avoid or reduce potential project impacts on transportation associated with the project. Caltrans also actively encourages smart growth principles through its Local Development-Intergovernmental Review processes with the local agencies responsible for such actions, and Caltrans facilitates improvements in transit service by providing facilities that improve transit headways, such as the managed lanes that are a part of some project alternatives. However, none of the above strategies and measures are certain to occur. As

such, Build Alternatives 2a/b through 5a/b would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and impacts would be significant and unavoidable.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

c) No Impact

Although the Build Alternatives would involve adding a lane and/or connecting ramps, the alignment of I-80 and US 50 would not change. The project would not increase hazards due to design features, and there would be no impact.

d) Result in inadequate emergency access

d) Less-than-Significant Impact

See Impact Discussion 3.2.9 (f).

3.2.18 Tribal Cultural Resources

Section 2.1.12, Cultural Resources, provides a comprehensive discussion of the tribal resources that occur, or have the potential to occur, in the project area. Chapter 2.1.12 also includes a discussion of AB 52 consultation efforts for the project. The following is an evaluation of the potential impacts on tribal resources from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact tribal resources and is therefore not discussed further.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k),

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

a), b) Less-than-significant impact.

Consultation efforts with Native Americans who were identified as having an interest in projects within this area by the Native American Heritage Commission (NAHC) did not reveal any known

tribal cultural resources that occur within the project area. However, subsurface construction activities associated with the project could potentially damage or destroy previously undiscovered unique tribal cultural resources. Standard Measure CR-3 and CR-4 have been incorporated as part of the project that would prevent previously undiscovered tribal cultural resources from being impacted during construction. Standard Measure CR-3 and CR-4 require that all construction activities be completed within and around the immediate discovery area. If human remains are discovered within the project site, Caltrans Cultural Resources Studies Office Staff would assess the remains and contact the County Coroner per PRC Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be Native American, the Coroner will contact the NAHC, who will then assign and notify the most likely descendant (MLD). Caltrans would consult with the MLD on respectful treatment and reburial of the remains. Further provisions of PRC 5097.98 would be followed as applicable. Therefore, the impact would be less than significant for all Build Alternatives.

3.2.19 Utilities and Service Systems

Chapter 2.1.8 provides a comprehensive discussion of the utilities in the project area. The following is an evaluation of the potential impacts on utilities from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact utilities and is therefore not discussed further.

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

a) Less-than-significant impact.

Build Alternatives 2a and 2b through 7a and 7b would result in conflicts with existing utilities present along the I-80/US-50 corridor. Caltrans would provide verification and notify utilities of proposed construction work in accordance with Standard Measure UE-2. Under Build Alternative 2b, 3b, 4b, 5b, 6b, and 7b, overhead lines near the new managed lane connector at the I80/US-50 separation in West Sacramento may have to be relocated. Under all Build Alternatives, utility verification would be coordinated with all applicable utility providers, as required under Standard Measure UE-2.

Additionally, all Build Alternatives would result in an increase of impervious surfaces, as described in Section 2.2.2, Water Quality and Stormwater Runoff. In accordance with the Caltrans MS4 permit, Standard Measure WQ-1 incorporates post-construction water quality treatment BMPs and low-impact development controls to reduce non-point source pollutants as needed. Additionally, Standard Measure WQ-4 has been incorporated into the project and requires the preparation of a Stormwater Data Report (SWDR) during the design phase to describe whether permanent treatment BMPs will be considered. New culverts or culvert replacements would be installed to accommodate additional runoff due to the increased pavement area. AMM PALEO-3 (monitoring during culvert replacement) will be implemented to

reduce adverse effects related to culvert replacement for all Build Alternatives. As such, impacts would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

b), c) No Impact.

The project would not directly increase the number of residents in the area because residential land uses are not proposed. By improving access and highway capacity, Build Alternatives 2a and 2b through 7a and 7b would accommodate planned growth on a regional level; however, the project would not increase the demand for additional water or wastewater treatment beyond existing planned growth in surrounding development areas. There would be no impact for Build Alternatives 2a and 2b through 7a and 7b.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

d), e) Less-than-significant impact.

The project would not generate excessive solid waste and would comply with all management and reduction statutes and regulations. Standard Measure UE-2 has been incorporated into the project that requires solid waste generated during construction be collected and transported to an appropriate recycling, disposal, or processing facility that is properly equipped and capable of handling solid waste materials. The impact would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

3.2.20 Wildfire

Chapter 3.3 provides a comprehensive discussion of wildfire in the project area. The following is an evaluation of the potential impacts on wildfire from the Build Alternatives. The No-Build Alternative would not change existing conditions and would not impact wildfire and is therefore not discussed further.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

and

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

a), b), c), d) Less-than-significant impact.

The project area is surrounded by mostly developed areas near the City of Davis and City of West Sacramento, but traverses natural open space, vegetation, and agricultural lands within unincorporated Solano County near the City of Dixon as well as the near the Yolo Causeway. The project is not located within a very high fire hazard severity zone and would be entirely within a LRA.

Portions of the project are located near and around vegetated areas and would involve the use of flammable materials including fuels such as gasoline or diesel, hydraulic oils, paints, solvents, or other industrial chemicals necessary for maintaining vehicles and equipment. The risk of fire associated with these materials is related to improper use or storage, which could increase the potential for wildfire ignition. During construction, Build Alternatives 2a and 2b through 7a and 7b would incorporate fire prevention practices during construction (AMM WF-1) to reduce wildfire impacts. The project would not expose people or structures to post-fire instability or change drainage patterns and would comply with Caltrans Standard Specifications for electrical systems (Section 87) for installation and operation.

Additionally, Standard Measure TT-3-has been incorporated into that project that will maintain emergency access and communications with emergency service providers during construction. Build Alternatives 2a and 2b through 7a and 7b also include a Park-and-Ride Facility that could provide areas for emergency vehicle staging during wildfires or other emergencies. Therefore, operation of the project would not exacerbate wildfire risks or result in temporary or ongoing impacts on the environment. Once construction of the project is completed, the roadway corridor would continue to serve the same use as existing conditions. Therefore, impacts related to wildfire would be less than significant for Build Alternatives 2a and 2b through 7a and 7b.

3.2.21 Mandatory Findings of Significance

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or

endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

a) Less-than-significant impact.

The project area contains suitable habitat for special-status plant and wildlife species and nesting birds, CDFW Sensitive Natural Communities, and federally protected wetlands. Project construction would create subsurface disturbances that could result in damage to or destruction of previously undiscovered subsurface archaeological deposits or unmarked burials. With implementation of Standard Measures and AMMs, impacts to these resources would be less than significant for all Build Alternatives.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

b) Less-than-significant impact.

As discussed in Chapter 2.4, Cumulative Impacts, the project would not have a cumulatively significant impact on any impacted resources. All potential impacts would be minimized through the Standard Measures and AMMs. Therefore, this impact would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

c) Less-than-significant impact.

Construction activities would temporarily increase criteria pollutant emissions and ambient noise levels. These impacts would be temporary, and the project would incorporate Standard Measures and AMMs to minimize potentially adverse effects to humans resulting from construction activities. Therefore, the project would not have a substantial direct or indirect impact on the human environment, and impacts would be less than significant for all Build Alternatives.

3.3 Wildfire

3.3.1 Regulatory Setting

Senate Bill 1241 required the Office of Planning and Research, the Natural Resources Agency, and the California Department of Forestry and Fire Protection to develop amendments to the “CEQA Checklist” for the inclusion of questions related to fire hazard impacts for projects located on lands classified as very high fire hazard severity zones. The 2018 updates to the CEQA Guidelines expanded this to include projects “near” these very high fire hazard severity zones.

3.3.2 Affected Environment

Climate and landscape characteristics are among the most important factors influencing hazard levels. Weather characteristics such as wind, temperature, humidity, and fuel moisture content affect the potential for fire. A fire typically burns faster and with more intensity when the air temperature is high, relative humidity is low, and winds are strong. Accordingly, urban and rural fires have the potential to cause damage, injury, or harm (Solano County 2008).

The project area is surrounded by mostly developed areas near the City of Davis and City of West Sacramento, but traverses natural open space, vegetation, and agricultural lands within unincorporated Solano County near the City of Dixon as well as the near the Yolo Causeway.

Wildland fire protection in California is the responsibility of either the State, local government, or the federal government. LRA fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government. According to the California Department of Forestry and Fire Protection, the project is not located within a very high fire hazard severity zone and would be located entirely within an LRA. However, several areas along the Sacramento River are mapped as moderately hazardous for wildland fires (CAL FIRE 2021).

3.3.3 Environmental Consequences

3.3.3.1 No-Build Alternative 1

Construction and Operation

Under the No-Build Alternative, managed lanes would not be added to the I-80 or US-50 corridors and existing capacity would not increase. I-80 and US-50 would continue to serve the same use as existing conditions, which is not located within a very high fire severity zone and there would be no effects related to wildfire.

3.3.3.2 Build Alternatives 2a and 2b

Construction

Build Alternatives 2a and 2b would involve adding an HOV lane in each direction for use by HOV 2+. Construction of the project would require use of heavy and light equipment to modify ramps, widen roadway shoulders, install fiber-optic cable and electrical conduit, etc. The project is located along an existing transportation right-of-way that is maintained, creating an intrinsic fuel break. Equipment usage during construction would be temporary. However, such activities may be located near and around vegetated areas and would involve the use of flammable materials including fuels such as gasoline or diesel, hydraulic oils, paints, solvents, or other industrial chemicals necessary for maintaining vehicles and equipment. The risk of fire associated with these materials is related to improper use or storage which could increase the potential for wildfire ignition. During construction, Caltrans would implement a TMP (Standard Measure TT-3) to maintain emergency access during construction. Therefore, project construction activities would not impair an adopted emergency response plan or emergency

evacuation plan. Standard Measure UE-3 would require the contractor to submit a jobsite fire prevention plan as required by California Division of Occupational Safety and Health Administration (Cal OSHA) before starting job site activities. In an emergency or wildfire, the contractor would cooperate with fire prevention authorities. Additionally, Standard Measure COM-1 would require a planned public outreach program to keep the area residents, businesses, emergency service providers, and transit operators informed of the project construction schedule; however, even with implementation of these Standard Measure TT-3, impacts from wildfire could still be significant. Therefore, during construction of Build Alternatives 2a and 2b, AMM WF-1 would be implemented that includes fire prevention practices to reduce the potential for wildfires to occur in the project area.

Operation

Caltrans would restore the project area to preconstruction conditions in accordance with applicable permits and Caltrans requirements. The project would involve the installation of fiber-optic and electrical conduit within existing transportation right-of-way. Once in operation, electrical components would be underground and tie-in to existing distribution lines. In addition, Caltrans would comply with Caltrans Standard Specifications for electrical systems (Section 87) for installation and operation. While Build Alternatives 2a and 2b would add capacity to the I-80 and US-50 corridors and would increase the edge of pavement through shoulder widening, operation of Build Alternatives 2a and 2b would continue to serve the same use as existing conditions and would not create a new roadway alignment within a very high fire severity zone.

In addition, Build Alternatives 2a and 2b proposes a Park-and-Ride Facility with approximately 300 parking spaces that could provide areas for emergency vehicle staging during wildfires or other emergencies. Build Alternatives 2a and 2b would implement drainage features that could potentially provide firebreaks during a wildfire event. The project would not exacerbate wildfire risks or result in temporary or ongoing impacts to the environment, and impacts would be less than significant from project operations.

Impacts from Build Alternatives 2a and 2b would be less than significant with mitigation.

3.3.3.3 Build Alternatives 3a and 3b

Construction and Operation

Build Alternatives 3a and 3b would involve adding a HOT lane in each direction for use by HOT 2+ and Build Alternatives 3a and 3b propose similar project components within the same project area as Build Alternatives 2a and 2b, respectively; therefore, the impact would be the same as impacts described under Build Alternatives 2a and 2b.

3.3.3.4 Build Alternatives 4a and 4b

Construction and Operation

Build Alternatives 4a and 4b would involve adding an HOT lane in each direction for use by vehicles with three or more riders (HOT 3+). Build Alternatives 4a and 4b propose similar

project components within the same project area as Build Alternatives 2a and 2b, respectively; therefore, the impact would be the same as impacts described under Build Alternatives 2a and 2b.

3.3.3.5 Build Alternatives 5a and 5b

Construction and Operation

Build Alternatives 5a and 5b would create an express lane in each direction where all users pay a fee regardless of vehicle occupancy. Build Alternatives 5a and 5b propose similar project components within the same project area as Build Alternatives 2a and 2b, respectively; therefore, the impact would be the same as impacts described under Build Alternatives 2a and 2b.

3.3.3.6 Build Alternatives 6a and 6b

Construction and Operation

Build Alternatives 6a and 6b would involve adding a transit-only lane in each direction. Build Alternatives 6a and 6b propose similar project components within the same project area as Build Alternatives 2a and 2b, respectively; therefore, the impact would be the same as impacts described under Build Alternatives 2a and 2b.

3.3.3.7 Build Alternatives 7a and 7b

Construction and Operation

Build Alternatives 7a and 7b would involve repurposing the current #1 general purpose lane to HOV 2+. No new lanes would be constructed. Build Alternatives 7a and 7b propose similar project components within the same project area as Build Alternatives 2a and 2b, respectively; therefore, the impact would be the same as impacts described under Build Alternatives 2a and 2b.

3.3.4 Avoidance, Minimization, and/or Mitigation Measures

AMM WF-1: **Implement Fire Prevention Practices During Construction**. During the construction, Caltrans would implement the following fire prevention practices to reduce the potential for wildfire.

- Prepare names and emergency telephone numbers of the nearest fire suppression agencies before the start of job site activities and post at a prominent place at the job site.
- Prepare a fire prevention plan required by the California Division of Occupational Safety and Health before the start of job site activities.
- Cooperate with fire prevention authorities in performance of the work.

- Immediately report fires occurring within and near the project limits by dialing 911 and to the nearest fire suppression agency by using the emergency phone numbers retained at the job site.
- Prevent project personnel from setting open fires that are not part of the work.
- Prevent the escape of and extinguish fires caused directly or indirectly by job site activities.

3.4 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth's climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia, or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to GHG emissions generated from the production and use of fossil fuels.

Human activities generate GHGs consisting primarily of carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF6), and various hydrofluorocarbons (HFCs). CO2 is the most abundant GHG; while it is a naturally occurring and necessary component of Earth’s atmosphere, fossil fuel combustion is the main source of additional, human-generated CO2 that is the main driver of climate change. In the U.S. and in California, transportation is the largest source of GHG emissions, mostly CO2.

The impacts of climate change are already being observed in the form of sea level rise, drought, more intense heat, extended and severe fire seasons, and historic flooding from changing storm patterns. Both mitigation and adaptation strategies are necessary to address these impacts. The most important mitigation strategy is to reduce GHG emissions. In the context of climate change (as distinct from CEQA and NEPA), “mitigation” involves actions to reduce GHG emissions or to enhance the “sinks” that store them (such as forests and soils) to lessen adverse impacts. “Adaptation” is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

3.4.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

3.4.1.1 Federal

To date, no national standards have been established for nationwide mobile source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2022). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values— “the triple bottom line of sustainability” (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

The federal government has taken steps to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) as amended by the Energy Independence and Security Act (EISA) of 2007; and Corporate Average Fuel Economy (CAFE) Standards. This act established fuel economy standards for on-road motor vehicles sold in the United States. The U.S. Department of Transportation’s National Highway Traffic and Safety Administration (NHTSA) sets and enforces the CAFE standards based on each manufacturer’s average fuel economy for the portion of its vehicles produced for sale in the United States. The Environmental Protection Agency (U.S. EPA) calculates average fuel economy levels for manufacturers, and also sets related GHG emissions standards under the Clean Air Act. Raising CAFE standards leads automakers to create a more fuel-efficient fleet, which improves our nation’s energy security, saves consumers money at the pump, and reduces GHG emissions (U.S. DOT 2014).

U.S. EPA published a final rulemaking on December 30, 2021, that raised federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026, increasing in stringency each year. The updated GHG emissions standards will avoid more than three billion tons of GHG emissions through 2050. In April 2022, NHTSA announced corresponding new fuel economy standards for model years 2024 through 2026, which will reduce fuel use by more than 200 billion gallons through 2050 compared to the old standards and reduce fuel costs for drivers (U.S. EPA 2022a; NHTSA 2022).

3.4.1.2 State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to, the following:

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill (AB) 32 in 2006 and Senate Bill (SB) 32 in 2016.

Assembly Bill (AB) 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that the California Air Resources Board (CARB) create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code [H&SC] Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Senate Bill (SB) 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region.

EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). [GHGs differ in how much heat each traps in the atmosphere, called global warming potential, or GWP. CO2 is the most important GHG, so amounts of other gases are expressed relative to CO2, using a metric called "carbon dioxide equivalent," or CO2e. The global warming potential of CO2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO2.] Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

SB 32, Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

SB 1386, Chapter 545, 2016, declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards,

and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

SB 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled, to promote the state's goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires ARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

EO B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

AB 1279, Chapter 337, 2022, The California Climate Crisis Act: This bill mandates carbon neutrality by 2045 and establishes an emissions reduction target of 85% below 1990 level as part of that goal. This bill solidifies a goal included in EO B-55-18. It requires ARB to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

3.4.2 Environmental Setting

The project area is surrounded by mostly developed areas near the City of Davis and City of West Sacramento, but traverses natural open space, vegetation, and agricultural lands within unincorporated Solano County near the City of Dixon as well as the near the Yolo Causeway. County. The I-80/US-50 corridor experiences heavy congestion during commute periods due to high vehicular demand. Traffic congestion during peak hours is common in the project area.

The SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2020 update prioritizes multiple transportation options to connect people with places. As a result, the plan forecasts less time spent in congestion, cleaner air, fewer GHG emissions per capita, a modernized, more productive transit system, and more ways for residents to choose walking or cycling for some of their daily trips. SACOG sees managed lanes as a critical component of the regional strategy to raise revenue sufficient to build and maintain the region's transportation system, provide mobility benefits to residents, manage traffic and congestion, and help to achieve the state mandated GHG reduction targets. The full scope of the Yolo County section of the project is included in the 2020 MTP/SCS and is identified as requiring capital improvements in the Corridor System Management Plans, the Sacramento Region Managed Lane Network Vision, and the I-5 Transit Corridor Report. The Solano County portion of the project is in the Solano County Metropolitan Transportation Commission area.

3.4.3 GHG Inventories

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. U.S. EPA is responsible for documenting GHG emissions nationwide, and the ARB does so for the state, as required by H&SC Section 39607.4. Cities and other local jurisdictions may also conduct local GHG inventories to inform their GHG reduction or climate action plans.

3.4.3.1 National GHG Inventory

The annual GHG inventory submitted by the U.S. EPA to the United Nations provides a comprehensive accounting of all human-produced sources of GHGs in the United States. The 1990-2019 inventory found that overall GHG emissions were 6,558 million metric tons (MMT) in 2019, down 1.7 percent from 2018 but up 1.8% from 1990 levels. Of these, 80 percent were CO2, 10 percent were CH4, and 7 percent were N2O; the balance consisted of fluorinated gases. CO2 emissions in 2019 were 2.2 percent less than in 2018, but 2.8 percent more than in 1990. As shown on Figure 3.4-1, the transportation sector accounted for 29 percent of U.S. GHG emissions in 2019 (U.S. EPA 2021b, 2021c).

The annual GHG inventory submitted by the U.S. EPA to the United Nations provides a comprehensive accounting of all human-produced sources of GHGs in the United States. Total GHG emissions from all sectors in 2020 were 5,222 million metric tons (MMT), factoring in deductions for carbon sequestration in the land sector. Of these, 79 percent were CO2, 11 percent were CH4, and 7 percent were N2O; the balance consisted of fluorinated gases. Total GHGs in 2020 decreased by 21% from 2005 levels and 11% from 2019. The change from 2019 resulted primarily from less demand in the transportation sector during the COVID-19 pandemic. The transportation sector was responsible for 27 percent of total U.S. GHG emissions in 2020, more than any other sector (Figure 3.4-1, and for 36% of all CO2 emissions from fossil fuel combustion. Transportation CO2 emissions for 2020 decreased 13 percent from 2019 to 2020, but were 7 percent higher than transportation CO2 emissions in 1990 (Figure 3.4-1) (U.S. EPA 2022b).

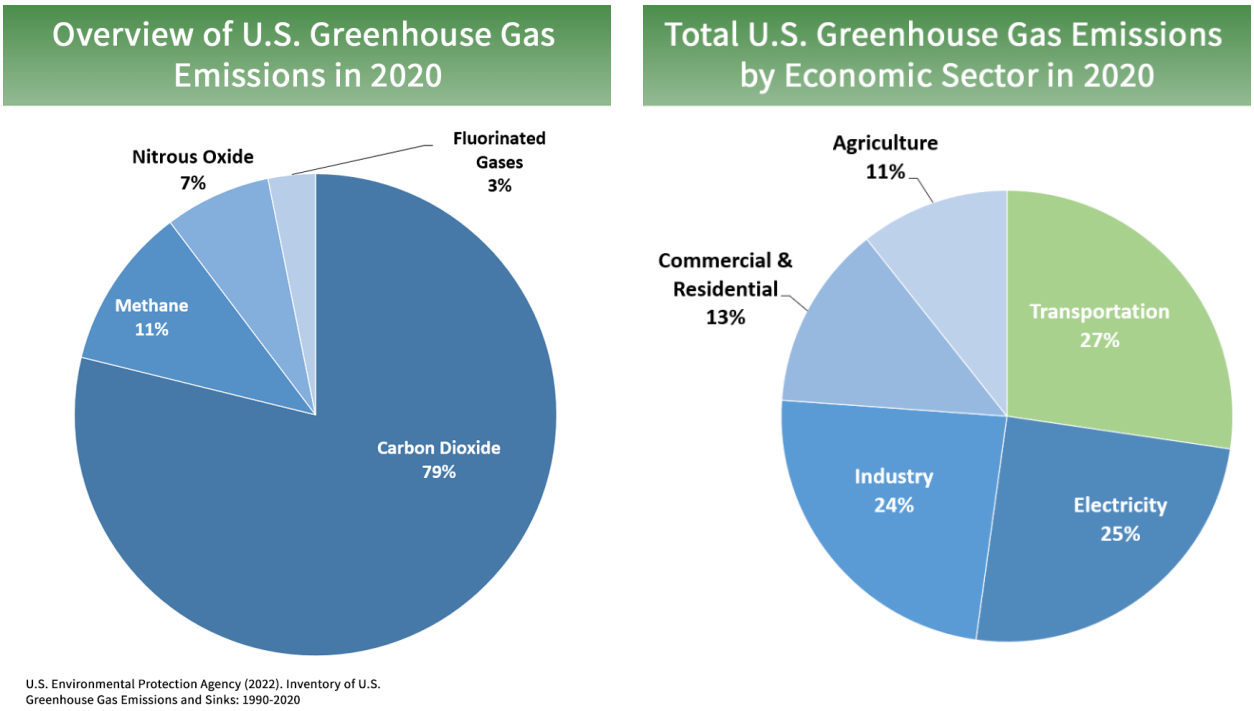

Figure 3.4-1. U.S. 2020 Greenhouse Gas Emissions (Source: U.S. EPA 2022d)

3.4.3.2 State GHG Inventory

ARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2022 edition of the GHG emissions inventory reported emissions trends from 2000 to 2020. Total California GHG emissions in 2020 were 369.2 MMTCO2e, a reduction of 35.3 MMTCO2e from 2019 and 61.8 MMTCO2e below the 2020 statewide limit of 431 MMTCO2e. Much of the decrease from 2019 to 2020, however, is likely due to the effects of the COVID-19 pandemic on the transportation sector, during which vehicle miles traveled declined under stay-at-home orders and reductions in goods movement. Nevertheless, transportation remained the largest source of GHG emissions, accounting for 37 percent of statewide emissions (Figure 3.4-2). (Including upstream emissions from oil extraction, petroleum refining, and oil pipelines in California, transportation was responsible for about 47 percent of statewide emissions in 2020; however, those emissions are accounted for in the industrial sector.) California's gross domestic product (GDP) and GHG intensity (GHG emissions per unit of GDP) both declined from 2019 to 2020 (Figure 3.4-3). It is expected that total GHG emissions will increase as the economy recovers over the next few years (ARB 2022a).

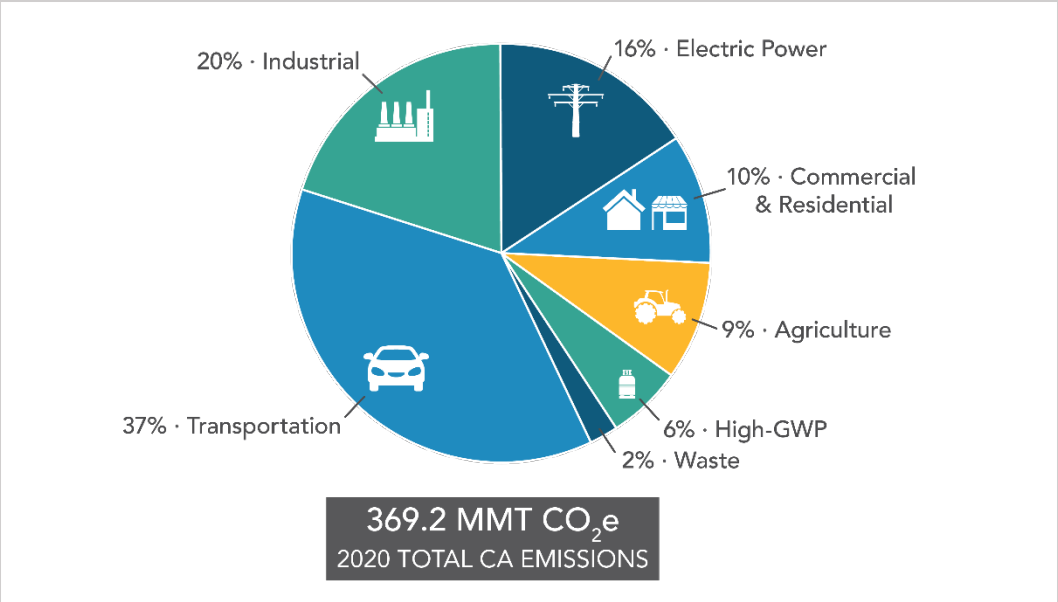

Figure 3.4-2. California 2019 Greenhouse Gas Emissions by Scoping Plan Category (Source: ARB 2022a)

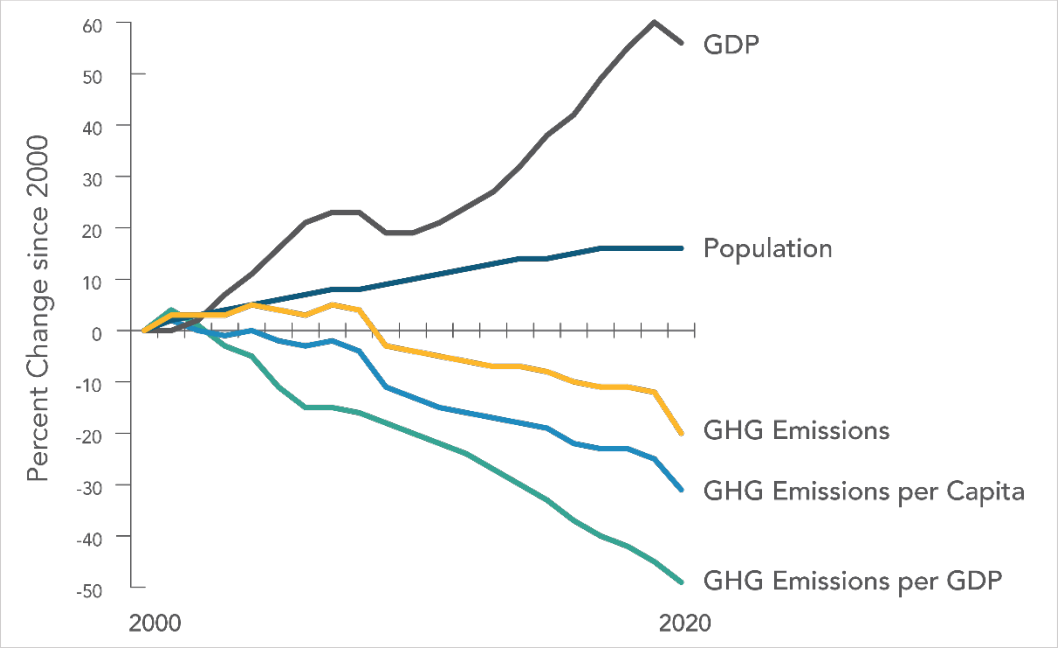

Figure 3.4-3. Change in California GDP, Population, and GHG Emissions since 2000 (Source: ARB 2021a)

AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. ARB adopted the first scoping plan in 2008. The second updated plan, California's 2017 Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target

established in EO B-30-15 and SB 32. The draft 2022 Scoping Plan Update additionally lays out a path to achieving carbon neutrality by 2045 (ARB 2022b).

3.4.3.3 Regional Plans

ARB sets regional GHG reduction targets for California's 18 metropolitan planning organizations (MPOs) to achieve through planning future projects that will cumulatively achieve those goals, and reporting how they will be met in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. SACOG MTP/SCS 2020. The regional reduction target for SACOG is 19 percent by 2035 (ARB 2022b).

The project is within the jurisdiction of the SACOG, which is the Regional Transportation Planning Agency (RTPA) for Sacramento, Sutter, Yolo, and Yuba Counties. The 2020 MTP identifies a path for improving air quality, preserving open space and natural resources, and helping California achieve its goal to reduce GHG emissions that contribute to climate change (SACOG 2019) (Table 3.4-1).

Table 3.4-1. Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
SACOG 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy	• Policy 3: Implement pilot projects aimed at making microtransit and micromobility (such as bike and scooter share) work for urban, suburban, rural, and low-income areas of the region. • Policy 4: Pursue flexibility in state and federal funding sources to enable testing and implementation of innovative mobility solutions that are affordable, accessible, and reduce greenhouse gas emissions. • Policy 5: Support innovative education and transportation demand management programs covering all parts of the region, to offer a variety of alternatives to driving alone. • Policy 6: Pursue new funding and planning opportunities to support electric vehicle infrastructure and programs for both private vehicles and public transit fleets. • Policy 7: Support transit agencies and local governments looking to secure funds to improve the frequency, hours of service, and coverage of productive bus service (including bus rapid transit, express bus, and more frequent fixed-route service). • Policy 8: Support more seamless travel through better traveler information for trip planning, reliable service and coordination between operators for transit, shared mobility and other first/last mile connections. • Policy 9: Pursue new and reformed transportation funding methods and sources to implement the MTP/SCS that are stable, predictable, flexible, and adequate to operate, maintain, and expand the transportation system. Mileage-based fees/PayGo should replace, not be on top of, existing state fuel taxes. • Policy 11: Initiate a leadership role in testing and piloting roadway pricing mechanisms, such as facility-based tolling and mileage-based fees, in partnership with the state, federal, and local agencies and private sector organizations.

Title	GHG Reduction Policies or Strategies
	• Policy 12: Take steps to implement tolling or pricing of specific lanes on major facilities, such as freeways, to improve traffic management, reliability, and operations of those facilities and to help raise funding for the cost of building and maintaining large capital investments. • Policy 13: All new major expansion projects on the region's freeways and expressways should be planned for eventual deployment of pricing options to both manage demand and provide a financing mechanism for capital costs. Any pricing strategy pursued should be sensitive to changes in roadway demand during different parts of the day (peak/off-peak) with the objective of managing demand and providing travel choice. • Policy 14: Revenues generated from facility-based pricing should be used to build and maintain a regional network of paid express lanes and, where surplus revenue is available, on strategic transit services (e.g., express buses) or other mobility solutions that can reduce vehicle miles traveled and provide multiple travel options along priced corridors. • Policy 15: New taxes and fees, including mileage-based fees, intended to raise additional funding for transportation purposes should prioritize closing the gap for system maintenance and state-of-good repair needs before investing in system expansion. • Policy 16: When implementing pricing strategies, both paid express lanes and mileage-based fees/PayGo, the region should make every effort to avoid negatively impacting lower income and rural households. For regional implementation of PayGo, explore innovative options for setting fees, such as including off-setting incentives for non-vehicular travel, off-sets to fees for disadvantaged households, and keying fee rates to maintenance and fix-if-first goals. • Policy 22: Invest in bicycle and pedestrian infrastructure to encourage healthy, active transportation trips and provide recreational opportunities for residents and visitors. • Policy 25: Prioritize investments in transportation improvements that reduce greenhouse gas emissions and vehicle miles traveled.
Yolo County Climate Action Plan	• Increase vehicle fuel efficiency. • Reduce carbon content. • Reducing number of vehicles miles traveled. • Optimizes vehicle operations and driver behavior, including strategies such as speed management, ecodriving, and vehicle maintenance.
Sacramento County Climate Action Plan	• Increase the average fuel efficiency of County-owned vehicles powered by gasoline and diesel and encourage increased fuel efficiency in community vehicles. • Increase use of alternative and lower carbon fuels in the County vehicle fleet and facilitate their use in the community. • Reduce total vehicle miles traveled per capita in the community and the region.

Title	GHG Reduction Policies or Strategies
Solano County Climate Action Plan	• TC-1: Solano County will work with STA to enhance countywide rideshare infrastructure and services. • TC-3: Work with cities and STA to improve bicycle and pedestrian connectivity in the county. • TC-4: Educate residents and businesses about options to reduce motor vehicle emissions.

3.4.4 Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation and use of the State Highway System (SHS) (operational emissions) and those produced during construction. The primary GHGs produced by the transportation sector are CO2, CH4, N2O, and HFCs. CO2 emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of CH4 and N2O. A small amount of HFC emissions related to refrigeration is also included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Pub. Resources Code, § 21083(b)(2)). As the California Supreme Court explained, “because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself.” (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512.) In assessing cumulative impacts, it must be determined whether a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

3.4.4.1 Operational Emissions

CO2 from fossil fuel combustion is the largest component of U.S. GHG emissions, and transportation is the largest contributor of CO2. The largest emitters of transportation CO2 emissions in 2020 were passenger cars (38.5 percent), freight trucks (26.3 percent), and light-duty trucks (18.9 percent). The remainder came from other modes of transportation, including aircraft, ships, boats, and trains, as well as pipelines and lubricants (U.S. EPA 2022b). Because CO2 emissions represent the greatest percentage of GHG emissions, it has been selected as a proxy for the following analysis of potential climate change impacts.

The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 3-4-4). To the extent that a project enhances operational efficiency and improves travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced, provided that improved travel times do not induce additional VMT.

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity (e.g., vehicle miles traveled), (3) transitioning to lower GHG emitting fuels, and (4) improving vehicle technologies and efficiency. To be most effective, all four strategies should be pursued concurrently.

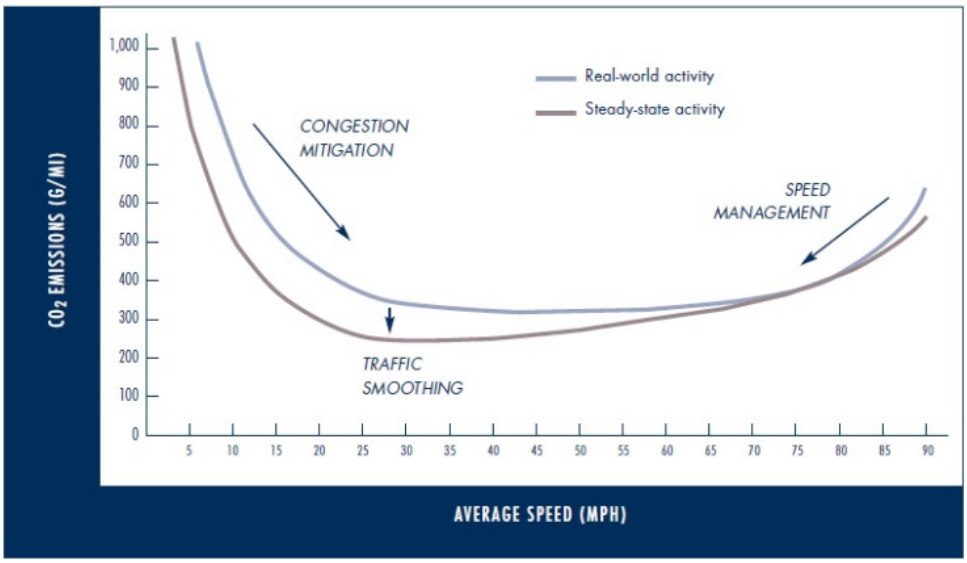

Figure 3.4-4. Possible Use of Traffic Operation Strategies in Reducing On-road CO_2 Emissions

Source: Real-World Carbon Dioxide Impacts of Traffic Congestion. Berkeley, CA: University of California Transportation Center. UCTC-FR-2010-11. Available: https://www.researchgate.net/publication/46438207. (Barth and Boriboonsomsin 2010)

The project is within the jurisdiction of the SACOG, which is the RTPA for Sacramento, Sutter, Yolo, and Yuba Counties. The 2020 MTP identifies a path for improving air quality, preserving open space and natural resources, and helping California achieve its goal to reduce GHG emissions that contribute to climate change (SACOG 2019). The regional reduction target for passenger vehicle GHG emissions per person from 2005 levels for SACOG is 19 percent by 2035 (ARB 2019c). The project is included in the SACOG MTP/SCS 2020.

The Build Alternatives would implement managed lanes to manage traffic congestion, accommodate travel demands, and improve modality and travel time reliability. By helping to provide a continuous managed lane system, the project, combined with other in-progress and proposed managed lane projects, would provide reliable travel times, and help contribute to the completion of the regional transportation network envisioned in the SACOG MTP/SCS.

3.4.4.2 Quantitative Analysis

A quantitative analysis of daily CO_2 emissions was performed using the Caltrans CT-EMFAC2021. CT-EMFAC2021 is an emission model developed by Caltrans that calculates project-level emissions using data from the California Air Resources Board's EMFAC 2021 model. CO_2 can be easily derived from the CT-EMFAC model run prepared for the criteria pollutant and GHG emissions analyses. The basic procedure for analyzing construction GHG

from construction activities is to obtain CO_2 emissions from the Caltrans Construction Emission Tool (CAL-CET 2020). GHG emissions and VMT comparisons were calculated for the Build Alternatives the existing year (2019), in opening year (2029), and design year (2049). As shown in Table 3.4-2, for build and Baseline of Alternative 2, GHG would increase Opening year 2029 (11.0 perfect) and decrease of Design year 2049 (-2.1 percent) under build option b. It is noted that GHG emissions would be improved with the project resulted in from the increase of 2.2 percent to 10.9 percent in Opening Year 2029 to the reduction indicating -1.4 percent to -5.1 percent in Design Year 2049 regarding all the alternatives 2 through 7 between build and no build (Table 3.4-2). Furthermore, the improved reduction of GHG would be anticipated between existing and build in the comparison of Opening year 2029 (2.3 percent to 11.0 percent) and Design year 2049 (-2.1 percent to -5.8 percent).

Table 3.4-2. Modeled Annual Carbon Dioxide Equivalent (CO_2e) Emissions and Vehicle Miles Traveled, by Alternative

Year	CO_2e Emissions	Baseline (Existing Yr 2019)	Alt 1 (No Build)	Alt 2a	Alt 2b	Alt 3a	Alt 3b	Alt 4a	Alt 4b	Alt 5a	Alt 5b	Alt 6a	Alt 6b	Alt 7a	Alt 7b
Opening Year 2029	CO_2e (Metric ton)	1,039.5	1,040.6	1,005.1	1,154.0	986.4	1,148.0	970.5	1,132.0	915.7	1,117.5	902.1	1,063.4	1,062.7	1,097.9
	*%Change between Build/No-Build	N/A	N/A	-3.4	10.9	-5.2	10.3	-6.7	8.8	-12.0	7.4	-13.3	2.2	2.1	5.5
	*%Change between Existing/Build	N/A	0.1	-3.3	11.0	-5.1	10.4	-6.6	8.9	-11.9	7.5	-13.2	2.3	2.2	5.6
Design Year 2049	CO2e (Metric ton)	1039.5	1,031.4	939.0	1,017.2	931.2	1,006.6	920.5	993.4	909.5	979.2	880.2	996.4	*863.6	981.3
	*%Change between Build/No-Build	N/A	N/A	-9.0	-1.4	-9.7	-2.4	-10.8	-3.7	-11.8	-5.1	-14.7	-3.4	-16.3	-4.9
	*%Change between Existing/Build	N/A	-0.8	-9.7	-2.1	-10.4	-3.2	-11.5	-4.4	-12.5	-5.8	-15.3	-4.1	-16.9	-5.6

Source: CT-EMFAC 2021
Notes:
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4): all GHGs included in the model's calculation of CO_2e
N/A = not available

ARB developed the EMission FACtors (EMFAC) model to facilitate preparation of statewide and regional mobile source emissions inventories. The model generates emissions rates that can be multiplied by vehicle activity data from all motor vehicles, including passenger cars to heavy-duty trucks, operating on highways, freeways, and local roads in California. EMFAC has a rigorous scientific foundation, has been approved by U.S. EPA, and has been vetted through multiple stakeholder reviews. Caltrans developed CT-EMFAC to apply project-specific factors to ARB's model.

EMFAC's GHG emission rates are based on tailpipe emissions test data and the model does not account for factors such as the rate of acceleration and vehicle aerodynamics, which influence the amount of emissions generated by a vehicle. GHG emissions quantified using CT-EMFAC are therefore estimates and may not reflect actual on-road emissions. Furthermore, the model does not account for induced travel. Modeling GHG estimates with EMFAC or CT-EMFAC nevertheless remains the most precise means of estimating future greenhouse gas emissions. While CT-EMFAC is currently the best available tool for calculating GHG emissions from mobile sources, it is important to note that the GHG results are only useful for a comparison of alternatives. Federal CAFE and GHG emissions standards continue to evolve, and models will be updated to account for regulatory changes.

3.4.4.3 Construction Emissions

Construction GHG emissions would result from material processing and transportation, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

Use of long-life pavement, improved traffic management plans, and changes in materials can also help offset GHG emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

GHG emissions from project construction were estimated using CAL-CET2020 version 1.0.1. There will be about 5,532 tons of CO2 generated over the entire construction project.

All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7 1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all ARB emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce GHG emissions.

3.4.5 CEQA Conclusion

The Build Alternatives would result in GHG emissions during construction. In addition, the Build Alternatives would result in additional vehicle capacity that would result in an increase of VMTs. Therefore, long-term operational GHG emissions would potentially increase from existing

conditions under 2029 opening year assumptions. However, as projected under the 20-year horizon design assumptions (2049), although VMTs were estimated to increase, GHG emissions were estimated to decrease for the Build Alternatives as compared to conditions under 2029, which is attributed to newer more fuel-efficient fleets and the increase in electric vehicles by the year 2049. The project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. With the implementation of construction GHG reduction measures, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

3.4.6 Greenhouse Gas Reduction Strategies

3.4.6.1 Statewide Efforts

In response to AB 32, California is implementing measures to achieve emission reductions of GHGs that cause climate change. Climate change programs in California are effectively reducing GHG emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors, to take California into a sustainable, low-carbon and cleaner future, while maintaining a robust economy (ARB 2022d).

Major sectors of the California economy, including transportation, will need to reduce emissions to meet 2030 and 2050 GHG emissions targets. The Governor's Office of Planning and Research identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the State's energy mix to at least 50 percent by 2030; (2) reducing petroleum use by up to 50 percent by 2030; (3) increasing the energy efficiency of existing buildings by 50 percent by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits (OPR 2015). OPR later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with EO B-55-18 and AB 1279 (OPR 2022).

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower carbon fuels, and reduction of vehicle miles traveled (VMT). Reducing today's petroleum use in cars and trucks by 50% is a key state goal for reducing greenhouse gas emissions by 2030 (California Environmental Protection Agency 2015).

In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision-making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It instructs state agencies to use existing authorities and resources to identify and implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities and in particular low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2022a) released Natural and Working Lands Climate Smart Strategy, with a focus on nature-based solutions.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set an interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Action Plan for Transportation Infrastructure

The California Action Plan for Transportation Infrastructure (CAPTI) builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing GHG emissions in transportation, which account for more than 40 percent of all polluting emissions, to reach the state's climate goals. Under CAPTI, where feasible and within existing funding program structures, the state will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

California Action Plan for Transportation Infrastructure

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The CTP 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide GHG emissions reduction targets and increase resilience to climate change. It demonstrates how GHG emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

Caltrans Strategic Plan

The Caltrans 2020–2024 Strategic Plan includes goals of stewardship, climate action, and equity. Climate action strategies include developing and implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a VMT monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021b).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) established a Department policy to ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. Caltrans Greenhouse Gas Emissions and Mitigation Report (Caltrans 2020) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce GHG emissions and identifies additional opportunities for further reducing GHG emissions from Department-controlled emission sources, in support of Departmental and State goals.

3.4.6.2 Project-Level GHG Reduction Strategies

The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project.

The following measures would be implemented to reduce GHG emissions and potential climate change impacts from the project.

Construction contractors will comply with Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. As outlined in Appendix E, the project would implement Standard Measures GHG-1 through GHG-6 to reduce GHG emissions. GHG-6 would require Caltrans to maintain access for bicycle and pedestrians throughout construction. A temporary detour bridge adjacent to where the new bridge would be constructed would maintain traffic flow and avoid lengthy delays and idling emissions. GHG-5 commits Caltrans to revegetating disturbed areas to offset any potential CO2 emissions increase through carbon sequestration.

3.4.7 Adaptation

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

3.4.7.1 Federal Efforts

Under NEPA Assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The Fourth National Climate Assessment, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. DOT 2011).

FHWA order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

Under NEPA Assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The Fourth National Climate Assessment, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. DOT 2011). The U.S. DOT Climate Action Plan of August 2021 followed up with a statement of policy to "accelerate reductions in greenhouse gas emissions from the transportation sector and make our transportation infrastructure more climate change resilient now and in the future," following this set of guiding principles (U.S. DOT 2021):

- Use best available science
- Prioritize the most vulnerable
- Preserve ecosystems
- Build community relationships
- Engage globally

U.S. DOT developed its climate action plan pursuant to the federal EO 14008, Tackling the Climate Crisis at Home and Abroad (January 27, 2021). EO 14008 recognized the threats of climate change to national security and ordered federal government agencies to prioritize

actions on climate adaptation and resilience in their programs and investments (White House 2021).

FHWA order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

3.4.7.2 State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of state policies and tools have been developed to guide adaptation efforts.

California's Fourth Climate Change Assessment (Fourth Assessment) (2018) is the state's effort to "translate the state of climate science into useful information for action." It provides information that will help decision makers across sectors and at state, regional, and local scales protect and build the resilience of the state's people, infrastructure, natural systems, working lands, and waters. The State's approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce GHG emissions by 2021 or sooner, the state is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77% increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67% of Southern California beaches and inundation of billions of dollars' worth of residential and commercial buildings due to sea level rise (State of California 2018).

Sea level rise is a particular concern for transportation infrastructure in the coastal zone. Major urban airports will be at risk of flooding from sea level rise combined with storm surge as early as 2040; San Francisco airport is already at risk. Miles of coastal highways vulnerable to flooding in a 100-year storm event will triple to 370 by 2100, and 3,750 miles will be exposed to temporary flooding. The Fourth Assessment's findings highlight the need for proactive action to address these current and future impacts of climate change.

In 2008, then-governor Arnold Schwarzenegger recognized the need when he issued EO S-13-08, focused on sea level rise. Technical reports on the latest sea level rise science were first published in 2010 and updated in 2013 and 2017. The 2017 projections of sea level rise and new understanding of processes and potential impacts in California were incorporated into the State of California Sea Level Rise Guidance Update in 2018. This EO also gave rise to the California Climate Adaptation Strategy (2009), updated in 2014 as Safeguarding California: Reducing Climate Risk (Safeguarding California Plan), which addressed the full range of climate change impacts and recommended adaptation strategies. The Safeguarding California Plan was updated in 2018 and again in 2021 as the California Climate Adaptation Strategy, incorporating

key elements of the latest sector-specific plans such as the Natural and Working Lands Climate Smart Strategy, Wildfire and Forest Resilience Action Plan, Water Resilience Portfolio, and the CAPTI (described above). Priorities in the 2021 California Climate Adaptation Strategy include acting in partnership with California Native American Tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, nature-based climate solutions, use of best available climate science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2022b).

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change in addition to sea level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published Planning and Investing for a Resilient California: A Guidebook for State Agencies in 2017, to encourage a uniform and systematic approach.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group to help actors throughout the state address the findings of California's Fourth Climate Change Assessment. It released its report, Paying it Forward: The Path Toward Climate-Safe Infrastructure in California, in 2018. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts (Climate Change Infrastructure Working Group 2018).

3.4.7.3 Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans completed climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and sea level rise.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide analysis of at-risk assets and development of Adaptation Priority Reports as a method to make capital programming decisions to address identified risks.

3.4.7.4 Project Adaptation Analysis

Sea Level Rise

The project is outside the coastal zone and not in an area subject to sea level rise. Therefore, direct impacts to the project due to projected sea level rise are not expected. However, according to the Caltrans District 3 Climate Change Vulnerability Assessment Map (2021), the Yolo Causeway would be vulnerable to sea level rise if exposed to a scenario of sea level rise of 2 meters or up, see Figure 3.4-5.

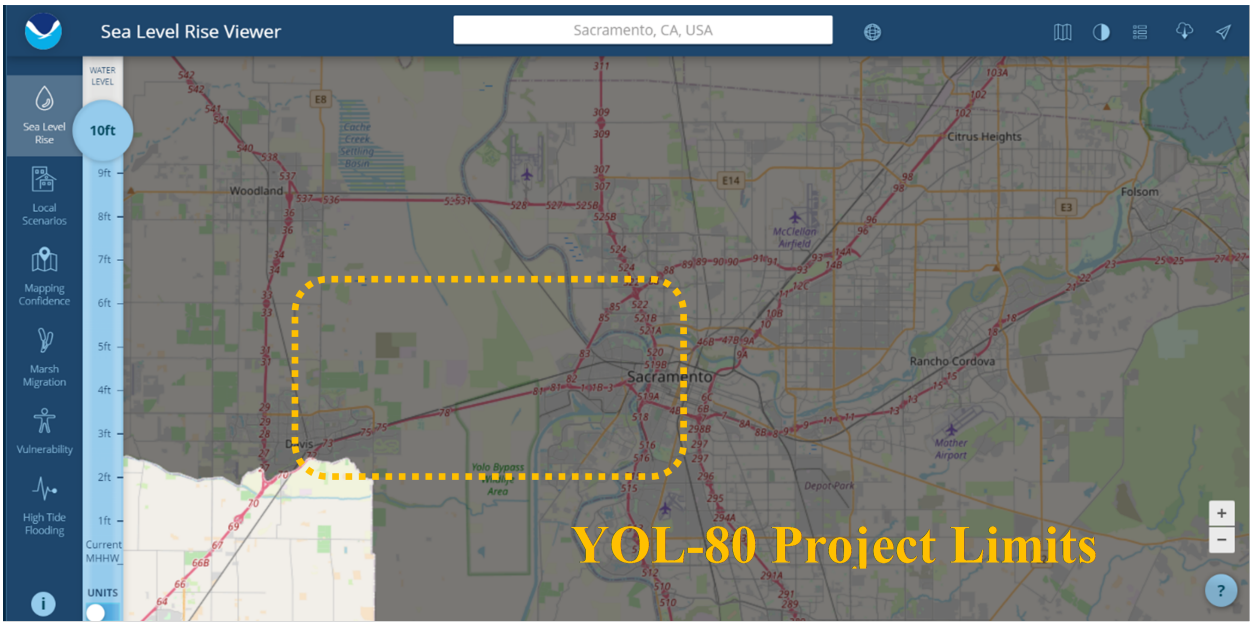

Figure 3.4-5. Project Limits with Sea Level Rise

Precipitation and Flooding

The District 3 Climate Change Vulnerability Assessment indicates the potential for a 0-4.9 percent increase in 100-year storm precipitation depth in the project vicinity by 2025 and through 2085 (Caltrans 2019). Many local geomorphic variables affect how a given precipitation event would affect streamflow, making it difficult to assess potential impacts at a particular location. The current scope of the project will not raise or change the profile of any of the highways within Segment 1, and it is anticipated that there will be no negative impacts to the FEMA mapped floodplain in this area. Therefore, the project is not likely to be affected by future changes in storm precipitation, and risk of interrupting traffic flow or emergency vehicles or access on I-80 is low.

Wildfire

The project is not in a high fire hazard severity zone. The Caltrans Climate Change Vulnerability Assessment for District 3 evaluated roads at risk for future wildfire. Mapping of wildfire risk shows a portion of the project area is in an area of wildfire concern and was not characterized as exposed roadway through 2085. As described in Section 3.3, Wildfire, the project would serve the same use as the existing use and would not exacerbate wildfire risks. Caltrans would implement AMM WF-1 to reduce the potential wildfire risks during construction. Accordingly, the project is not likely to be subject to effects of wildfire that could occur under climate change.

Temperature

The District Climate Change Vulnerability Assessment does not indicate temperature changes during the project's design life that would require adaptive changes in pavement design or maintenance practices.