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# Executive Summary

This Environmental Impact Report discusses and analyzes the proposed adoption and future implementation of the 2017 Update to the Contra Costa Countywide Comprehensive Transportation Plan (2017 CTP) and its Long-Range Transportation Investment Program (Investment Program or LRTIP).

## Background

The Contra Costa Transportation Authority (CCTA) was established in April 1989 to implement the Measure C Transportation Improvement and Growth Management Program passed by voters in November 1988. The four Regional Transportation Planning Committees representing each local jurisdiction within the four planning areas of Contra Costa (West, Central, East, and Southwest/Lamorinda) developed Action Plans for Routes of Regional Significance for their subregions. A fifth Action Plan, called the Tri-Valley Transportation and Action Plan was also developed.

The Action Plans for the 2017 CTP focus on establishing goals and multi-model transportation performance objectives for state and federal highways, designated major arterials, major transit facilities, and trunk-line pedestrian trails. The Action Plans also include a set of actions, projects, programs, and measures for achievement of the performance objectives.

The Growth Management Program further requires that CCTA develop and periodically update a countywide comprehensive transportation plan, and a travel demand forecasting computer model (the Countywide Model) for the analysis of local General Plans and traffic standards for regional routes

Key issues addressed in the West County Action Plan include, among others, expanding high-capacity transit, expanding the regional trail system, implementing complete streets, and reducing impacts from goods movement.

Key issues addressed in the Central County Action Plan include managing freeways to ease regional travel while reducing through traffic on local streets, expanding alternatives to solo driving, coordinating land use and transportation decisions, and supporting low-emission transportation technologies.

Key issues addressed in the East County Action Plan include improving the efficiency of freeways and arterials, supporting an effective transit system, improving multimodal transportation and reducing solo driving, maintaining the existing transportation network, and managing the effects of growth.

Key issues addressed in the Lamorinda Action Plan include preserving the area's semi-rural character, avoiding the addition of roadway capacity for solo driving, making transit more attractive and promoting transportation alternatives, improving transportation safety, coordinating local land use planning and regional transportation planning, discouraging through traffic on arterials and local streets, pursuing efficiency and operational improvements on roadways, supporting the implementation of local Complete Streets policies, and improving mobility to and within the area's downtowns.

Key issues addressed in the Tri-Valley Action Plan include better integration of transportation and environmental planning, making more effective use of existing facilities and services, maintaining capacity constraints at Tri-Valley gateways to limit inter-regional traffic, supporting incident management programs, discouraging through traffic on intra-regional routes, supporting arterial traffic management strategies that address hotspots at critical intersections and approaches, expanding transit service, ridesharing and options for walking and biking, trip reduction programs, and managing school-related traffic to enhance safety and reduce peak-period impacts.

In 2004, the voters of Contra Costa approved Measure J, which strengthened the Measure C requirement for a cooperative, multi-jurisdictional planning process in the development and implementation of Action Plans for Routes of Regional Significance, and added the Growth Management Program compliance requirement that the cities, towns, and the County adopt a voter-approved Urban Limit Line.

The 2009 Comprehensive Transportation Plan built upon the Action Plans developed by the Regional Transportation Planning Committees. The 2009 Comprehensive Transportation Plan included a wide range of project types, including expressways and freeways, bus service, and pedestrian and bike lanes. It reflected many projects and programs that were included in the 2004 update. The largest new countywide project included in the 2009 Comprehensive Transportation Plan was an upgrade of Bay Area Rapid Transit stations and system capacities.

The Draft 2014 Countywide Comprehensive Transportation Plan included a variety of projects and programs, such as expressways and freeways, Bay Area Rapid Transit and bus service, pedestrian facilities, and bike lanes. The resulting list of continued and new projects and programs was financially unconstrained, as it included all projects and programs proposed to achieve the CCTA's transportation vision, regardless of available funding.

## Project Overview

As with the previously adopted CTPs, the CCTA's 2017 CTP knits together the five Action Plans, which were each recently updated by the Regional Transportation Planning Committees. Using the Countywide Model, CCTA also evaluates the future conditions and travel impacts of the Action Plans on the whole of Contra Costa. The Countywide Model is consistent with Metropolitan Transportation Commission's model, includes the nine Bay Area counties, and is used to evaluate the transportation and air quality impacts of the 2017 CTP in this environmental impact report. The Countywide Model uses a horizon year of 2040 and includes land use data consistent with the Association of Bay Area Governments *Projections 2013*.

The Metropolitan Transportation Commission's Guidelines for Countywide Transportation Plans recommend that a Countywide Transportation Plan create the framework for establishing the county's long-range transportation vision, goals and priorities, and to allow the county to expand upon this vision and its goals and policies based on local needs and priorities. The 2017 CTP outlines the CCTA's vision for Contra Costa and its transportation system, and includes goals and strategies for achieving that vision. The 2017 CTP also updates the CCTA's vision, goals, and strategies, and documents major changes in the planning and regulatory environment since the adoption of the 2009 Countywide Transportation Plan in July 2009.

The following goals provide a policy framework for the development of the Action Plan updates and the 2017 CTP:

*Goal 1: Support the efficient, safe, and reliable movement of people and goods using all available travel modes.*

*Goal 2: Manage growth to sustain Contra Costa's economy, preserve its environment, and support its communities.*

*Goal 3: Expand safe, convenient, and affordable alternatives to the single-occupant vehicle.*

*Goal 4: Maintain the transportation system.*

*Goal 5: Continue to invest wisely to maximize the benefits of available funding.*

The 2017 CTP includes a set of strategies aimed at achieving each of the above goals. These strategies build upon the efforts that will be needed to achieve the performance objectives found in the Action Plans. Finally, the CTP includes an implementation plan that will guide the CCTA toward achievement of the goals.

The Metropolitan Transportation Commission recommends that the Countywide Transportation Plan performance framework should reflect local priorities. The 2017 CTP complies with that recommendation in that elected and appointed officials from each local jurisdiction in Contra Costa comprise the Regional Transportation Planning Committees. Furthermore, the Multi-modal Transportation Service Objectives found in the Action Plans are developed from the ground up – through a locally driven multi-jurisdictional planning process as envisioned by Measures C and J. The Multi-modal Transportation Service Objectives are quantifiable performance measures that include a target date for attaining the objective. CCTA has incorporated the Multi-modal Transportation Service Objectives identified in each Action Plan into the 2017 CTP. Following are examples of the Multi-modal Transportation Service Objectives developed through the Action Plans:

- Intersection level of service
- Roadway segment level of service
- Delay index
- Duration of peak period congestion
- Average speed
- Vehicle occupancy

- Transit ridership
- Maximum wait time at cross streets

The 2017 CTP assesses the performance of the multi-modal transportation system through application of the Multi-modal Transportation Service Objectives.

### **Plan Bay Area Targets**

The Metropolitan Transportation Commission's Countywide Transportation Plan Guidelines recommend that the Countywide Transportation Plan performance framework should consider regional targets established in their Regional Transportation Plan. State and federal law requires that the Metropolitan Transportation Commission update the Regional Transportation Plan every four years. The most recently adopted Regional Transportation Plan for the Bay Region is *Plan Bay Area* (the 2013 Regional Transportation Plan). As required under Senate Bill 375, the 2013 Regional Transportation Plan includes the region's first Sustainable Communities Strategy, which is intended to use improved land use decisions for achieving a reduction in greenhouse gas emissions for cars and light trucks. The 2013 Regional Transportation Plan uses the following regional targets to assess the performance of the Regional Transportation Plan:

**Target #1:** *Reduce per-capita carbon dioxide emissions from cars and light-duty trucks by 7 percent by 2020 and by 15 percent by 2035, if there is a feasible way to do so.*

**Target #2:** *House by 2035, 100 percent of the region's projected 25-year growth by income level, without displacing current low-income residents (underlined text adopted by Metropolitan Transportation Commission and Association of Bay Area Governments, and not identified in Senate Bill 375).*

**Target #3:** *Reduce premature deaths from exposure to particulate emissions.*

**Target #4:** *Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian).*

**Target #5:** *Increase the average daily time walking or biking per person for transportation by 60 percent (for an average of 15 minutes per person per day).*

**Target #6:** *Direct all non-agricultural development within the urban footprint (existing urban development and urban growth boundaries).*

**Target #7:** *Decrease by 10 percent the share of low-income and lower-middle income residents' household income consumed by transportation and housing.*

**Target #8:** *Increase gross regional product by 90 percent – an average annual growth rate of approximately 2 percent (in current dollars).*

**Target #9:** *Increase non-auto mode share by 10 percent and decrease automobile vehicle miles traveled per capita by 10 percent.*

**Target #10:** *Maintain the transportation system in a state of good repair.*

## Project Description

### Countywide Comprehensive Transportation Program and Long-Range Transportation Investment Program

To help inform its various planning and funding efforts, CCTA maintains a “master” project list of all projects that are completed, under constructions, or proposed. Called the Countywide Transportation Project List, this database is developed through submittals received from the County, cities, and various other sponsoring agencies in the county, in response to periodic “calls for projects.” All project sponsors have access to the database, and CCTA relies on these sponsors to enter, edit and update project descriptions. The Countywide Transportation Project List is meant to be a “living document” in that it is maintained at the staff level and can be updated without CCTA Board review or approval as new information becomes available.

The Countywide Transportation Project List is financially unconstrained. Therefore, the total cost of the projects and programs currently in the database far exceeds the amount of funding that is likely to be available for Contra Costa’s projects and programs through 2040.

The assumption for the 2017 CTP is that its project and programs will build upon, and add to both committed and discretionary projects and programs identified in the 2013 Regional Transportation Plan.

The Investment Program was created from the building blocks of individual project and program costs, and then matching these costs with estimates of potentially available new funding sources over the timeframe of the CTP (2010 to 2040). Input from the Regional Transportation Planning Committees helped to identify priorities, with public outreach and stakeholder interviews providing further input on priorities, timing and allocations by transportation mode. Public outreach through online engagement tools, telephone Town Halls and other outreach provided additional input. The Investment Program offers CCTA, its standing committees, and the public a distinct framework of choices for how to allocate the limited funding that could be available over 10- and 20-year time horizons to projects and programs identified by the Regional Transportation Planning Committees and other stakeholders.

The Investment Program was not developed in a vacuum, but builds on CCTA’s accomplishments over the past 29 years since Measure C was passed in 1988, and on local and regional transportation planning efforts. More specifically, the Investment Program is intended to be consistent with and to reinforce past and current investments in transportation projects and programs that support all travel modes; meet the needs of all segments of the community, including low-income and minority residents; reduce impacts on the environment; sustain the economy; and support local communities and their General Plans. Maintenance of the system also has become increasingly important in an era of fiscal constraints. With all of these considerations in mind, it was deemed important to establish a specific set of criteria to guide creation of the Investment Program for the 2017 CTP. These are listed below.

1. The Investment Program must support the vision and goals of the CTP, but they can do so with varying mixes of projects and programs reflecting different emphases and priorities.

2. The Investment Program is financially constrained, meaning that it must meet a predetermined funding limit expected to be reasonably available from current and future revenue sources with reasonable “leveraging” assumptions based upon past experience.
3. The Investment Program must represent a balanced approach, considering all travel modes and the need to provide incentives for technological innovation, respond to subregional needs, and provide “fair share” allocations of transportation investment to each region and also to communities of concern where many low-income and minority residents live.
4. The Investment Program must reflect the principles of social equity and environmental justice, as required by State and federal law, and meet the needs of low-income and minority residents as well as the needs of other residents and employers.
5. The Investment Program must contribute to regional efforts to reduce emissions of greenhouse gases from transportation sources and adapt to sea level rise.
6. The Investment Program must be able to accommodate new initiatives suggested by stakeholders that are consistent with the overall goals of the CTP.
7. The Investment Program must perform within the context of the Association of Bay Area Governments’ projections of jobs and housing set out in *Plan Bay Area*, the supporting land use framework in local General Plans, and designations of Priority Development Areas.
8. Specific projects and programs identified by the Regional Transportation Planning Committees for funding with a potential future sales tax measure must be included.

Selection of projects and program for the 2013 Regional Transportation Plan was done by the Metropolitan Transportation Commission as part of the *Plan Bay Area* process, using information provided by CCTA. CCTA will apply the results of future Regional Transportation Plan updates toward funding programming decisions. Building on the program design criteria listed above, the priorities and needs for the Investment Program were designed in coordination with the public, Regional Transportation Planning Committees, transit agencies, CCTA committees, and other stakeholders. They relied on key ideas put forward by the public during CCTA’s public outreach, as described above. Ultimately, the Investment Program is intended to help CCTA achieve the vision and goals of the CTP.

CCTA is committed to investing wisely in projects and programs that support job creation and economic development throughout Contra Costa County, while also accommodating “active transportation” and social and environmental goals. This will be done by giving priority to freeway, roadway and transit projects that serve employment centers or facilitate access to jobs and to projects that support and improve urban goods movement. There also will be funding for capital improvements to transit systems, freeways and local roads, and integrated corridors (“smart” freeways and Complete Streets); and funding for cycling, recreational trails and pedestrian improvements.

## Summary of Impacts and Mitigation Measures

The summary table, **Table ES-1**, located at the end of this chapter, summarizes the identified environmental impacts for each issue area identified during the environmental analysis completed for the 2017 CTP. The table also includes mitigation measures to reduce or avoid the environmental effects, with a conclusion as to whether the impact would be mitigated to below a level of significance. The mitigation measures listed in Table ES-1 are also discussed within each relevant topical area.

### Significant and Unavoidable Impacts

Of the potential environmental impacts identified in this Environmental Impact Report, the following effects are identified as being significant and unavoidable.

#### Transportation and Circulation

*Trans-2:* Travelers on major roadways throughout Contra Costa County would experience an appreciable increase in total vehicle hours of delay as compared with the baseline condition. An appreciable increase in vehicle hours of delay is defined as greater than 5%.

#### Greenhouse Gas Emissions

*GHG-3:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a net increase in indirect construction-related greenhouse gas emissions in 2040 when compared with the baseline condition.

*GHG-6:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a net increase in transportation projects within areas projected to be regularly inundated by sea level rise by midcentury.

#### Air Quality

*Air-2:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a substantial net increase in construction-related emissions.

*Air-4:* New or expanded transportation facilities pursuant to the 2017 CTP would result in a net increase in emissions of PM<sub>10</sub> from on-road mobile sources (including entrained dust) as well as a net increase in emissions of PM<sub>2.5</sub> entrained dust, as compared with the baseline condition.

#### Agricultural Lands

*Ag-1:* Construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in conversions of important agricultural lands to transportation uses, would conflict with existing zoning for agricultural use and Williamson Act contracts, but would not involve other changes in the existing environment that could result in conversion of Farmland to non-agricultural use.

## Biological Resources

*Bio-1:* Construction of new or expanded transportation facilities pursuant to the 2017 CTP could have a substantial adverse effect on candidate, sensitive, or special-status species either directly or through habitat modifications.

*Bio-2:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could have a substantial adverse effect on sensitive natural communities or on federally protected wetlands.

*Bio-3:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could interfere substantially with wildlife movement or wildlife corridors, or impede the use of native wildlife nursery sites.

## Cultural Resources

*Cul-1:* Construction of new or expanded transportation facilities pursuant to the 2017 CTP could cause a substantial adverse change in the significance of a historical resource.

*Cul-2:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could cause a substantial adverse change in the significance of an archaeological or paleontological resource.

*Cul-4:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could cause a substantial adverse change in the significance of a tribal cultural resource.

## Hazards and Hazardous Materials

*Haz-2:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in projects located on sites that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

## Hydrology and Water Resources

*Hydro-4:* New or expanded transportation facilities pursuant to the 2017 CTP could place new structures and facilities within a 100-year flood hazard area, which would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

## Land Use

*LU-2:* The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in substantial permanent residential or business disruption, or displacement of substantial numbers of existing population and housing.

*LU-3:* Construction-related activities associated with new transportation projects pursuant to the 2017 CTP are likely to cause short-term disruption of adjoining land uses.

## Noise

*Noise-1:* Construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a violation of the standards contained within the General Plans and noise ordinances of applicable jurisdictions.

*Noise-2:* New or expanded transportation facilities pursuant to the 2017 CTP could result in highway noise levels that exceed the Federal Highway Administration Noise Abatement Criteria or increase above existing levels.

*Noise-3:* New or expanded transportation facilities pursuant to the 2017 CTP could result in transit noise levels that exceed the allowable noise exposure permitted under the Federal Transit Administration criteria.

## Visual Resources

*Vis-1:* New or expanded transportation facilities pursuant to the 2017 CTP could affect visual resources by blocking panoramic views or views of significant landscape features or landforms, by substantially damaging scenic resources that would alter the appearance of or from designated or eligible scenic highways, and/or substantially degrading the existing visual character or quality of the site and its surroundings.

*Vis-2:* New or expanded transportation facilities pursuant to the 2017 CTP could result in the construction of new soundwalls along arterials could add visual elements that are incongruous with the existing character of an area.

*Vis-3:* New or expanded transportation facilities pursuant to the 2017 CTP could adversely affect visual resources by creating new substantial sources of light and glare.

## Summary of Alternatives

Given the substantial gap between possible revenue available and the total cost associated with full implementation of the Comprehensive Transportation Project List, the 2017 CTP and this Environmental Impact Report defines and analyzes a set of alternatives intended to be compliant with California Environmental Quality Act requirements for projects to be “realistic and feasible,” as well as consistent with Metropolitan Transportation Commission Countywide Transportation Plan Guidelines that recommend Countywide Transportation Plans include a financially constrained list of transportation investments that, when integrated with *Plan Bay Area’s* forecast land use, support the adopted Sustainable Communities Strategy. The Alternatives considered for analysis in this Environmental Impact Report are described briefly here.

### Alternative #1: No Project Alternative

Alternative 1, the No Project Alternative consists of those transportation projects and programs that have already undergone individual project-specific environmental review, have been approved by local and/or sponsoring agencies, have a committed funding source, and some of which are already under construction. These projects and programs are expected to be implemented irrespective of any decisions regarding adoption of the 2017 CTP.

## **Alternative #2: 2013 Regional Transportation Plan Alternative**

Alternative 2, the 2013 Regional Transportation Plan Alternative, consists of those additional transportation projects and programs that are already included within Metropolitan Transportation Commission's 2013 Regional Transportation Plan and are an integral part of *Plan Bay Area* and its Sustainable Communities Strategy. These projects and programs were included in the 2013 *Plan Bay Area* and were previously analyzed on a programmatic basis in its associated Environmental Impact Report. A number of these 2013 Regional Transportation Plan transportation projects and programs have also undergone individual project-specific environmental review, have been (or are being) considered for approval by local and/or sponsoring agencies, and have an identified if not fully committed funding source. These projects and programs are expected to be implemented unless changed or modified pursuant to the forthcoming 2017 Regional Transportation Plan. The projects and programs included under this alternative are those that can be funded through use of the approximate \$3.7 billion in revenue (2017 constant dollars) from the 2013 Regional Transportation Plan.

## **Alternative #3: Transit Improvement Project Emphasis Alternative**

Alternative 3, the Transit Improvement Project Emphasis Alternative, represents a prioritized list of projects and programs specifically intended to encourage transit use, walking, and bicycling, and seeks to provide a balanced approach to transportation that supports vibrant and healthy communities. The highest level of investments under this alternative occurs in transit capital and operations, including rail and express and local bus service. This alternative maximizes investment in pedestrian and bicycle improvements, emphasizing improved transit, bicycle and walking connections to work, schools, and businesses districts. Alternative 3 also includes the additional transportation projects and programs that are already included within Metropolitan Transportation Commission's 2013 Regional Transportation Plan (see Alternative 2).

## **Alternative #4: Transit, Bicycle, and Pedestrian Improvement Program Emphasis**

Alternative 4, the Transit, Bicycle, and Pedestrian Improvement Program Emphasis Alternative represents a program-oriented approach that focuses specifically on greenhouse gas emissions reduction, mitigating the impacts of travel, and addressing climate change. The highest level of investment under this alternative occurs in expanded and improved transit operations, intended to reduce vehicle miles traveled as well as overall vehicle trips. Roadway improvement projects are focused on those that emphasize safety. Alternative 4 also includes the additional transportation projects and programs that are already included within Metropolitan Transportation Commission's 2013 Regional Transportation Plan (see Alternative 2).

## **Environmentally Superior Alternative**

California Environmental Quality Act Guidelines Section 15126.6 requires that the Environmental Impact Report identify an environmentally superior alternative capable of reducing or avoiding, to the greatest extent, the environmental impacts associated with the proposed project. Consideration

of the environmentally superior alternative is based on the extent to which each of the California Environmental Quality Act alternatives reduces or avoids the significant impacts of the project.

Significant and unavoidable impacts were identified under the 2017 CTP and each of the alternatives. Alternative 4 reduced the potential for significant and unavoidable impacts only under the sea level rise (Greenhouse Gas Emissions and Climate Change), candidate, sensitive and special-status species (Biological Resources), residential or business disruption or displacement (Land Use), and light and glare (Visual Resources) topics. All other project-related impacts are either less than significant or can be reduced to less than significant with implementation of mitigation measures identified in this Environmental Impact Report. Overall, most differences between the 2017 CTP and the alternatives are a matter of degree, rather than of significance as compared to California Environmental Quality Act thresholds. Because Alternative 4 would result in impacts that are reduced as compared with the 2017 CTP, it is marginally environmentally superior to the project and all other alternatives considered in this Environmental Impact Report.

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<b>TRANSPORTATION AND TRAFFIC</b>			
<b>Trans-1:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not result in an appreciable increase in per capita vehicle miles traveled when compared with the baseline condition.	Less than Significant	None required	Less than Significant
<b>Trans-2:</b> Travelers on major roadways throughout Contra Costa County would experience an appreciable increase in total vehicle hours of delay as compared with the baseline condition.	Significant and Unavoidable	None feasible	Significant and Unavoidable
<b>Trans-3:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not appreciably decrease average speeds on freeways or on expressways or major arterials within Contra Costa County as compared with the baseline condition.	Less than Significant	None required	Less than Significant
<b>Trans-4:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not result in an appreciable decrease in mode shares for transit, high-occupancy vehicle, or other non- single-occupant vehicle modes as compared with the baseline condition.	Less than Significant	None required	Less than Significant
<b>Trans-5:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not result in an appreciable decrease in transit ridership as compared with the baseline condition.	Less than Significant	None required	Less than Significant
<b>GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE</b>			
<b>GHG-1:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not impede the Bay Area’s ability to reduce per capita passenger vehicle and light duty truck carbon dioxide emissions by seven percent by 2020, or by 15 percent by 2035 as compared to 2005 baseline, per Senate Bill 375.	Less than Significant	None Required	Less than Significant
<b>GHG-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP would not result in a net increase in direct transportation related greenhouse gas emissions by 2040 when compared with the baseline condition.	Less than Significant	None Required	Less than Significant

Table ES-1: Summary Of Impacts and Mitigation Measures

Impact	Significance	Mitigation Measures	Significance After Mitigation
<b>GHG-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in an increase in indirect construction-related emissions of greenhouse gases by 2040 when compared with the baseline condition.	Significant and Unavoidable	<p><b>Mitigation Measure GHG-1: Construction-related Greenhouse Gas Emission Reductions.</b> Where construction of new or expanded transportation facilities could result in significant greenhouse gas emissions, implementing agencies and/or sponsors shall consider measures to minimize construction-related emissions pursuant to project implementation, where feasible and based on project-and site-specific considerations. Typical mitigation measures include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet;</li> <li>b. using local building materials for at least 10 percent; and</li> <li>c. recycling or reusing at least 50 percent of construction waste or demolition materials.</li> </ul>	Significant and Unavoidable
<b>GHG-4:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP would not substantially impede attainment of goals set forth in Executive Order S-3-05 and Executive Order B-16-2012.	Less than Significant	None Required	Less than Significant
<b>GHG-5:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP would not substantially conflict with any other applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Less than Significant	None Required	Less than Significant
<b>GHG-6:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a net increase in transportation projects within areas projected to be regularly inundated by sea level rise by midcentury.	Significant and Unavoidable	<p><b>Mitigation Measure GHG-2a: Sea Level Rise.</b> Where construction of new or expanded transportation facilities could result in significant impacts related to sea level rise, implementing agencies and/or sponsors shall consider measures to minimize impacts pursuant to project implementation, where feasible and based on project-and site-specific considerations. The project sponsors and implementing agencies shall coordinate with the San Francisco Bay Conservation and Development Commission, California Department of Transportation, local jurisdictions (cities and counties), and other transportation agencies to develop Transportation Asset Management Plans that consider the potential impacts of sea level rise over the asset's life cycle.</p> <p><b>Mitigation Measure GHG-2b: Sea Level Rise.</b> Where construction of new or expanded transportation facilities could result in significant impacts related to sea level rise, implementing agencies and/or sponsors shall consider measures to minimize impacts pursuant to project implementation, where feasible and based on project-and site-specific considerations. Executive Order S-13-08 requires all state</p>	Significant and Unavoidable

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p>agencies, including California Department of Transportation, to incorporate sea level rise into planning for all new construction and routine maintenance projects; however, no such requirement exists for local transportation assets and development projects. Implementing agencies shall require project sponsors to incorporate the appropriate adaptation strategy or strategies to reduce the impacts of sea level rise on specific local transportation and land use development projects, where feasible, based on project- and site-specific considerations. Potential adaptation strategies are included at the end of Chapter 2.2. The appropriate adaptation strategies will be selected as part of the future project-level analysis and planning.</p>			
<b>AIR QUALITY</b>			
<p><b>Air-1:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not conflict with or obstruct implementation of the applicable air quality plan (2010 Clean Air Plan), including its primary goals or implementation of any control measures.</p>	<p>Less than Significant</p>	<p>None Required</p>	<p>Less than Significant</p>
<p><b>Air-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a substantial net increase in construction-related emissions.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Air-1: Best Management Practices for Exhaust:</b>                      Implementing agencies and/or project sponsors shall consider implementation of mitigation measures for construction-period exhaust, where feasible based on project-and site-specific considerations, including but not limited to the following best management practices:</p> <ol style="list-style-type: none"> <li>a. The applicant/general contractor for the project shall submit a list of all off-road equipment greater than 25 horsepower that will be operating for more than 20 hours over the entire duration of construction activities at the site, including equipment from subcontractors, to Bay Area Air Quality Management District for review and certification. The list shall include all of the information necessary to ensure the equipment meets the following requirements. All off-road equipment shall have:                             <ol style="list-style-type: none"> <li>1. engines that meet or exceed either U.S. Environmental Protection Agency or California Air Resources Board Tier 2 off-road emission standards; or</li> <li>2. engines that are retrofitted with a California Air Resources Board Level 3 Verified Diesel Emissions Control Strategy, if one is available for the equipment being used.</li> <li>3. Equipment with engines meeting Tier 4 Interim or Tier 4 Final emission standards automatically meet this requirement, therefore a Verified Diesel Emissions Control Strategy would not be required.</li> </ol> </li> </ol>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>b. Idling time of diesel powered construction equipment and trucks shall be limited to no more than two minutes. Clear signage shall be provided for construction workers at all access points.</li> <li>c. All construction equipment shall be maintained and properly tuned in accordance with the manufacturers' specifications.</li> <li>d. Portable diesel generators shall be prohibited. Grid power electricity should be used to provide power at construction sites; or propane and natural gas generators may be used when grid power electricity is not feasible.</li> </ul> <p><b>Mitigation Measure Air-2, Best Management Practices for Dust:</b> Implementing agencies and/or project sponsors shall consider implementation of mitigation measures for construction-period dust, where feasible based on project-and site-specific considerations, including but not limited to the following best management practices:</p> <ul style="list-style-type: none"> <li>a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. For projects over five acres of size, soil moisture should be maintained at 12 percent. Moisture content can be verified by lab samples or moisture probe.</li> <li>b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping should be done in conjunction with thorough watering of the subject roads.</li> <li>d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.</li> <li>e. All roadway, driveway, and sidewalk paving shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading.</li> <li>f. All construction sites shall provide a posted sign visible to the public with the telephone number and person to contact at the Lead Agency regarding dust complaints. The recommended response time for corrective action shall be within 48 hours. Bay Area Air Quality Management District's Complaint Line shall also be included on posted signs to ensure compliance with applicable regulations.</li> <li>g. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour.</li> <li>h. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50</li> </ul>	

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Air-3:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not cause a net increase in emissions of criteria pollutants (reactive organic gas, oxides of nitrogen, carbon monoxide, and fine particulate matter) from on-road mobile sources, compared with the baseline condition.</p>	<p>Less than Significant</p>	<p>percent air porosity.</p> <ul style="list-style-type: none"> <li>i. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.</li> <li>j. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.</li> <li>k. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.</li> <li>l. Site accesses to a distance of 100 feet from the paved road shall be treated with a six- to 12-inch compacted layer of wood chips, mulch, or gravel.</li> <li>m. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.</li> </ul> <p>None Required</p>	<p>Less than Significant</p>
<p><b>Air-4:</b> New or expanded transportation facilities pursuant to the 2017 CTP would result in a net increase in emissions of coarse particulate matter from on-road mobile sources (including entrained dust) as well as a net increase in emissions of fine particulate matter entrained dust, as compared with the baseline condition.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Air-3: Best Management Practices for Exhaust: Diesel Engine Retrofits and Replacements.</b> CCTA and local implementing agencies and/or project sponsors shall consider opportunities to partner with Metropolitan Transportation Commission, Association of Bay Area Governments, Bay Area Air Quality Management District and other partners to seek opportunities to leverage existing air quality and transportation funds and seek additional funds to continue to implement programs aimed at retrofits and replacements of trucks and locomotives.</p>	<p>Significant and Unavoidable</p>
<p><b>Air-5:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not result in a cumulative net increase in emissions of diesel particulate matter, 1,3-butadiene, and benzene (toxic air contaminants) from on-road mobile sources, as compared with the baseline condition.</p>	<p>Less than Significant</p>	<p>None Required</p>	<p>Less than Significant</p>
<p><b>Air-6:</b> New or expanded transportation facilities pursuant to the 2017 CTP would not result in a larger localized increase of mobile source toxic air contaminant or fine particulate matter emissions, or</p>	<p>Less than Significant</p>	<p>None Required</p>	<p>Less than Significant</p>

Table ES-1: Summary Of Impacts and Mitigation Measures

Impact	Significance	Mitigation Measures	Significance After Mitigation
a smaller localized decrease of mobile source toxic air contaminant or fine particulate matter emissions in disproportionately impacted communities (Communities of Concern) as compared to the remainder of the county.			
<b>AGRICULTURAL LANDS</b>			
<b>Ag-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP would result in conversions of important agricultural lands to transportation uses, would conflict with existing zoning for agricultural use and Williamson Act contracts, but would not involve other changes in the existing environment that could result in conversion of Farmland to non-agricultural use.	Significant and Unavoidable	<p><b>Mitigation Measure Ag-1: Agricultural Land Protection.</b> Where construction of new or expanded transportation facilities could result in the conversion of important agricultural lands to transportation uses, implementing agencies and/or sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project, where feasible and based on project-and site-specific considerations. Typical mitigation measures include, but are not limited to:</p> <ol style="list-style-type: none"> <li>a. Require project relocation or corridor realignment, where feasible, to avoid farmland, especially Prime Farmland;</li> <li>b. Acquire conservation easements on other farmland that is at least equal in quality and size, providing partial compensation for the direct loss of agricultural land;</li> <li>c. Maintain and expand agricultural land protections such as urban growth boundaries;</li> <li>d. If a Williamson Act contract is terminated, a ratio greater than 1:1 of land equal in quality shall be set aside in a conservation easement, as recommended by the Department of Conservation;</li> <li>e. Institute new farmland protection measures in the project area or elsewhere in the County through the use of long-term restrictions on land use, such as 20-year Farmland Security Zone contracts (Government Code Section 51296 et seq.) or 10-year Williamson Act contracts (Government Code Section 51200 et seq.);</li> <li>f. Assess mitigation fees that support the commercial viability of the remaining agricultural land in the project area, County, or region. Establish a mitigation bank that invests these mitigation fees in agricultural infrastructure, water supplies, marketing, etc.;</li> <li>g. Minimize severance and fragmentation of agricultural land by constructing underpasses and overpasses at reasonable intervals to provide property access;</li> <li>h. Require berms, buffer zones, setbacks, and fencing to reduce land use conflicts between new development and farming uses and to protect the functions of farmland;</li> <li>i. Require implementation of other conservation tools available from the California Department of Conservation's Division of Land Resource Protection.</li> </ol>	Significant and Unavoidable

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		j. Require compliance with existing local regulations and policies that exceed or reasonably replace any of the above measures that reduce farmland conversion.	
<b>BIOLOGICAL RESOURCES</b>			
<b>Bio-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP could have a substantial adverse effect on candidate, sensitive, or special-status species either directly or through habitat modifications.	Significant and Unavoidable	<p><b>Mitigation Measure Bio-1: Special Status Species.</b> Implementing agencies shall require project sponsors to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain habitat for special-status plants and wildlife. The assessment shall be conducted by qualified professionals pursuant to adopted protocols and agency guidelines. Where the biological resources assessment establishes that mitigation is required to avoid direct and indirect adverse effects on special-status plant and wildlife species, mitigation shall be developed. Mitigation shall be consistent with the requirements of National Environmental Policy Act, California Environmental Quality Act, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife regulations and guidelines, in addition to requirements of any applicable and adopted habitat conservation plan/natural community conservation plan, or other applicable plans developed to protect species or habitat. Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible based on project-and site-specific considerations include, but are not limited to:</p> <p>a. In support of National Environmental Policy Act, California Environmental Quality Act, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife permitting processes for individual projects, biological surveys shall be conducted as part of the environmental review process to determine the presence and extent of sensitive habitats and/or species in the project vicinity. Surveys shall follow established methods and shall be undertaken at times when the subject species is most likely to be identified. In cases where impacts to State- or federal-listed plant or wildlife species are possible, formal protocol-level surveys may be required on a species-by-species basis to determine the local distribution of these species. Consultation with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife shall be conducted early in the planning process at an informal level for projects that could adversely affect federal or state candidate, threatened, or endangered species to determine the need for further consultation or permitting actions. Projects shall obtain incidental take authorization from the permitting agencies as required prior to project implementation.</p> <p>b. Project designs shall be reconfigured, whenever practicable, to avoid special-status species and sensitive habitats. Projects shall minimize ground disturbances and construction footprints near sensitive areas to the extent practicable.</p> <p>c. Where habitat avoidance is infeasible, compensatory mitigation shall be implemented through preservation, restoration, or creation of special-status</p>	Significant and Unavoidable

Table ES-1: Summary Of Impacts and Mitigation Measures

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<p>wildlife habitat. Loss of habitat shall be mitigated at an agency approved mitigation bank or through individual mitigation sites as approved by U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife. Compensatory mitigation ratios shall be negotiated with the permitting agencies. Mitigation sites shall be monitored for a minimum of five consecutive years after mitigation implementation or until the mitigation is considered to be successful. All mitigation areas shall be preserved in perpetuity through either fee ownership or a conservation easement held by a qualified conservation organization or agency, establishment of a preserve management plan, and guaranteed long-term funding for site preservation through the establishment of a management endowment.</p>	
		<p>d. Project activities near sensitive resources shall be completed during the period that best avoids disturbance to plant and wildlife species present (e.g., May 15 to October 15 near salmonid habitat and vernal pools) to the extent feasible.</p> <p>e. Individual projects shall minimize the use of in-water construction methods in areas that support sensitive aquatic species, especially when listed species could be present.</p> <p>f. In the event that equipment needs to operate in any watercourse with flowing or standing water, a qualified biological resource monitor shall be present at all times to alert construction crews to the possible presence of California red-legged frog, nesting birds, salmonids, or other aquatic species at risk during construction operations.</p> <p>g. If project activities involve pile driving or vibratory hammering in or near water, interim hydro-acoustic threshold criteria for fish shall be adopted as set forth by the Interagency Fisheries Hydro-acoustic Working Group, as well as other avoidance methods to reduce the adverse effects of construction to sensitive fish, piscivorous birds, and marine mammal species.</p> <p>h. Construction shall not occur during the breeding season near riparian habitat, freshwater marshlands, and salt marsh habitats that support nesting bird species protected under the federal Endangered Species Act, Migratory Bird Treaty Act, or California Fish and Game Code (e.g., yellow warbler, tricolored blackbird, California clapper rail).</p> <p>i. A qualified biologist shall locate and fence off sensitive resources before construction activities begin and, where required, shall inspect areas to ensure that barrier fencing, stakes, and setback buffers are maintained during construction.</p> <p>j. For work sites located adjacent to special-status plant or wildlife populations, a biological resource education program shall be provided for construction crews and contractors before construction activities begin.</p>	

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>k. Biological monitoring shall be particularly targeted for areas near identified habitat for federally and state-listed species. A “no take” approach shall be taken whenever feasible during construction near special-status plant and wildlife species.</li> <li>l. Efforts shall be made to minimize the negative effects of light and noise on listed and sensitive wildlife.</li> <li>m. Compliance with existing local regulations and policies, including those of the applicable habitat conservation plan/natural community conservation plan, that exceed or reasonably replace any of the above measures protective of special-status species.</li> </ul> <p><b>Mitigation Measure Bio-2: Critical Habitat.</b> During the design and review of individual projects, implementing agencies and project sponsors shall consider implementation of mitigation measures for critical habitat. Mitigation measures to be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Informal consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service shall be conducted early in the environmental review process to determine the need for further mitigation, consultation, or permitting actions. Formal consultation is required for any project with a federal nexus.</li> <li>b. Project designs shall be reconfigured to avoid or minimize adverse effects on the primary constituent elements of designated critical habitats when they are present in a project vicinity.</li> <li>c. Compliance with existing local regulations and policies, including those of the applicable habitat conservation plan/natural community conservation plan, that exceed or reasonably replace any of the above measures protective of critical habitat.</li> </ul> <p><b>Mitigation Measure Bio-3: Migratory and Nesting Birds:</b> Implementing agencies and/or project sponsors shall consider implementation of mitigation measures for Migratory Bird Treaty Act species and nesting birds, including but not limited to those identified below. Implementing agencies shall require project sponsors to conduct pre-construction breeding bird surveys for specific projects proposed in areas containing, or likely to contain, habitat for nesting birds. The survey shall be conducted by appropriately trained professionals pursuant to adopted protocols agency guidelines. Where a breeding bird survey establishes that mitigation is required to avoid direct and indirect adverse effects on nesting raptors and other protected birds, mitigation will be developed. Such mitigation shall be consistent with the requirements of California Environmental Quality Act, U.S. Fish and</p>	

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Bio-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could have a substantial adverse effect on sensitive natural communities or on federally protected wetlands.</p>	<p>Significant and Unavoidable</p>	<p>Wildlife Service, and California Department of Fish and Wildlife regulations and guidelines, in addition to requirements of any applicable and adopted habitat conservation plan/natural community conservation plan, or other applicable plans developed to protect species or habitat. Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Perform preconstruction surveys not more than two weeks prior to initiating vegetation removal and/or construction activities during the breeding season (i.e., February 1 through August 31).</li> <li>b. Establish a no-disturbance buffer zone around active nests during the breeding season until the young have fledged and are self-sufficient, when no further mitigation would be required. Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.</li> <li>c. Provide buffers around nests that are established by birds after construction starts. Direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction. If construction ceases for a period of more than two weeks, or vegetation removal is required after a period of more than two weeks has elapsed from the preconstruction surveys, then new nesting bird surveys must be conducted.</li> <li>d. Comply with existing local regulations and policies, including those of the applicable habitat conservation plan/natural community conservation plan, that exceed or reasonably replace any of the above measures protective of nesting birds.</li> </ul> <p><b>Mitigation Measure Bio-4: Sensitive Natural Communities.</b> During the design and review of individual projects, implementing agencies and project sponsors shall seek to reduce impacts on sensitive natural communities. Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ul style="list-style-type: none"> <li>a. In accordance with California Department of Fish and Wildlife guidelines and other instruments protective of sensitive or special-status natural communities, project sponsors shall avoid and minimize impacts on sensitive natural communities when designing and permitting projects. Where applicable, projects shall conform to the provisions of special area management or restoration plans, such as the Suisun Marsh Protection Plan or the East Contra Costa County Habitat Conservation Plan, which outline specific measures to protect sensitive vegetation communities.</li> </ul>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<ul style="list-style-type: none"> <li>b. If any portion of a special-status natural community is permanently removed or temporarily disturbed, the project sponsor shall compensate for the loss. If such mitigation is required by the implementing agency, the project sponsor shall develop a restoration and monitoring plan that describes how compensatory mitigation will be achieved, implemented, maintained, and monitored. At a minimum, the restoration and monitoring plan shall include clear goals and objectives, success criteria, specific vegetation enhancement plans (e.g., plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan.</li> <li>c. The following minimum performance standards (or other standards as required by the permitting agencies) shall apply to any compensatory mitigation for special-status natural communities:               <ul style="list-style-type: none"> <li>1. Compensation shall be provided at a minimum 1:1 ratio for restoration and preservation, but shall in all cases be consistent with mitigation ratios set forth in locally applicable plans (e.g., general plans, habitat conservation plan/natural community conservation plan) or in project-specific permitting documentation.</li> <li>2. Compensatory mitigation may be a combination of on-site restoration, creation, or enhancement; or off-site restoration, preservation and/or enhancement; or purchase of mitigation credits. Compensatory mitigation may also be achieved through Regional Advance Mitigation Plan banking, as deemed appropriate by the permitting agencies.</li> <li>3. In general, any compensatory mitigation shall be monitored for a minimum of five years and will be considered successful when at least 75 percent cover (or other percent cover considered appropriate for the vegetation type) of installed vegetation has become successfully established.</li> </ul> </li> <li>d. Compliance with existing local regulations and policies, including the East Contra Costa County habitat conservation plan/natural community conservation plan (where applicable), that exceed or reasonably replace any of the above measures protective of jurisdictional sensitive and special-status natural communities.</li> </ul> <p><b>Mitigation Measure Bio-5: Wetlands.</b> During the design and review of individual projects, implementing agencies and project sponsors shall seek to reduce impacts on wetlands and other waters of the U.S. Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Implementing agencies shall require project sponsors to prepare biological resource assessments for specific projects proposed in areas containing, or likely to</li> </ul>	

Table ES-1: Summary Of Impacts and Mitigation Measures

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<p>contain, jurisdictional waters. The assessment shall be conducted by qualified professionals in accordance with agency guidelines and standards. The assessment shall identify specific mitigation measures for any impact that exceeds significant impact thresholds. Mitigation measures shall be consistent with the requirements of wetland permitting agencies, and/or follow an adopted habitat conservation plan/natural community conservation plan or other applicable plans promulgated to protect jurisdictional waters or other sensitive habitats.</p> <p>b. In keeping with the “no net loss” policy for wetlands and other waters, project designs shall be configured, whenever possible, to avoid wetlands and other waters and avoid disturbances to wetlands and riparian corridors in order to preserve both the habitat and the overall ecological functions of these areas. Projects shall minimize ground disturbances and construction footprints near such areas to the extent practicable.</p> <p>c. Where avoidance of jurisdictional waters is not feasible, project sponsors shall minimize fill and the use of in-water construction methods, and only place fill with express permit approval from the appropriate resources agencies (e.g., U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, San Francisco Bay Conservation and Development Commission, and California Coastal Commission) and in accordance with applicable existing regulations, such as the Clean Water Act or local stream protection ordinances.</p> <p>d. Project sponsors shall arrange for compensatory mitigation in the form of mitigation bank credits, on-site or off-site enhancement of existing waters, or new wetland creation, in accordance with applicable existing regulations and subject to approval by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, San Francisco Bay Conservation and Development Commission, and California Coastal Commission. If compensatory mitigation is required by the implementing agency, the project sponsor shall develop a restoration and monitoring plan that describes how compensatory mitigation will be achieved, implemented, maintained, and monitored. At a minimum, the restoration and monitoring plan shall include clear goals and objectives (including success criteria); specifics on restoration, creation and/or enhancement plans (e.g., plant palette, soils, irrigation, etc.); specific monitoring periods and reporting guidelines; and a maintenance plan. The following minimum performance standards (or other standards as required by the permitting agencies) shall apply to any wetland compensatory mitigation:</p> <p>1. Compensation shall be provided at a minimum 1:1 ratio for restoration and preservation, but shall in all cases be consistent with mitigation ratios set forth in locally applicable plans (e.g., general plans, habitat conservation</p>	

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Bio-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could interfere substantially with wildlife movement or wildlife corridors, or impede the use of native wildlife nursery sites.</p>	<p>Significant and Unavoidable</p>	<p>plan/natural community conservation plan), or in project-specific permitting documentation.</p> <ol style="list-style-type: none"> <li>2. Compensatory mitigation may be a combination of on-site restoration, creation, or enhancement; off-site restoration, preservation and/or enhancement; or purchase of mitigation credits. Compensatory mitigation may also be achieved through Regional Advance Mitigation Plan banking, as deemed appropriate by the permitting agencies.</li> <li>3. In general, any compensatory mitigation shall be monitored for a minimum of five years and will be considered successful when at least 75 percent cover (or other percent cover considered appropriate for the vegetation type) of installed vegetation has become successfully established.</li> </ol> <p><b>Mitigation Measure Bio-6: Regional Advance Mitigation Plan:</b> To the extent that compensatory mitigation for impacts to sensitive natural communities and/or wetlands is required of the implementing agency or project sponsor, compensatory mitigation may be achieved through development of, and participation in a Regional Advance Mitigation Plan banking program. Steps towards development of a Regional Advance Mitigation Plan for 2017 CTP transportation projects include:</p> <ol style="list-style-type: none"> <li>a. Developing support among implementing agencies and project sponsors within the County for a county-wide region-based advanced mitigation approach, and identifying policy and funding issues.</li> <li>b. Developing geographically specific plans that assess expected habitat mitigation demand from planned infrastructure projects, and identify possible mitigation approaches in advance of any impacts.</li> <li>c. Securing regulatory agency acceptance and approval of the Regional Advance Mitigation Plan mitigation approach and identifying partners willing to sign cost-share agreements.</li> <li>d. Secure monetary support for the approved Regional Advance Mitigation Plan. Funding for implementation of a Regional Advance Mitigation Plan would likely be independent of any individual transportation project budget, but would be funded based on an estimate the aggregate of county-wide mitigation demand. Ideally, funds would come from a “revolving fund” that has been established by the Authority specifically for advance mitigation.</li> </ol> <p><b>Mitigation Measure Bio-7: Wildlife Movement:</b> During the design and review of individual projects, implementing agencies and project sponsors shall seek to reduce impacts on wildlife corridors. Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Bio-4:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could conflict with local policies and ordinances protecting biological resources, or conflict with the provisions of an habitat conservation plan or natural community conservation plan.</p>	<p>Potentially Significant, but Mitigable</p>	<ul style="list-style-type: none"> <li>a. Prepare detailed analyses for individual projects affecting Essential Connectivity Area lands to determine what wildlife species may use these areas, and what habitats those species require. Projects that would not affect Essential Connectivity Area lands but that are located within or adjacent to open lands, including wildlands and agricultural lands, shall also assess whether or not significant wildlife corridors are present, what wildlife species may use them, and what habitat those species require. The assessment shall be conducted by qualified professionals and according to any applicable agency standards.</li> <li>b. Mitigation shall be consistent with the requirements of California Environmental Quality Act and/or follow the adopted East Contra Costa County habitat conservation plan/natural community conservation plan (as may be applicable), or other relevant plans developed to protect species and their habitat, including migratory linkages.</li> <li>c. Construct wildlife friendly overpasses and culverts</li> <li>d. Fence major transportation corridors in the vicinity of identified wildlife corridors</li> <li>e. Use wildlife friendly fences that allow larger wildlife such as deer to get over, and smaller wildlife to go under</li> <li>f. Limit wildland conversions in identified wildlife corridors</li> <li>g. Retain wildlife friendly vegetation in and around developments</li> <li>h. Comply with existing local regulations and policies, including applicable East Contra Costa County habitat conservation plan/natural community conservation plan policies where applicable, that exceed or reasonably replace any of the above measures.</li> </ul> <p><b>Mitigation Measure Bio-8: Habitat Conservation Plan/Natural Community Conservation Plan:</b> During the design and review of individual projects, implementing agencies and project sponsors shall ensure the maximum feasible level of consistency with policies and conditions of the adopted East Contra Costa County habitat conservation plan/natural community conservation plan. Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ul style="list-style-type: none"> <li>a. If the project results in impacts on habitat conservation plan covered species habitat or other habitat protected under the habitat conservation plan, the project sponsor shall coordinate with the appropriate local agency to provide full compensation of acreage and preserve function, consistent with the requirements of the habitat conservation plan.</li> </ul>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
	b. c. d. e.	<p>If the project results in impacts on non-habitat conservation plan covered species or habitat, the project sponsor shall coordinate with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife and/or other applicable agency, and shall follow adopted procedures to process an amendment to the habitat conservation plan/natural community conservation plan, if necessary.</p> <p>All habitat-based mitigation required by the habitat conservation plan shall be provided at fee amounts, ratios, or quantities as specified in the habitat conservation plan.</p> <p>All required avoidance, minimization and mitigation measures for covered species, consistent with the adopted habitat conservation plan/natural community conservation plan, shall be implemented as specified during project-specific permitting. Avoidance and minimization measures to covered species and their habitats shall include adherence to land use adjacency guidelines as outlined in the habitat conservation plan/natural community conservation plan.</p> <p>Project design and implementation shall also minimize impacts on covered species through implementation of Mitigation Measures Bio-1 (above).</p>	<p><b>Mitigation Measure Bio-9: Tree Protection:</b> Implementing agencies shall require project sponsors to prepare biological resources assessments for specific projects proposed in areas containing, or likely to contain, protected trees or other locally protected biological resources. The assessment shall be conducted by qualified professionals in accordance with adopted protocols and standards in the industry. Mitigation shall be consistent with the requirements of California Environmental Quality Act and/or follow applicable ordinances or plans developed to protect trees or other locally significant biological resources. Specific mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible based on project-and site-specific considerations, include but are not limited to:</p> <p>a. Designing projects such that they avoid and minimize direct and indirect impacts to protected trees and other locally protected resources where feasible.</p> <p>b. Qualifying protected trees (or other resources) shall be replaced at a minimum ratio of 1:1, or as otherwise required by the local ordinance or plan, with replacement planting to occur in locally approved mitigation sites.</p>
<b>CULTURAL RESOURCES</b>			
<p><b>Cul-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP could cause a substantial adverse change in the significance of a historical resource.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Cul-1: Historical Resources.</b> Mitigation measures to be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations include, but are not limited to:</p> <ul style="list-style-type: none"> <li>▪ Realign or redesign projects to avoid impacts on known historic resources where</li> </ul>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Cul-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could cause a substantial adverse change in the significance of an archaeological or paleontological resource.</p>	<p>Significant and Unavoidable</p>	<p>possible.</p> <ul style="list-style-type: none"> <li>▪ Requiring an assessment by a qualified professional of structures greater than 40 years in age within the area of potential effect to determine their eligibility for recognition under State, federal, or local historic preservation criteria.</li> <li>▪ When a project has been identified as potentially affecting a historic resource, a historical resources inventory should be conducted by a qualified architectural historian. The study should comply with California Environmental Quality Act Guidelines section 15064.5(b), and, if federal funding or permits are required, with section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. § 470 et seq.). Study recommendations shall be implemented.</li> <li>▪ If avoidance of a significant architectural/built environment resource is not feasible, additional mitigation options include, but are not limited to, specific design plans for historic districts, or plans for alteration or adaptive re-use of a historical resource that follows the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings.</li> <li>▪ Complying with existing local regulations and policies that exceed or reasonably replace any of the above measures that protect historic resources.</li> </ul> <p><b>Mitigation Measure Cul-2: Archaeological Resources.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ul style="list-style-type: none"> <li>▪ Pursuant to Government Code Sections 65351 and 65352, in-person consultation shall be conducted with Native American tribes and individuals with cultural affiliations where the project is proposed to determine the potential for, or existence of, cultural resources, including cemeteries and sacred places, prior to project design and implementation stages.</li> <li>▪ Prior to construction activities, project sponsors shall retain a qualified archaeologist to conduct a record search at the appropriate Information Center of the California Archaeological Inventory to determine whether the project area has been previously surveyed and whether resources were identified. When recommended by the Information Center, project sponsors shall retain a qualified archaeologist to conduct archaeological surveys prior to construction activities.</li> <li>▪ Preparation of a research design and testing plan should be developed in advance of implementation of the construction project, in order to efficiently facilitate the avoidance of cultural sites throughout the development process.</li> <li>▪ If record searches and field surveys indicate that the project is located in an area</li> </ul>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<p>rich with archaeological resources, project sponsors should retain a qualified archaeologist to monitor any subsurface operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property.</p> <ul style="list-style-type: none"> <li>▪ Written assessments should be prepared by a qualified tribal representative of sites or corridors with no identified cultural resources but which still have a moderate to high potential for containing tribal cultural resources.</li> <li>▪ Upon “late discovery” of prehistoric archaeological resources during construction, project sponsors shall consult with the Native American tribe as well as with the “Most-Likely-Descendant” as designated by the Native American Heritage Commission pursuant to Public Resources Code 5097.</li> <li>▪ Preservation in place is the preferred manner of mitigating impacts on archeological sites because it maintains the relationship between artifacts and the archeological context, and it may also avoid conflict with religious or cultural values of groups associated with the site. This may be achieved through incorporation within parks, green-space, or other open space by re-designing project using open space or undeveloped lands. This may also be achieved by following procedures for capping the site underneath a paved area. When avoiding and preserving in place are infeasible based on project- and site-specific considerations, a data recovery plan may be prepared according to California Environmental Quality Act Section 15126.4. A data recovery plan consists of: the documentation and removal of the archeological deposit from a project site in a manner consistent with professional (and regulatory) standards; the subsequent inventorying, cataloguing, analysis, identification, dating, and interpretation of the artifacts; and the production of a report of findings.</li> <li>▪ Complying with existing local regulations and policies that exceed or reasonably replace any of the above measures that protect archaeological resources.</li> </ul> <p><b>Mitigation MeasureCul-3: Paleontological Resources.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ul style="list-style-type: none"> <li>▪ Prior to construction activities, project sponsors should retain a qualified paleontologist to conduct a record search using an appropriate database, such as the University of California–Berkeley Museum of Paleontology to determine whether the project area has been previously surveyed and whether resources were identified. As warranted, project sponsors should retain a qualified paleontologist to conduct paleontological surveys prior to construction activities.</li> </ul>	

Table ES-1: Summary Of Impacts and Mitigation Measures

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Cul-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could disturb human remains, including those interred outside of formal cemeteries.</p>	<p>Significant, but Mitigable</p>	<ul style="list-style-type: none"> <li>▪ Preparation of a research design and testing plan should be developed in advance of implementation of the construction project, in order to efficiently facilitate the avoidance of cultural sites throughout the development process.</li> <li>▪ If record searches and field surveys indicate that the project is located in an area rich with paleontological, and/or geological resources, project sponsors should retain a qualified paleontologist to monitor any subsurface operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property.</li> <li>▪ Complying with existing local regulations and policies that exceed or reasonably replace any of the above measures that protect paleontological or geologic resources.</li> </ul> <p><b>Mitigation Measure Cul-4: Human Remains.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ol style="list-style-type: none"> <li>a. Under Section 7050.5 of the California Health and Safety Code, as part of project oversight of individual projects, project sponsors can and should, in the event of discovery or recognition of any human remains during construction or excavation activities associated with the project, in any location other than a dedicated cemetery, cease further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of the county in which the remains are discovered has been informed and has determined that no investigation of the cause of death is required.</li> <li>b. Under California Public Resources Code 5097.98, if any discovered remains are of Native American origin: <ol style="list-style-type: none"> <li>I. The coroner shall contact the Native American Heritage Commission in order to ascertain the proper descendants from the deceased individual. The coroner should make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods. This may include obtaining a qualified archaeologist or team of archaeologists to properly excavate the human remains; or</li> </ol> </li> <li>c. If the Native American Heritage Commission is unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the commission, the landowner or their authorized representative shall obtain a Native American monitor, and an archaeologist, if recommended by the Native American monitor, and rebury the Native American human remains and any associated grave goods, with appropriate dignity, on the property and in a location</li> </ol>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Cul-4:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could cause a substantial adverse change in the significance of a tribal cultural resource.</p>	<p>Significant and Unavoidable</p>	<p>that is not subject to further subsurface disturbance where the following conditions occur:</p> <ol style="list-style-type: none"> <li>1. The Native American Heritage Commission is unable to identify a descendent;</li> <li>2. The descendant identified fails to make a recommendation; or</li> <li>3. The landowner or their authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.</li> </ol> <p><b>Mitigation Measure Cul-5: Tribal Cultural Resources.</b> If the implementing agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process required under Public Resources Code Section 21080.3.2, implementing agencies and/or project sponsors shall implement the following measures where feasible and necessary to address site-specific impacts to avoid or minimize the significant adverse impacts:</p> <ul style="list-style-type: none"> <li>▪ Within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency’s jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.</li> <li>▪ Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource (Public Resources Code Section 21084.3 (a)). If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process, new provisions in the Public Resources Code describe mitigation measures that, if determined by the lead agency to be feasible, may avoid or minimize the significant adverse impacts (Public Resources Code Section 21084.3 (b)). Examples include:             <ol style="list-style-type: none"> <li>1. Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open</li> </ol> </li> </ul>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<p>space, to incorporate the resources with culturally appropriate protection and management criteria.</p> <ol style="list-style-type: none"> <li>2. Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:                             <ol style="list-style-type: none"> <li>a. Protecting the cultural character and integrity of the resource</li> <li>b. Protecting the traditional use of the resource</li> <li>c. Protecting the confidentiality of the resource.</li> </ol> </li> <li>3. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.</li> <li>4. Protecting the resource.</li> </ol>	

**GEOLOGY AND SEISMICITY**

<p><b>Geo-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP could expose people or structures to potential damaging geologic forces resulting in increased risk due to rupture of a known earthquake fault, severe ground shaking and/or liquefaction.</p>	<p>Significant, but Mitigable</p>	<p><b>Mitigation Measure Geo-1, Alquist-Priolo Act Compliance.</b> During the design and review of individual projects, implementing agencies and project sponsors shall seek to reduce impacts related to seismic hazards. Mitigation measures to be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations include, but are not limited to:</p> <ol style="list-style-type: none"> <li>a. To reduce impacts related to fault rupture, implementing agencies shall require project sponsors to comply with provisions of the Alquist-Priolo Act for project sites located within or across an Alquist-Priolo Hazard Zone.</li> <li>b. Project sponsors shall prepare site-specific fault identification investigations conducted by licensed geotechnical professionals in accordance with the requirements of the Alquist-Priolo Act as well as any existing local or California Department of Transportation regulations and policies that exceed or reasonably replace any of the Alquist-Priolo Act requirements.</li> <li>c. Structures intended for human occupancy (defined as a structure that might be occupied a minimum of 2,000 hours per year) shall be located a minimum distance of 50 feet from any identified active fault traces.</li> </ol> <p><b>Mitigation Measure Geo-2, Geotechnical Investigations.</b> Mitigation measures to be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations include, but are not limited to:</p> <ol style="list-style-type: none"> <li>a. To reduce impacts related to ground shaking, implementing agencies shall require project sponsors to comply with the most recent version of the California Building</li> </ol>	<p>Less than Significant</p>
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**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Geo-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in substantial soil erosion or the loss of topsoil.</p>	<p>Significant, but Mitigable</p>	<p>Code. Proposed improvements shall comply with Chapter 16, Section 1613 of the California Building Code which provides earthquake loading specifications for every structure and associated attachments that must also meet the seismic criteria of American Society of Civil Engineers Standard 07-05.</p> <p>b. In order to determine seismic criteria for proposed improvements, geotechnical investigations shall be prepared by state licensed engineers and engineering geologists to provide recommendations for site preparation and foundation design as required by Chapter 18, Section 1803 of the California Building Code.</p> <p>c. Geotechnical investigations shall also evaluate hazards such as liquefaction, lateral spreading, landslides, and expansive soils in accordance with California Building Code requirements and Special Publication 117A, where applicable.</p> <p>d. Recommended corrective measures such as structural reinforcement and replacing native soils with engineered fill shall be incorporated into project designs.</p> <p><b>Mitigation Measure Geo-3, Compliance with National Pollution Discharge Elimination System Requirements.</b> During the design and review of individual projects, implementing agencies and project sponsors shall seek to reduce impacts related to soil erosion. Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <p>a. To reduce the risk of soil erosion, implementing agencies shall require project sponsors to comply with National Pollution Discharge Elimination System General Construction Permit requirements.</p> <p>b. Implementing agencies shall require project sponsors, as part of contract specifications with contractors, to prepare and implement best management practices as part of a stormwater pollution prevention plan that include erosion control best management practices consistent with California Stormwater Quality Association Handbook for Construction.</p> <p><b>Mitigation Measure Geo-4, Erosion Control Plans.</b> During the design and review of individual projects, implementing agencies and project sponsors shall seek to reduce impacts related to soil erosion. Mitigation measures shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations. Where highway, roadway, rail and pedestrian/bicycle construction could require significant earthwork and road cuts that increase potential for short-term and long-term soil erosion and/or slope failure, project sponsors shall implement measures to minimize or eliminate impacts as part of the design of the project and its environmental review under California Environmental Quality Act and National Environmental Policy Act.</p>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Geo-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could be located on a geologic unit or soil type that is unstable, contains expansive properties, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, or collapse.</p>	<p>Significant, but Mitigable</p>	<p>Potential project-specific mitigation measures should be drawn from or be consistent with the California Building Code and California Department of Transportation’ standards for construction, and, where appropriate, based on a review or investigation by a State licensed geotechnical professional. Typical performance standards include:</p> <ul style="list-style-type: none"> <li>a. Project designs shall provide adequate slope drainage and appropriate landscaping to minimize potential future occurrences of slope instability and erosion.</li> <li>b. Design features shall include measures to reduce erosion from storm water.</li> </ul> <p><b>Mitigation Measure Geo-2, Geotechnical Investigations:</b> During the design and review of individual projects, implementing agencies and project sponsors shall address the effects of expansive soils or unstable geology. See list of specific required measures above, under Seismic Hazards, which also apply to unstable geologic conditions.</p> <p><b>Mitigation Measure Geo-5, Compressible or Expansive Soils:</b> During the design and review of individual projects, implementing agencies and project sponsors shall address the effects of expansive soils or unstable geology. Where projects would be built on highly compressible or expansive soils, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project. Typical mitigation measures include:</p> <ul style="list-style-type: none"> <li>a. A site-specific geotechnical investigation conducted by qualified professionals (California registered civil and geotechnical engineers, or California registered engineering geologists) to identify potential geologic hazards associated with soils underlying proposed improvements; and</li> <li>b. Recommended corrective measures, such as structural reinforcement, soil treatment, or replacing existing soil with engineered fill, in accordance with recommendations of the geotechnical investigation and the most recent version of the California Building Code.</li> </ul>	<p>Less than Significant</p>
<b>HAZARDS AND HAZARDOUS MATERIALS</b>			
<p><b>Haz-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP could create a significant hazard to the public or the environment through the routine transport of hazardous materials, and could 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, including near</p>	<p>Significant, but Mitigable</p>	<p><b>Mitigation Measure Haz-1a, Hazardous Materials Transport.</b> To reduce the impacts associated with the routine transit, use or disposal of hazardous materials, implementing agencies shall require project sponsors to comply with the Resource Conservation and Recovery Act, Title 22 of the California Code of Regulations; California Hazardous Waste Control Law; Cal/Environmental Protection Agency requirements; hazardous materials training requirements; and any local regulations such as city or county Hazardous Materials Management Plans regulating the generation, transportation, treatment, storage and disposal of hazardous materials and waste.</p>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
school sites.		<p><b>Mitigation Measure Haz-1b, Compliance with California Accidental Release Prevention Program.</b> To reduce the impacts associated with the release of hazardous materials into the environment, implementing agencies shall require project sponsors to comply with Senate Bill 1889 - Accidental Release Prevention Law/California Accidental Release Prevention Program regulating the generation, transportation, treatment, storage, and disposal of hazardous materials and waste. In addition, project sponsors shall comply with U.S. Department of Transportation regulations regarding the transport of hazardous materials and wastes, such that accidental upset conditions are minimized.</p> <p><b>Mitigation Measure Haz-1c, Compliance with Federal, State, and Local Laws.</b> Consistency with federal, state, and local regulations and laws related to the transport, use or disposal of hazardous materials, and regulations and laws related to upset and accident conditions involving the release of hazardous materials into the environment, is considered mitigation and required for all projects.</p>	
<p><b>Haz-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in projects located on sites that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Haz-2a, Phase I Investigations and Implementation.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ol style="list-style-type: none"> <li>a. Determining whether specific transportation project sites are listed as a hazardous materials and/or waste site pursuant to Government Code Section 65962.5.</li> <li>b. Requiring preparation of a Phase I Environmental Site Assessment in accordance with the American Society for Testing and Materials’ ASTM E-1527-05 standards for any listed sites or sites with the potential of residual hazardous materials and/or waste as a result of location and/or prior uses. For work requiring any demolition or renovation, the Phase I Environmental Site Assessment shall make recommendations for any hazardous building materials survey work that shall be done.</li> <li>c. Implementing recommendations included in a Phase I Environmental Site Assessment prepared for a site.</li> <li>d. If a Phase I Environmental Site Assessment indicates the presence or likely presence of contamination, the implementing agency shall require a Phase II Environmental Site Assessment, and recommendations of the Phase II Environmental Site Assessment shall be fully implemented.</li> <li>e. For work requiring any demolition or renovation, the Phase I Environmental Site Assessment shall make recommendations for any hazardous building materials survey work that shall be done.</li> <li>f. Requiring construction contractors to prepare and implement soil management</li> </ol>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Haz-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could use hazardous materials such as petroleum products, fuels, spent oil and solvents, which could potentially be released to the environment through improper handling or storage, and expose humans and the environment to potentially hazardous conditions.</p>	<p>Significant, but Mitigable</p>	<p>contingency plans which provide procedural guidance on the handling, notification, and protective measures to be taken in the event of encountering suspected contamination or naturally occurring asbestos.</p> <p><b>Mitigation Measure Haz-2b, Site Safety Plan.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <ol style="list-style-type: none"> <li>a. A Site Safety Plan should be prepared and implemented prior to initiation of any construction/development activities on roadways known to contain significant concentrations of aerially deposited lead to reduce health and safety hazards to workers and the public.</li> <li>b. A Lead Compliance Plan to prevent or minimize worker exposure shall be prepared.</li> <li>c. Minimization measures to address aerially deposited lead could include removing aerially deposited lead soil, and/or balancing soil removal and fill to maximize reuse of aerially deposited lead soil in the project area and not generate a hazardous waste. Handling of material containing aerially deposited lead must result in no visible dust migration. A means of controlling dust must be available at all times when handling material in work areas containing aerially deposited lead at hazardous waste concentrations.</li> </ol> <p><b>Mitigation Measure Haz-1a, Hazardous Materials Transport.</b> To reduce the impacts associated with the transit, use or disposal of hazardous materials during construction, implementing agencies shall require project sponsors to comply with federal, state, and local laws. See list of specific required measures above, under Hazardous Materials Transport.</p> <p><b>Mitigation Measure Haz-1b, Compliance with California Accidental Release Prevention Program.</b> To reduce the impacts associated with the release of hazardous materials during construction, implementing agencies shall require project sponsors to comply with California Accidental Release Prevention Program. See list of specific required measures above, under Hazardous Materials Transport.</p> <p><b>Mitigation Measure Haz-1c, Compliance with Federal, State, and Local Laws.</b> Consistency with federal, state, and local regulations and laws is required for construction of all projects. See list of specific required measures above, under Hazardous Materials Transport.</p> <p><b>Mitigation Measure Haz-3, Construction Hazards:</b> Where hazardous materials used during construction and operation may be released to the environment through improper handling or storage and expose humans and the environment to</p>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Haz-4:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP is unlikely to result in a safety hazard for projects 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.</p>	<p>Less than Significant</p>	<p>potentially hazardous conditions, implementing agencies and project sponsors shall, where feasible and based on project-and site-specific considerations, consider measures to minimize or eliminate impacts as part of the design of the project. Typical mitigation measures include:</p> <ul style="list-style-type: none"> <li>a. Utilization of construction best management practices to minimize the potential negative effects on groundwater and soils. best management practices include, but are not limited to following manufacturer’s recommendations on use, storage and disposal of chemical products used in construction; avoiding overtopping construction equipment fuel gas tanks; and properly containing and removing grease and oils during routine maintenance of construction equipment.</li> <li>b. In the event of an inadvertent release of hazardous materials during project construction, cleanup shall occur in accordance with all applicable regulatory requirements.</li> <li>c. Spent oil and other solvents used during maintenance of construction equipment shall be recycled or disposed of in accordance with all applicable regulatory requirements. All hazardous materials shall be transported, handled, and disposed of in accordance with all applicable regulatory requirements.</li> </ul> <p>None required</p>	<p>Less than Significant</p>
<p><b>Haz-5:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.</p>	<p>Less than Significant</p>	<p>None Required</p>	<p>Less than Significant</p>
<p><b>Haz-6:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.</p>	<p>Less than Significant</p>	<p>None Required</p>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<b>HYDROLOGY AND WATER RESOURCES</b>			
<p><b>Hydro-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a violation of water quality standards or waste discharge requirements or otherwise substantially degrade water quality.</p>	<p>Significant, but Mitigable</p>	<p><b>Mitigation Measure Hydro-1a: Compliance with Water Quality Regulations.</b>                      To reduce the impact associated with potential water quality standards violations or waste or stormwater discharge requirement violations, implementing agencies shall require project sponsors to comply with the federal and state water quality regulations for all projects that would alter existing drainage patterns in accordance with the relevant regulatory criteria including but not limited to the National Pollution Discharge Elimination System program, Provision C.3, and any applicable stormwater management plans. Erosion control measures shall be consistent with National Pollution Discharge Elimination System General Construction Permit requirements including preparation and implementation of a stormwater pollution prevention plan, and final drainage plans shall be consistent with the San Francisco Regional MS4 National Pollution Discharge Elimination System permit or any applicable local drainage control requirements that exceed or reasonably replace any of these measures to project receiving waters from pollutants.</p> <p>Implementing agencies shall require project sponsors to commit to best management practices that would minimize or eliminate existing sources of polluted runoff during both construction and operational phases of the project. Implementing agencies shall require projects to comply with design guidelines established in the Bay Area Stormwater Management Agencies Association’s Using Start at the Source to Comply with Design Development Standards and the California Stormwater Quality Association’s California Stormwater Best Management Practice Handbook for New Development and Redevelopment to minimize both increases in the volume and rate of stormwater runoff, and the amount of pollutants entering the storm drain system. For the purposes of this mitigation, less than significant means consistent with federal, state, and local regulations and laws related to water quality or stormwater management.</p> <p><b>Mitigation Measure Hydro-1b: Project-specific Water Quality Measures.</b>                      Mitigation measures to be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations include, but are not limited to:</p> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>▪ Limit excavation and grading activities to the dry season (April 15 to October 15) to the extent possible in order to reduce the chance of severe erosion from intense rainfall and surface runoff, as well as the potential for soil saturation in swale areas.</li> <li>▪ Regulate stormwater runoff from the construction area through a stormwater management/erosion control plan that may include temporary on-site silt traps</li> </ul>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
		<p>and/or basins with multiple discharge points to natural drainages and energy dissipaters if excavation occurs during the rainy season. This control plan should include requirements to cover stockpiles of loose material, divert runoff away from exposed soil material, locate and operate sediment basin/traps to minimize the amount of offsite sediment transport, and removing any trapped sediment from the basin/ trap for placement at a suitable location on-site, away from concentrated flows, or removal to an approved disposal site.</p> <ul style="list-style-type: none"> <li>▪ Provide temporary erosion control measures until perennial revegetation or landscaping is established and can minimize discharge of sediment into receiving waterways.</li> <li>▪ Provide erosion protection on all exposed soils either by revegetation or placement of impervious surfaces after completion of grading. Revegetation shall be facilitated by mulching, hydroseeding, or other methods and initiated as soon as possible after completion of grading and prior to the onset of the rainy season (by October 15).</li> <li>▪ Use permanent revegetation/landscaping, emphasizing drought-tolerant perennial ground coverings, shrubs, and trees.</li> <li>▪ Ensure best management practices are in place and operational prior to the onset of major earthwork on the site. The construction phase facilities shall be maintained regularly and cleared of accumulated sediment as necessary.</li> <li>▪ Store hazardous materials such as fuels and solvents used on the construction sites in covered containers and protected from rainfall, runoff, and vandalism. A stockpile of spill cleanup materials shall be readily available at all construction sites. Employees shall be trained in spill prevention and cleanup, and individuals should be designated as responsible for prevention and cleanup activities.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>▪ Design drainage of roadway and parking lot runoff, wherever possible to run through grass median strips which are contoured to provide adequate storage capacity and to provide overland flow, detention, and infiltration before runoff reaches culverts, or into detention basins. Facilities such as oil and sediment separators or absorbent filter systems should be designed and installed within the storm drainage system to provide filtration of stormwater prior to discharge and reduce water quality impacts whenever feasible.</li> <li>▪ Implement an erosion control and revegetation program designed to allow re-establishment of native vegetation on slopes in undeveloped areas as part of the long-term sediment control plan.</li> <li>▪ Use alternate discharge options to protect sensitive fish and wildlife populations in</li> </ul>	

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Hydro-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP are not expected to substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.</p>	<p>Less than Significant</p>	<p>areas where habitat for fish and other wildlife would be threatened by transportation facility discharge. Maintenance activities over the life of the project shall include use of heavy-duty sweepers, with disposal of collected debris in sanitary landfills to effectively reduce annual pollutant loads where appropriate. Catch basins and storm drains shall be cleaned and maintained on a regular basis.</p> <ul style="list-style-type: none"> <li>▪ Use Integrated Pest Management techniques (methods that minimize the use of potentially hazardous chemicals for landscape pest control and vineyard operations) in landscaped areas. The handling, storage, and application of potentially hazardous chemicals shall take place in accordance with all applicable laws and regulations.</li> </ul> <p>None Required</p>	<p>Less than Significant</p>
<p><b>Hydro-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could increase erosion by altering the existing drainage patterns of a site and contributing to sediment loads of streams and drainage facilities, create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff.</p>	<p>Significant, but Mitigable</p>	<p><b>Mitigation Measure Hydro-1a: Compliance with Water Quality Regulations.</b> To reduce the impact associated with potential water quality standards violations or waste or stormwater discharge requirement violations, implementing agencies shall require project sponsors to comply with the State, and federal water quality regulations. See list of specific required measures above, under Water Quality.</p> <p><b>Mitigation Measure Hydro-1b: Project-specific Water Quality Measures.</b> Mitigation measures shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations. See list of specific required measures above, under Water Quality.</p>	<p>Less than Significant</p>
<p><b>Hydro-4:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could place new structures and facilities within a 100-year flood hazard area, which would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Hydro-2: Flood Hazards.</b> To reduce the impact of flood hazards, implementing agencies shall conduct or require project-specific hydrology studies for projects proposed to be constructed within floodplains to demonstrate compliance with Executive Order 11988, the National Flood Insurance Program, National Flood Insurance Act, California Department of Transportation Highway Design Manual, Cobey-Alquist Floodplain Management Act, as well as any further Federal Emergency Management Agency or state requirements that are adopted at the local level. These studies shall identify project design features or mitigation measures that reduce impacts on either floodplains or flood flows to a less than significant level such as requiring minimum elevations for finished first floors, typically at least one foot above the 100-year base flood elevation, where feasible based on project- and site-specific considerations. For the purposes of this</p>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
mitigation, less than significant means consistent with these federal, state, and local regulations and laws related to development in the floodplain. Local jurisdictions shall, to the extent feasible, appropriate, and consistent with local policies, prevent development in flood hazard areas that do not have demonstrable protections.			
<b>LAND USE, POPULATION, HOUSING, AND EMPLOYMENT</b>			
<b>LU-1:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP would not substantially induce new growth and development in a location that significantly differs from planned county-wide growth, or that substantially induces new growth beyond that planned throughout the county.	Less than Significant	None Required	Less than Significant
<b>LU-2:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in substantial permanent residential or business disruption, or displacement of substantial numbers of existing population and housing.	Significant and Unavoidable	<p><b>Mitigation Measure LU-1: Anti-Displacement and Disruption Strategies.</b> Implementing agencies and/or project sponsors shall consider implementation of mitigation measures for new or expanded transportation projects that could result in long-term division or displacement of existing housing, businesses and neighborhoods, where feasible based on project-and site-specific considerations, including but not limited to the following:</p> <ol style="list-style-type: none"> <li>a. Corridor realignment should be considered by the project sponsor, where feasible, to avoid displacement and division of neighborhoods, and to maintain or improve accessibility.</li> <li>b. Preparation and execution of relocation assistance plans. At a minimum, relocation assistance plans will include:                             <ol style="list-style-type: none"> <li>1. Criteria for replacement housing;</li> <li>2. Reimbursement levels for moving costs and differential housing costs to those eligible for relocation assistance;</li> <li>3. Construction schedules that allow adequate time for all commercial and industrial businesses to find and relocate to adequate substitute sites; and</li> <li>4. Reimbursement levels for the costs associated with relocating a business to an acceptable facility, including search costs and criteria for payment in lieu of relocation if a business cannot be relocated without a substantial loss of existing patronage.</li> </ol> </li> </ol>	Significant and Unavoidable
<b>LU-3:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in temporary, short-term disruption of adjoining residential or business land uses.	Significant and Unavoidable	<p><b>Mitigation Measure LU-2: Construction-Related Disruptions.</b> Implementing agencies and/or project sponsors shall consider implementation of mitigation measures for new or expanded transportation projects that could result in short-term disruption to existing housing, businesses and neighborhoods, where feasible</p>	Significant and Unavoidable

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>LU-4:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP could potentially result in permanent alterations to existing neighborhoods or communities by separating residences from community facilities and services, restricting access to commercial or residential areas, or eliminating community amenities.</p>	<p>Less than Significant</p>	<p>based on project-and site-specific considerations, including but not limited to the following:</p> <ul style="list-style-type: none"> <li>a. Regulate construction operations to minimize traffic disruptions and detours, and to maintain safe traffic operations;</li> <li>b. Ensure construction operations are limited to regular business hours where feasible; and</li> <li>c. Control construction dust and noise (see further mitigation details in the Air Quality and Noise chapters in this environmental impact report).</li> </ul> <p><b>Recommendation LU-3: Connectivity by Design.</b> Implementing agencies and/or project sponsors shall consider implementation of mitigation measures for new or expanded transportation projects that could result in community separation, where feasible based on project- and site-specific considerations, including but not limited to the following:</p> <ul style="list-style-type: none"> <li>a. All new transportation projects shall be required to incorporate design features such as sidewalks, bike lanes and bike/pedestrian bridges or tunnels that maintain or improve access and connections within existing communities and to public transit.</li> <li>b. Implementing agencies shall require project sponsors to comply with existing local regulations and policies that exceed or reasonably replace measures that reduce community separation.</li> <li>c. New development projects shall be required to provide connectivity for all modes such that new development does not separate existing uses, and improves access where needed and/or feasible, by incorporating “complete street” design features such as pedestrian-oriented streets and sidewalks, improved access to transit, and bike routes where appropriate. Implementing agencies shall require project sponsors to comply with existing local regulations and policies that exceed or reasonably replace measures that reduce community separation.</li> <li>d. Through regional programs such as the One Bay Area Grants, the Authority shall continue to support planning efforts for locally sponsored traffic calming and alternative transportation initiatives such as paths, trails, overcrossings, bicycle plans, and the like that foster improved neighborhoods and community connections.</li> </ul>	<p>Less than Significant</p>
<p><b>LU-5:</b> The construction of new or expanded transportation facilities pursuant to the 2017 CTP is not expected to result in substantial conflicts with adopted local General Plans or other applicable land use plans, including specific plans,</p>	<p>Less than Significant</p>	<p>None Required</p>	<p>Less than Significant</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
existing zoning, or regional plans.			
<b>NOISE</b>			
<p><b>Noise-I:</b> Construction of new or expanded transportation facilities pursuant to the 2017 CTP could result in a violation of the standards contained within the General Plans and noise ordinances of applicable jurisdictions.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Noise-Ia: Construction Noise.</b> Implementing agencies shall require one or more of the following set of noise attenuation measures under the supervision of a qualified acoustical consultant:</p> <ul style="list-style-type: none"> <li>a. Restricting construction activities to permitted hours as defined under local jurisdiction regulations (e.g., Alameda County Code restricts construction noise to between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 5:00 p.m. on weekend)</li> <li>b. Properly maintaining construction equipment and outfitting construction equipment with the best available noise suppression devices (e.g., mufflers, silencers, wraps)</li> <li>c. Prohibiting idling of construction equipment for extended periods of time in the vicinity of sensitive receptors</li> <li>d. Locating stationary equipment such as generators, compressors, rock crushers, and cement mixers as far from sensitive receptors as possible</li> <li>e. Erecting temporary plywood noise barriers around the construction site when adjacent occupied sensitive land uses are present within 75 feet</li> <li>f. Implementing “quiet” pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions</li> <li>g. Using noise control blankets on building structures as buildings are erected to reduce noise emission from the site</li> <li>h. Using cushion blocks to dampen impact noise from pile driving.</li> </ul> <p><b>Mitigation Measure Noise-Ib: Construction Noise and Vibration.</b> Implementing agencies shall require one or more of the following set of vibration attenuation measures under the supervision of a qualified acoustical consultant if pile driving and/or other potential vibration-generating construction activities are to occur within 60 feet of a historic structure.</p> <ul style="list-style-type: none"> <li>a. The project sponsors shall engage a qualified geotechnical engineer and qualified historic preservation professional and/or structural engineer to conduct a pre-construction assessment of existing subsurface conditions and the structural integrity of nearby (within 60 feet) historic structures subject to pile-driving activity. If recommended by the pre-construction assessment, for structures or facilities within 60 feet of pile-driving activities, the project sponsors shall require</li> </ul>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Noise-2:</b> New or expanded transportation facilities pursuant to the 2017 CTP could result in highway noise levels that exceed the Federal Highway Administration Noise Abatement Criteria or increase above existing levels.</p>	<p>Significant and Unavoidable</p>	<p>groundborne vibration monitoring of nearby historic structures. Such methods and technologies shall be based on the specific conditions at the construction site such as, but not limited to, the pre-construction surveying of potentially affected historic structures and underpinning of foundations of potentially affected structures, as necessary.</p> <p>b. The pre-construction assessment shall include a monitoring program to detect ground settlement or lateral movement of structures in the vicinity of pile-driving activities and identify corrective measures to be taken should monitored vibration levels indicate the potential for building damage. In the event of unacceptable ground movement with the potential to cause structural damage, all impact work shall cease and corrective measures shall be implemented to minimize the risk to the subject, or adjacent, historic structure.</p> <p><b>Mitigation Measure Noise-2: Traffic Noise.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible and based on project-and site-specific considerations, include but are not limited to:</p> <p>a. Adjustments to proposed roadway or transit alignments to reduce noise levels in noise sensitive areas. For example, below-grade roadway alignments can effectively reduce noise levels in nearby areas.</p> <p>b. Techniques such as landscaped berms, dense plantings, reduced-noise paving materials, and traffic calming measures in the design of their transportation improvements</p> <p>c. Contributing to the insulation of buildings or construction of noise barriers around sensitive receptor properties adjacent to the transportation improvement</p> <p>d. Use land use planning measures, such as zoning, restrictions on development, site design, and buffers to ensure that future development is noise compatible with adjacent transportation facilities and land uses</p> <p>e. Construct roadways so that they are depressed below-grade of the existing sensitive land uses to create an effective barrier between new roadway lanes, roadways, rail lines, transit centers, park-n-ride lots, and other new noise generating facilities</p> <p>f. Maximize the distance between noise-sensitive land uses and new noise-generating facilities and transportation systems</p>	<p>Significant and Unavoidable</p>
<p><b>Noise-3:</b> New or expanded transportation facilities pursuant to the 2017 CTP could result in transit noise levels that exceed the allowable noise exposure permitted under the Federal Transit</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Noise-3a: Transit Noise.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. When finalizing a development project’s site plan, the implementing agency shall require that project sponsors locate noise-sensitive outdoor use areas</p>	<p>Significant and Unavoidable</p>

**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
Administration criteria.		<p>away from adjacent noise sources and shield noise-sensitive spaces with buildings or noise barriers whenever possible to reduce the potential significant impacts with regard to exterior noise exposure for new sensitive receptors.</p> <p><b>Mitigation Measure Noise-3b: Transit Noise.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. When finalizing a land use development’s site plan or a transportation project’s design, the implementing agency shall ensure that sufficient setback between occupied structures and the railroad tracks is provided.</p> <p><b>Mitigation Measure Noise-3c: Transit Noise.</b> Mitigation measures that shall be considered by implementing agencies and/or project sponsors where feasible based on project-and site-specific considerations include, but are not limited to the following. Prior to project approval, the implementing agency for a transportation project shall ensure that the transportation project sponsor applies the following mitigation measures to achieve a site-specific exterior noise performance standard at sensitive land uses, as applicable for rail extension projects:</p> <ul style="list-style-type: none"> <li>a. Using sound reduction barriers such as landscaped berms and dense plantings</li> <li>b. Locating rail extension below grade</li> <li>c. Using methods to resilient damped wheels</li> <li>d. Using vehicle skirts</li> <li>e. Using under car acoustically absorptive material</li> <li>f. Installing sound insulation treatments for impacted structures</li> </ul>	

**VISUAL RESOURCES**

<p><b>Vis-I:</b> New or expanded transportation facilities pursuant to the 2017 CTP could affect visual resources by blocking panoramic views or views of significant landscape features or landforms, by substantially damaging scenic resources that would alter the appearance of or from designated or eligible scenic highways, and/or substantially degrading the existing visual character or quality of the site and its surroundings.</p>	<p>Significant and Unavoidable</p>	<p><b>Mitigation Measure Vis-1a: Minimize Intrusions into Views.</b> Where construction of new or expanded transportation facilities could adversely alter views over the long-term, mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible based on project-and site-specific considerations include, but are not limited to:</p> <ul style="list-style-type: none"> <li>a. Reduce the visibility of construction staging areas by fencing and screening these areas with low contrast materials consistent with the surrounding environment, and by revegetating graded slopes and exposed earth surfaces at the earliest opportunity.</li> <li>b. Site or design projects to minimize contrast in scale and massing between the project and surrounding natural forms and urban development, and to minimize their intrusion into important viewsheds.</li> </ul>	<p>Significant and Unavoidable</p>
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**Table ES-1: Summary Of Impacts and Mitigation Measures**

Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Vis-2:</b> New or expanded transportation facilities pursuant to the 2017 CTP could result in the construction of new soundwalls along arterials could add visual elements that are incongruous with the existing character of an area.</p>	<p>Significant and Unavoidable</p>	<ul style="list-style-type: none"> <li>c. Use see-through safety barrier designs (e.g., railings rather than walls) when feasible.</li> <li>d. Develop interchanges and transit lines at the grade of the surrounding land to limit view blockage wherever possible.</li> <li>e. Use natural landscaping to minimize contrasts between the projects and existing natural and human-made features, and design landscaping along highway corridors in rural and open space areas to add significant natural elements and visual interest to soften the hard edged, linear travel experience that would otherwise occur.</li> <li>f. Contour the edges of major cut and fill slopes to provide a more natural looking finished profile.</li> <li>g. Identify, preserve, and enhance scenic vistas to and from hillside areas and other visual resources.</li> <li>h. Ensuring that new development in or adjacent to existing communities is compatible in scale and character with the surrounding area by promoting a transition in scale and architecture character between new buildings and established neighborhood, and requiring pedestrian circulation and vehicular routes to be well integrated.</li> <li>i. Comply with existing local regulations and policies that exceed or reasonably replace any of the above measures that protect visual resources.</li> </ul>	<p>Significant and Unavoidable</p>
		<p><b>Mitigation Measure Vis-1b: Design Studies.</b> Complete design studies for projects in designated or eligible State Scenic Highway corridors. Consider the “complete” highway system and develop mitigation measures to minimize the impacts on the quality of the views of visual experience that originally qualified the highway for Scenic Highway designation.</p> <p><b>Mitigation Measure Vis-2: Soundwall Design.</b> Where construction of new or expanded transportation facilities may require associated soundwalls, mitigation measures that shall be considered by implementing agencies and/or project sponsors, where feasible based on project-and site-specific considerations include using soundwall construction and design methods that account for visual impacts, as follows:</p> <ul style="list-style-type: none"> <li>a. Use transparent panels to preserve views where soundwalls would block views from residences.</li> <li>b. Use landscaped earth berm or a combination wall and berm to minimize the apparent soundwall height.</li> <li>c. Construct soundwalls of materials whose color and texture complements the surrounding landscape and development.</li> </ul>	

Table ES-1: Summary Of Impacts and Mitigation Measures			
Impact	Significance	Mitigation Measures	Significance After Mitigation
<p><b>Vis-3:</b> New or expanded transportation facilities pursuant to the 2017 CTP could adversely affect visual resources by creating new substantial sources of light and glare.</p>	<p>Significant and Unavoidable</p>	<p>d. Design soundwalls to increase visual interest, reduce apparent height, and be visually compatible with the surrounding area.</p> <p>e. Landscape the soundwalls with plants that screen the soundwall, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.</p> <p>f. Develop new or expanded roadways below the grade of surrounding areas to minimize the need for tall soundwalls.</p> <p><b>Mitigation Measure Vis-3: Control of Light and Glare.</b> Where construction of new or expanded transportation facilities could adversely affect visual resources by creating new substantial sources of light and glare, implementing agencies and/or project sponsors shall seek to minimize and control glare through the adoption of project design features, where feasible based on project-and site-specific considerations, including but not limited to:</p> <p>a. Planting trees along transportation corridors to reduce glare from the sun;</p> <p>b. Shielding transportation lighting fixtures to minimize off-site light trespass.</p> <p>c. Limiting the use of reflective materials, such as metal;</p> <p>d. Using non-reflective material, such as paint, vegetative screening, matte finish coatings, and masonry;</p> <p>e. Comply with existing local regulations and policies that exceed or reasonably replace any of the above measures that protect visual resources.</p>	<p>Significant and Unavoidable</p>