

Executive Summary

This Program Environmental Impact Report (EIR) for the proposed 2009 Contra Costa Countywide Comprehensive Transportation Plan (CTP) has been prepared on behalf of the Contra Costa Transportation Authority (the Authority, or CCTA). This Executive Summary provides a condensed description of the proposed CTP, the approach taken in this EIR, public concerns and involvement, project setting, project impacts, and project alternatives.

Purpose of EIR

This environmental assessment fulfills the requirements of the California Environmental Quality Act (CEQA) and CEQA Guidelines and is designed to inform decision-makers, responsible and trustee agencies, and the general public of the range of potential environmental impacts that could result from implementation of the proposed 2009 CTP. This EIR recommends a set of measures to mitigate any significant adverse regional impacts identified. It also analyzes a range of alternatives to the proposed Plan. As the lead agency for preparing this EIR, the Authority will use it in its review of the proposed 2009 CTP prior to taking action on the Plan.

The EIR for the 2009 CTP is a program EIR as defined in the CEQA Guidelines. The CEQA Guidelines state that a program EIR may be prepared on a series of actions that can be characterized as one large project and are related either:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways (Title 14, California Code of Regulations, Section 15168).

This program EIR is thus intended to be an evaluation of the 2009 CTP as a whole, rather than an assessment of each of the individual projects contained in the Plan.

Proposed Project

The 2009 CTP focuses on refining the Authority's vision and on identifying priorities for making future transportation improvements. The Update includes:

- The Authority's vision, goals, and strategies;
- A broader framework and greater detail for Measure J expenditures;
- Detailed components from the proposed Action Plans;
- An updated Growth Management Program (GMP) component;
- An updated Comprehensive Transportation Project List (CTPL); and
- Discussion of project implementation.

The CTP will serve as the long-range transportation planning document for the county. The 2009 CTP will be the third major update to the CTP plan since it was first adopted in 1995. The 1995 CTP established the overall direction of CCTA's transportation and growth management, knitting together Action Plans prepared by the Regional Transportation Planning Committees (RTPCs) and building on the requirements of the Measure C GMP. The 2000 Update further refined CCTA's vision, goals and strategies, and built on the refinements to the Action Plans carried out in 1999 and 2000. The 2004 Update kept the goals and strategies of the previous CTP and focused primarily on the development of an Expenditure Plan and Growth Management Program for the proposed Measure J, which was passed by the voters in November of 2004.

The 2009 CTP identifies the Authority's vision for Contra Costa, goals and strategies for achieving that vision, and future transportation priorities. The 2009 CTP builds on the analysis and recommendations of RTPCs—representing the eastern, western, central and southwestern parts of Contra Costa County—2009 Action Plan Updates.

The Action Plans have been updated from their 2000 versions and are in draft form at the time of the review of the Draft EIR. These updated Action Plans include a vision and goals for each sub-region, new or revised multi-modal transportation service objectives, actions to achieve those objectives, and responsibilities for implementing those actions.

The 2009 CTP is intended to help carry out the Authority's four goals:

- Enhance the movement of people and goods on highways and arterial roads;
- Manage the impacts of growth to sustain Contra Costa's economy and preserve its environment;
- Provide and expand safe, convenient and affordable alternatives to the single-occupant automobile; and

- Maintain the transportation system.

Measure C, which was passed by voters in 1988, established a half-percent sales tax to fund transportation improvements and establish a process for growth management and transportation planning. In 2004, the voters of Contra Costa approved Measure J, which extended the half-percent sales tax from 2009 through 2034; this extension will bring the total revenues of Measure C and Measure J to \$2.7 billion. Measure J will continue six of the eight requirements of the GMP first established by Measure C. The revised GMP deletes two requirements – 1) performance standards for public facilities and 2) fixed level-of-service (LOS) standards for non-regional routes – but adds the requirement for a voter-approved urban limit line. The requirement for local involvement in the development and implementation of Action Plans for Routes of Regional Significance is more clearly stated in Measure J. In addition, the flexible Traffic Service Objectives (TSOs) of Measure C are now called “multimodal transportation services objectives” or MTSOs.

Public Involvement

Public participation was facilitated for this environmental assessment primarily through issuance of a Notice of Preparation (NOP) on May 16, 2008. Additionally, a public scoping meeting was held on May 30, 2008, at the Authority offices in Pleasant Hill, California to solicit comments on the scope of the EIR. The Authority’s website (www.ccta.net) is also a means by which the Authority disseminates information. The website, together with the NOP and public hearing, are designed to ensure broad and inclusive public participation in the planning process.

Project Setting

The 2009 CTP, when adopted by the Authority, will apply throughout Contra Costa County, one of the nine counties that make up the San Francisco Bay Area. Located northeast of the City of San Francisco, the county is bounded on the west by the San Francisco and San Pablo Bays; on the north by the Carquinez Straight, Suisun Bay and Sacramento-San Joaquin River delta; on the east by San Joaquin County and the Central Valley; and on the south by Alameda County.

As of 2007, Contra Costa had a population of a little over one million, making it the third-most populous county in the Bay Area. According to Association of Bay Area Governments (ABAG) Projections 2005, by 2030, Contra Costa will grow to a population of 1.2 million and remain the third-most populous county in the region. Contra Costa will experience the most growth in East County, even though Central County will continue to have more households and employment.

Alternatives to the Project

This EIR analyzes four alternatives:

- No Project Alternative
- Alternative 1: Freeway Performance Initiative
- Alternative 2: Frequent Service Transit Network
- Alternative 3: Climate Change Alternative

NO PROJECT ALTERNATIVE

CEQA requires all EIRs to consider a No Project Alternative. The No Project alternative for this EIR includes a set of highway, transit, local roadway, bicycle, and pedestrian projects that are in advanced planning stages and slated to go forward since they already have full funding commitments. Specifically, this alternative includes projects that are:

- included in the adopted 2008 State Transportation Improvement Program (STIP);
- not yet in the STIP but are specifically named projects in the Measure J Expenditure Plan;
- included in the most recent Measure C and Measure J Strategic Plans; or
- within Contra Costa or the Tri-Valley that have specifically committed funding.

The “specifically named” projects include the Caldecott Tunnel Fourth Bore, State Route 4 East widening, eBART to Antioch, Capitol Corridor improvements at Martinez and Hercules, and the school bus program in San Ramon Valley. The Measure J Strategic Plan includes several phases of the State Route 4 Bypass, safety improvements on Vasco Road, and improvements to several interchanges, including I-680/SR 4, I-80/Central, I-80/San Pablo Dam Road, and SR 242/Clayton Road.

ALTERNATIVE 1: FREEWAY PERFORMANCE INITIATIVE (FPI)

This alternative uses the approach that MTC used in its Vision analysis (MTC, 2007). Called the “Freeway Performance Initiative” (FPI), this alternative assumes implementation of a variety of “intelligent transportation systems” (ITS) and operational improvements such as ramp metering, changeable message signs and variable speed limits. According to MTC and Caltrans, these improvements could result in an increase in freeway capacity of approximately eight percent.

The proposed Project already includes ITS on the I-80 corridor in West Contra Costa County through the Integrated Corridor Management (ICM) Project on that route. This alternative assumes implementation of an ICM project on all freeways within Contra Costa. The FPI alternative is modeled by increasing hourly freeway capacity on all freeways within Contra Costa by eight percent. This theoretical increase in freeway capacity only has a beneficial impact on freeway segments that are at or above capacity.

ALTERNATIVE 2: FREQUENT SERVICE TRANSIT NETWORK

This alternative uses the Frequent Service Transit Network (FSTN) that MTC developed in consultation with transit agency staff throughout the region. The FSTN focuses on an expanded HOV lane network and enhanced express bus service in the region.

Generally speaking, in addition to increasing transit frequency, this alternative would add HOV lanes, based on MTC's HOV Master Plan (MTC 2002). MTC is also proposing a HOT lane network, where SOVs could use the HOV lanes by paying a toll. Tolls for lanes would increase over time and would vary with congestion levels. The viability of HOT lanes is currently being analyzed by MTC. Because operating strategies will vary by time-of-day, roadway location and qualifying minimum occupancy of 2 or 3 persons, the proposal for HOT lanes is not analyzed here.

To increase the attractiveness of transit service, this alternative incorporates a Frequent Transit Service network in the travel model for analysis in this EIR. To do this, some transit routes in countywide model (which contains fixed-route transit routes and headways) were given a more frequent day-long headway of 15 minutes. While the actual routes in such a program may vary, this provides a tool by which to simulate the effects of running buses more frequently. Those routes assumed with enhanced day-long frequencies were County Connection Routes 107, 116, 121 and 115, as well as Tri-Delta Transit Route 391. Another key route, AC Transit Route 72R, was already operating at a headway of less than 15 minutes. Furthermore, this alternative adds HOV lanes on I-80, I-680, and SR4.

ALTERNATIVE 3: GREENHOUSE GAS REDUCTION ALTERNATIVE

This alternative incorporates measures to limit conditions that increase emissions of greenhouse gases (GHG) such as carbon dioxide (CO₂) and methane (CH₄). In June 2008, the Office of Planning and Research (OPR) released a "technical advisory" on CEQA and climate change. The advisory notes that:

Lead agencies should determine whether greenhouse gases may be generated by a proposed project, and if so, quantify or estimate the GHG emissions by type and source [and] must assess whether those emissions are individually or cumulatively significant. . . . If the lead agency determines that the GHG emissions from the project as proposed are potentially significant, it must investigate and implement ways to avoid, reduce, or otherwise mitigate the impacts of those emissions.

The California Attorney General's (AG) office has identified a long list of measures that lead agencies can take to reduce greenhouse gas emissions.¹ A subset of those measures applies to transportation projects. Several of the transportation measures identified by the Attorney

¹ The Attorney General published a document *The California Environmental Quality Act: Addressing Global Warming Impacts at the Local Agency Level*, updated May 21, 2008 and available at <http://ag.ca.gov/globalwarming/ceqa.php>

General's Office are already part of the Measure J Expenditure Plan, including funding intermodal stations, supporting school bus programs, funding bicycle and pedestrian facilities, and providing TDM support through the 511 Contra Costa program. Many of the Attorney General's additional measures fall outside the scope of the 2009 CTP either because they would apply to a more detailed level of design or would apply to different aspects of the environment, such as land use or water conservation, over which the Authority does not have control.

There are, however, a few additional measures that could apply to the 2009 CTP. One measure that is applicable – to “increase the cost of driving and parking private vehicles by, e.g., imposing tolls and parking fees” - forms the basis for this alternative. It is reflected in the Countywide Model by assuming higher parking costs in several commercial districts in the county. Specifically, these were added in the “downtown” sections of Richmond, El Cerrito, Walnut Creek, Concord, Pleasant Hill, Martinez, Pittsburg and Antioch. Another AG-suggested measure, an increase in tele-work, was reflected in the modeling for upper income workers and their response to forecast congestion, higher driving costs and improved communications technology. The Countywide Model contains four home-to-work trip purpose tables, which are stratified by household income. A reduction of seven percent was applied to the top two income category tables.

This approach is also consistent with the suggestions outlined in the recent update to the CTC's regional transportation guidelines, which were amended to address SB 375 and AB 32.² Suggestions made by the CTC, in addition to pricing, are already included in the 2009 CTP Project network, such as shifting more investment towards alternative modes, implementing operational efficiencies that reduce congestion, and including land-use requirements and performance measures (as found in the Measure J Growth Management Program and Action Plan framework).

Under this alternative, CCTA would also incorporate additional measures, based on the Attorney General's comments on RTPs, Draft EIRs on RTPs, and on General Plan policies related to GHGs and climate change. These measures include the following types of actions or commitments:

- Require the preparation of RTPC Climate Action Plans (the West County Action Plan already includes this commitment).
- Offer voluntary incentives (or funding priorities) for projects or programs that include a component for reducing GHG emissions. This might include incentives for replacement buses that are hybrid electric or maybe even buses with hydrogen fuel cells.

² The California Transportation Commission adopted *Addendum to the 2007 Regional Transportation Plan Guidelines: Addressing Climate Change and Greenhouse Gas Emissions During the RTP Process* on May 29, 2008.

- Adopt “green construction” policies and practices for Measure J funded work, modeled on the State’s requirements. These might include requirements for use of the lowest emitting construction equipment and fuels (e.g. diesel-powered vehicles with EPA Tier 3 or better engines or retrofitting to meet equivalent emission standards as Tier 3 engines).
- Promote use of light colored pavement for solar reflectivity and reduced heat island effects.
- Require shade tree planting as part of specified types of 2009 CTP construction projects or wherever Measure J-funded construction results in loss of tree cover (trees have a temporary carbon sequestration capacity depending on the life of the tree).
- Establish minimum standards for Measure J-funded or Authority-supported construction management, including specifying minimum content for recycled products in aggregate, concrete, etc. and construction waste management.³

Approach to the Study

The impact analysis in this EIR focuses on the impacts of the proposed 2009 CTP as a whole. The focus of this analysis is to address the impacts that, individually or in the aggregate, may be regionally significant.

Under CEQA, a program EIR should focus on the secondary effects that can be expected to follow its adoption, but need not be as detailed as an EIR on the specific construction projects that might follow (CEQA Guidelines, Section 15146). Therefore, the 2009 CTP EIR emphasizes countywide effects and general areas of environmental sensitivity. Detailed analysis of the specific impacts of the projects proposed in the 2009 CTP would be the responsibility of the agencies proposing or approving those projects. Therefore, projects listed in the proposed 2009 CTP will still need to comply with the requirements of CEQA, which may entail the preparation of a later EIR focused the specific impacts of that project. The determination of whether an EIR is needed, however, is the responsibility of the lead agency.

Key EIR Assumptions

To assess the effects of the proposed 2009 CTP, the analysis makes assumptions about future conditions in 2030 when the Plan would be fully implemented. Other key assumptions in the impact analysis include the following:

- The base year or existing conditions for the analysis is 2007. For comparisons where 2007 data are not available, the closest available year (typically 2006 or 2008) is used.

³ In a May 2007 letter, the AG mentioned the value of “warm mix” asphalt to reduce GHG emissions as a feasible alternative paving material, Alameda County also mentioned the value of requiring use of fly ash in concrete.

- ABAG's adopted Projections 2005 and Contra Costa's Land Use Information System (LUIS) form the basis for developing future baseline population and employment scenarios for the proposed Project. The land use projections reflect growth for the entire Bay Area and adjoining county through 2030.
- Forecast transportation demands on the multi-modal system are analyzed using the CCTA Countywide Travel Demand Forecasting Computer Model (the Countywide Model) which is consistent with MTC's Model.
- This analysis does not consider phasing of improvements or interim stages of the proposed 2009 CTP between 2008 and 2030 because the purpose of the analysis is to evaluate the Plan as a whole.

CUMULATIVE IMPACT ASSUMPTIONS

The term "cumulative impact", as defined in the CEQA Guidelines (Section 15355), "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Some impacts on the environment are not under the influence of the Agency and occur for reasons unrelated to its adoption and implementation of the 2009 CTP. The cumulative impact analysis focuses on the environmental effects that could result from implementation of the 2009 CTP, together with forecast land use changes. This cumulative analysis assumes that demographic forecasts, discussed in greater detail in the introduction to Chapter 2, would occur regardless of whether the proposed CTP projects are developed.

Where possible, this EIR distinguishes between the impacts of the 2009 CTP as a whole and the independent impacts of the region's forecast population and employment growth, which the projects and programs would serve. However, because the Authority cannot significantly affect regional growth, the transportation, air quality, greenhouse gases, noise, and energy analyses evaluate the effects of the proposed Project assuming projected population and employment growth. Cumulative impacts are analyzed in each issue area section, as well as in Chapter 3.2.

Project Impacts

As required by CEQA, this EIR identifies three types of impacts:

- Short-term impacts;
- Long-term impacts; and
- Cumulative impacts.

The EIR identifies temporary direct impacts that occur during the construction of proposed projects, longer-term direct impacts occurring from project development, and impacts of the 2009 CTP in conjunction with forecast growth within the Contra Costa and throughout the

Bay Area. Impacts are evaluated relative to existing conditions, as required by CEQA. Table S-1 summarizes the impact conclusions and recommended mitigation measures identified in this EIR. The impacts are organized by environmental impact area in the order in which they appear in Part Two. Most issue areas were found to have less than significant or mitigable impacts. The exceptions include construction related as well as cumulative noise impacts, impacts on visual resources, and the potential conversion of agricultural land. All potentially significant impacts are further described in Section 3.2 of this EIR.

Environmentally Superior Alternative

The CEQA Guidelines require each EIR to identify the environmentally superior alternative among the alternatives analyzed. If the No Project alternative is identified as the environmentally superior alternative, then the EIR must identify another alternative as environmentally superior among the alternatives analyzed. This CEQA analysis concludes that **Alternative 3, the Greenhouse Gas Reduction Alternative, is the environmentally superior alternative**, primarily because it provides environmental advantages, relative to the proposed Project, No Project and Alternatives 1 and 2 in the key issue areas of transportation, air quality, and greenhouse gas emissions. Also, it provides environmental advantages over the Project and Alternatives 1 and 2 in energy.

Alternatives 1, 2 and 3 would have similar level of impact on many issue areas, including biological resources, hydrology and water resources, visual resources, noise, cultural resources, and hazardous materials, with the FPI Alternative performing slightly less well. The only area in which the Greenhouse Gas Reduction Alternative did not provide environmental advantages was in land use, due to potential impacts on accessibility associated with increased costs, though its impacts related to the evaluated criteria were similar to the other alternatives. Given the potential for overall environmental advantages, the Greenhouse Gas Reduction Alternative is considered the environmentally superior alternative.

The proposed Project has similar outcomes to Alternatives 1, 2 and 3 in many issue areas, particularly those where the construction of projects is the primary indicator of impacts, such as in biology, hydrology, geology, and hazards. For many of the issue areas that are significantly affected by changes in the use of the transportation system, such as increases in VMT, decreases in congestion, etc, Alternatives 1, 2 and 3 would result in slightly less congestion and fewer VMT than the Project and so have preferred outcomes. This applies in particular to air quality, noise, greenhouse gases, and energy. The proposed Project offers environmental advantages over the No Project in transportation, air quality, noise, and climate change and greenhouse gases. It also offers environmental advantages over Alternative 3 in Land Use and Housing, and environmental advantages over the FPI Alternative in visual resources, noise, and cultural resources.

All of the alternatives are likely to meet most of the basic objectives of the proposed Project. There are, however, some important unanswered questions about the feasibility of the Greenhouse Gas Reduction Alternative. The Greenhouse Gas Reduction Alternative presumes

that CCTA has the authority to impose new pricing strategies, some of which are likely subject to legislative or voter approval. The Authority, however, may not have the authority to implement pricing strategies, or would need to rely on other agencies or new authority to do so. For those strategies that do require legislative or voter approval, an economic downturn may reduce public support for “taxing” schemes that intentionally raise the price of driving.

While all Alternatives would meet the basic goals of the CTP, there are tradeoffs among the various issue areas analyzed for the alternatives. The alternatives also would result in varying degrees of success at achieving the proposed Project objectives. For instance, the Freeway Performance Initiative Alternative is effective at reducing congestion during peak hours, whereas the Frequent Service Transit Network Alternative provides more convenient and affordable alternatives to single-occupant automobile use.

AREAS OF KNOWN CONTROVERSY

Areas of known controversy related to the proposed 2009 CTP and EIR include:

- Choosing the most appropriate and transparent approach to assessing and mitigating loss of farmlands at the program level;
- Determining the best analytical approach to evaluating greenhouse gas emissions and associated sea level risk impacts of the proposed Project, and the relationship between selected significance criteria, significance conclusions, and proposals for mitigation measures; and
- The relationship between the increased capacity of the transportation system and increased travel and land development. While “induced growth” is often used to describe both additional trip-making and additional land development, they are separate phenomena. Induced travel can be strictly defined as new trips that result from the creation of new roadways or transit facilities. For example, the widening of a congested freeway may encourage trips to shift from other roadways, encourage shifts from off-peak periods, and encourage people to make more trips overall (what Anthony Downs calls the “triple convergence”). The Authority’s Countywide Model reflects shifts in routes resulting from changes in capacity as well as changes in demand resulting from forecast development. Like most travel demand models, however, it does less well reflecting shifts in the timing of trips and does not estimate entirely new trips that are not based on demographic projections. One of the difficulties of estimating truly new trips is that, as forecasts show, the region will grow more quickly than increases in capacity and any new capacity will be “used up” by new growth and current rates of trip-making.

Economic theory and studies on the topic suggest that increases in transportation capacity do tend to encourage additional land development near the improved facility, whether roadway or transit. Studies have been less conclusive in determining whether

this additional development would have occurred even without the new transportation capacity. The Bay Area, like most regions, has a well-developed transportation system and the capacity increases being proposed will represent relatively small increases.

This EIR acknowledges and attempts to address these known controversies as reported during the NOP scoping period and on-going agency consultation. Other areas of controversy may emerge during public review of the Draft EIR.

Table S-1: Summary of Impacts and Mitigation

	<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
2.1	Transportation and Circulation			
2.1-1	An increase in vehicle miles traveled (VMT) at level-of-service (LOS) F would occur compared to the existing conditions.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None required	
2.1-2	Total vehicle hours traveled (VHT) would increase when compared to existing conditions.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None required	
2.1-3	Average systemwide vehicle speed decreases, compared to the existing conditions.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None required	
2.1-4	Transit mode share increases or stays essentially the same when compared to existing conditions.	Beneficial	None required	
2.1-5	Total number of vehicle trips increases, compared to existing conditions.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None required	
2.1-6	Transit ridership increases compared to existing condition.	Beneficial	None required	
2.2	Air Quality			
2.2-1	The construction of proposed projects in the 2009 CTP could result in significant short-term	Significant, but Mitigable	<i>Mitigation Measure 2.2-1</i> Where construction of proposed projects could	Less than Significant

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<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
direct impacts on air quality near construction sites.		<p>result in significant short-term direct impacts on air quality near construction sites, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with the BAAQMD approach and Caltrans' <i>Highway Design Manual</i> and, where appropriate, based on consultation with BAAQMD staff. Typical mitigation measures include:</p> <ul style="list-style-type: none"> <li data-bbox="1100 651 1629 1040">▪ Appropriate dust abatement programs as described in the BAAQMD approach, which calls for “basic” control measures that should be implemented at all construction sites, “enhanced” control measures that should be implemented at construction sites greater than four acres in area, and “optional” control measures that should be implemented on a case-by-case basis at construction sites that are large in area, located near sensitive receptors or which, for any other reason, may warrant additional emissions reductions (BAAQMD, 1999); <li data-bbox="1100 1065 1629 1305">▪ Use of Caltrans policies for dust abatement during construction at construction sites. There are far-reaching measures such as the use of special contract provisions to require that material, borrow and disposal sites as well as temporary haul roads be restored to a condition such that their potential as sources of blowing dust or other pollution is 	

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation
		no greater than that of their original condition. The checklist of on-site measures includes provisions for control measures such as planting, stabilizing emulsion, protective blankets or use of other control measures to prevent erosion; and <ul style="list-style-type: none"> ▪ Project sponsors of specific projects entailing the demolition of a building containing asbestos materials shall consult with BAAQMD staff concerning the specific requirements of Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing) of BAAQMD’s regulations. 	
2.2-2	Implementation of the 2009 CTP would not contribute considerably to the cumulative net increase in emissions of PM-10 and PM-2.5 when compared to existing conditions.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None Required
2.3 Energy			
2.3-1	Cumulative implementation of the 2009 CTP, combined with regional growth and State fuel efficiency standards, would result in increased energy consumption.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None Required
2.4 Geology and Seismicity			
2.4-1	Seismic events could damage proposed transportation infrastructure through surface rupture, ground shaking, liquefaction, landslides and tsunamis, causing impacts on property and public safety.	Significant, but Mitigable	<i>Mitigation Measure 2.4-1</i> Where seismic events could significantly affect a project, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental

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Impact	Significance	Mitigation Measures	Significance after Mitigation
		<p>review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with the California Building Code, Caltrans’ standards for construction, and the California Geological Survey Guidelines for Evaluation the Hazard of Earthquake Fault Rupture and, where appropriate, based on a review or investigation by a State licensed geotechnical professional. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Minimization of tsunami inundation hazards through designs to diminish wave inundation and associated damage. For example, precautionary measures such as specifying final foundation or roadbed elevations higher than the expected height of a tsunami with a given return frequency would be effective. 	
2.4-2	Highway and rail construction could require significant earthwork and road cuts, increasing the potential for short-term and long-term soil erosion and slope failure.	<p><i>Mitigation Measure 2.4-2</i></p> <p>Where highway and rail construction could require significant earthwork and road cuts that increase the potential for short term and long term soil erosion and slope failure, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with the California Building Code and Caltrans’ standards for construction, and, where appropriate, based on a review or investigation by a State licensed geotechnical professional. Typical mitigation measures include:</p>	Less than Significant

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation
2.4-3 Projects built on highly compressible or expansive soils could become damaged and weakened over time.	Significant, but Mitigable	<ul style="list-style-type: none"> ▪ Project designs shall provide adequate slope drainage and appropriate landscaping to minimize potential future occurrences of slope instability and erosion. Design features shall include measures to reduce erosion from storm water. Road cuts shall be designed to maximize the potential for revegetation. 	Less than Significant
2.5 Biological Resources			
2.5-1 Projects included in the 2009 CTP could	Significant, but	<i>Mitigation Measure 2.5-1</i>	Less than

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<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
adversely affect rare, threatened or endangered, candidate, sensitive, or other special-status species of plants and animals and their habitats, including potential interference with the movement of wildlife species.	Mitigable	<p>Where projects included in the 2009 CTP could adversely affect rare, threatened or endangered, candidate, sensitive, or other special-status species of plants and animals and their habitats, including potential interference with the movement of wildlife species, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures shall be consistent with federal, state, regional and local regulatory requirements, as discussed in the Regulatory Setting above. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Select alignments to avoid areas of resource sensitivity and to minimize the need for large areas of cut and fill that would remove vegetation and habitat; ▪ Avoid construction in aquatic habitats and control runoff so that litter, solvents, greases and other chemicals do not pollute these habitats. Keep disruption of soils within streambeds to a minimum and implement erosion controls around support pillars; ▪ Preserve existing and mature trees and snags as nesting and roosting habitat to the extent feasible, except when trees are diseased, over-aged, or otherwise constitute a hazard to persons or property; ▪ Conduct field surveys for rare and endangered plants, sensitive species, and 	Significant

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<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>nesting birds where suitable habitat exists. Such surveys provide critical information for assessing impacts and determining if effective mitigation is possible;</p> <ul style="list-style-type: none"> ▪ Protect rare and endangered animal species through controlling or eliminating development in primary habitat areas. Where wildlife habitat is disturbed, undertake relocation efforts where feasible; ▪ Where possible, avoid known animal movement corridors when designing new road and rail alignments, pedestrian/ bike paths, and other transportation facilities. Place pass-through-culverts under highways to allow wildlife movement; consider fencing to prevent wildlife from entering highways. Schedule construction activities to avoid disturbance to wildlife by implementing seasonal or circadian avoidance measures. Design lighting to be responsive to wildlife sensitivities; and ▪ Require appropriate erosion control measures in conjunction with new development to minimize wildlife habitat destruction. Stabilize cut-and-fill slopes and revegetate immediately following construction. Remove topsoil, stockpile and respread to preserve natural vegetation. To the extent possible, use native vegetation to landscape project sites and minimize the need for fertilizers and pesticides. Avoid introducing invasive species and monitor and 	

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
2.5-2	Projects included in the 2009 CTP could adversely affect wetlands and other aquatic resources.	Significant, but Mitigable	Less than Significant
		control weedy plants. Additional erosion control measures are detailed in Section 2.6 <i>Hydrology and Water Resources</i> , Mitigation Measure 2.6-2.	
		<p><i>Mitigation Measure 2.5-2</i></p> <p>Where projects could adversely affect wetlands and other aquatic resources, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Project proponents shall implement measures to avoid, minimize, and compensate for significant impacts on jurisdictional wetlands and other aquatic resources within or adjacent to the project area. Potential mitigation measures should be drawn from or be consistent with guidelines of the Corps, RWQCB, BCDC, and CDFG. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ In accordance with guidelines of the Corps, RWQCB, BCDC, and CDFG, a goal of “no net loss” of wetland acreage and value will be implemented, wherever possible, through avoidance of the resource; ▪ Wetlands and other aquatic resources in the project area shall be inventoried and project components sited to avoid and minimize direct and indirect impacts to wetlands and stream drainage channels; ▪ The number and area of stream channel and wetland crossings should be reduced, where feasible; 	

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>	
2.5-3	Projects included in the 2009 CTP could conflict with an approved Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	Less than Significant	None Required	
2.5-4	Projects included in the 2009 CTP could adversely impact riparian habitat or other sensitive natural communities.	Significant, but Mitigable	<p data-bbox="1100 862 1360 889"><i>Mitigation Measure 2.5-4</i></p> <p data-bbox="1100 894 1625 1166">Where projects could adversely affect riparian habitat or other sensitive natural communities, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with CDFG guidelines. Typical mitigation measures include:</p> <ul data-bbox="1100 1182 1625 1331" style="list-style-type: none"> <li data-bbox="1100 1182 1625 1331">▪ Conformance, where applicable, with the provisions of special area-management or restoration plans outlining specific measures to protect sensitive vegetation communities, including preserving habitats in their natural 	Less than Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
2.5-5 Projects included in the 2009 CTP could result in the removal of trees protected by local ordinances.	Significant, but Mitigable	state, respecting setback areas, and limiting the removal of trees and vegetation. <i>Mitigation Measure 2.5-5</i> Where projects could result in the removal of trees protected by local ordinances, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures should be drawn from or be consistent with Contra Costa County or City Ordinances. Typical mitigation measures include: <ul style="list-style-type: none"> ▪ Avoiding work activities within the drip-line of protected or designated heritage trees. In the event that it is infeasible to avoid the drip-line of protected or heritage trees, the project proponents shall apply for any applicable permits and comply with local City or County replacement mitigation guidelines for impacts on protected trees specified in the permits. 	Less than Significant
2.5-6 Implementation of the 2009 CTP combined with regional growth and development could contribute to cumulative impacts on special-status plant and animal species or wetlands, riparian habitat, and related resources.	Significant, but Mitigable	Where projects could contribute to cumulative impacts on special-status plant and animal species or wetlands, riparian habitat, and related resources, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA, as discussed in Mitigation Measures 2.5-1 through 2.5-5.	Less than Significant
2.6 Hydrology and Water Resources			
2.6-1 Construction of transportation improvements would increase impervious surface areas causing	Significant, but Mitigable	<i>Mitigation Measure 2.6-1</i> Where construction of transportation	Less than Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
an increase in storm water runoff volume and rate, nonpoint-source pollutant levels and decreased rates of groundwater recharge.		<p>improvements would increase impervious surface areas, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures should be drawn from or be consistent with Caltrans' design requirements, the Bay Area Stormwater Management Agencies Association's (BASMAA) Start at the Source Design Guidance Manual for Stormwater Quality Protection, and the California Storm Water Best Management Practice Handbook for New Development and Redevelopment. These measures may include:</p> <ul style="list-style-type: none"> ▪ Preservation of existing pervious surfaces to minimize the amount of storm runoff to the greatest extent possible; ▪ Incorporation of appropriate water pollution and storm water runoff control measures; ▪ Design projects to allow lateral transmission of storm water flows across transportation corridors with no increased risk of upstream flooding; and ▪ Culverts and bridges designed to adequately carry drainage waters through project sites. 	
2.6-2 Construction activities could result in erosion and cause subsequent sedimentation of storm water runoff, or introduce pollutants to runoff from the use of automotive fluids and hazardous materials.	Significant, but Mitigable	<p><i>Mitigation Measure 2.6-2</i> Where construction activities could result in erosion and cause subsequent sedimentation of storm water runoff or introduce pollutants to runoff from the use of automotive fluids and hazardous materials, sponsors shall consider</p>	Less than Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures should be drawn from or be consistent with the California Stormwater Quality Association (CASQA), Stormwater Best Management Practice Handbook for Construction, NPDES permit regulations, SWRCB NPDES General Construction Permitting for construction projects that incorporate over one acre, the Manual of Standards for Erosion and Sedimentation Control by the Association of Bay Area Governments, policies and recommendations of the local city or county urban runoff programs, and the recommendations of the applicable RWQCB. Under NPDES permit regulations, the project proponent would be required to prepare and implement a SWPPP, consistent with the above agencies, guidelines, programs and permits. Implementation of the SWPPP shall be enforced by inspecting agencies during the construction period. Typical elements of an SWPPP include:</p> <ul style="list-style-type: none"> ▪ Excavation and grading activities will be scheduled for the dry season only (April 15 to October 15), to the extent possible. This will reduce the chance of severe erosion from intense rainfall and surface runoff, as well as the potential for soil saturation in swale areas; ▪ If excavation occurs during the rainy season, 	

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>regulation of storm runoff from the construction area through a storm water management/erosion control plan that may include temporary onsite silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material will be covered and runoff diverted away from exposed soil material. If work is stopped due to rain, a positive grading away from slopes will be provided to carry the surface runoff to areas where flow can be controlled, such as the temporary silt basins. Sediment basin/traps will be located and operated to minimize the amount of offsite sediment transport. Any trapped sediment will be removed from the basin or trap and placed at a suitable location onsite, away from concentrated flows, or removed to an approved disposal site;</p> <ul style="list-style-type: none"> ▪ Use of temporary erosion control measures until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. For construction within 500 feet of a water body, straw bales will be placed upstream adjacent to the water body; ▪ After completion of grading, installation of erosion protection on all cut-and-fill slopes. Revegetation will be facilitated by mulching, hydroseeding, or other methods and should be initiated as soon as possible after completion of grading and prior to the onset 	

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation
2.6-3	Construction activities may discharge groundwater impacted with hazardous materials during dewatering.	<p>of the rainy season (by October 15);</p> <ul style="list-style-type: none"> ▪ Permanent revegetation/ landscaping that emphasizes drought-tolerant perennial ground coverings, shrubs, and trees to improve the probability of slope and soil stabilization without adverse impacts to slope stability due to irrigation infiltration and long-term root development; ▪ BMPs selected and implemented for the project will be in place and operational prior to the onset of major earthwork on the site. The construction phase facilities will be maintained regularly and cleared of accumulated sediment as necessary; and ▪ Storage of 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 will be readily available at all construction sites. Employees will be trained in spill prevention and cleanup, and individuals will be designated as responsible for prevention and cleanup activities. 	
2.6-4	Cumulative growth and development in the San Francisco Bay Area would result in additional vehicle usage in Contra Costa County, potentially increasing automobile-related pollutant levels in storm water runoff generated	None Required	

Table S-1: Summary of Impacts and Mitigation

	<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
	from county roads.			
2.6-5	Transportation facilities and programs constructed or operating in flood-prone areas may subject people or structures to flood hazards, or could serve to redirect flood flows.	Less than Significant	None required	
2.7	Visual Resources			
2.7-1	Construction of new transportation projects in the 2009 CTP could affect visual resources in Contra Costa during construction.	Significant but Mitigable	<p><i>Mitigation Measure 2.7-1</i></p> <p>Where new transportation projects could affect visual resources during construction, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with Caltrans' standards for construction. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Minimize the visibility of construction staging areas where possible; use fencing and screening materials that are low contrast and consistent with the surrounding landscape; and ▪ Revegetate graded slopes and exposed earth surfaces at the earliest opportunity. 	Less than Significant
2.7-2	Construction or expansion of certain transportation projects included in the 2009 CTP could adversely alter views in the County over the long-term by adding incongruous elements to the existing landscape, thereby blocking view or altering the scale, character, and quality of rural or open space areas, important vistas along roadways, and urban communities.	Significant, Unavoidable	<p><i>Mitigation Measure 2.7-2</i></p> <p>Where construction or expansion of transportation projects could adversely alter views over the long-term, sponsors shall consider measures to minimize or eliminate significant visual impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures</p>	Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>could be drawn from or be consistent with Caltrans' standards for construction. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Design projects to minimize contrast in scale and massing between the project and surrounding natural forms and urban development; ▪ Site or design projects to minimize their intrusion into important view sheds; ▪ Use natural landscaping to minimize contrasts between the projects and existing natural and human-made features. Wherever possible, develop interchanges and transit lines at the grade of the surrounding land to limit view blockage. Contour the edges of major cut and fill slopes to provide a more natural looking finished profile; ▪ Design landscaping along highway corridors to add significant natural elements and visual interest to soften the hard edges and linear travel experience that would otherwise occur; and ▪ 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. 	

Table S-1: Summary of Impacts and Mitigation

	<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
2.7-3	The construction of soundwalls along arterials proposed in the 2009 CTP could significantly alter views.	Significant, but Mitigable	<p><i>Mitigation Measure 2.7-3</i></p> <p>Where construction of soundwalls could significantly alter views, sponsors shall consider measures to minimize or eliminate significant visual impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with Caltrans' standards for construction. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Develop new or expanded roadways below the grade of surrounding areas to minimize the need for tall soundwalls; ▪ Use transparent panels to preserve views where soundwalls would block views from residences; ▪ Use landscaped earth berm or a combination wall and berm to minimize the apparent soundwall height; ▪ Construct soundwalls of materials whose color and texture complements the surrounding landscape and development; ▪ Design soundwalls to increase visual interest, reduce apparent height, and be visually compatible with the surrounding area; and ▪ Landscape the soundwalls with plants that screen the soundwall, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas. 	Less than Significant

Table S-1: Summary of Impacts and Mitigation

	<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
2.7-4	The impact of 2009 CTP projects in conjunction with regional population growth and urban development could have a cumulatively significant impact on visual resources.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	None Required.	
2.8	<i>Noise</i>			
2.8-1	Construction of the projects proposed in the 2009 CTP would have short-term noise impacts on surrounding areas.	Significant, Unavoidable	<p><i>Mitigation Measure 2.8-1</i></p> <p>Where construction of the projects would have short-term noise impacts on surrounding areas, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with Caltrans' standards for construction, and shall be consistent with federal, state, regional and local regulatory requirements, as discussed in the Regulatory Setting above. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Requiring mufflers on heavy construction equipment; ▪ Specifying time restrictions consistent with local noise ordinances and with the activities of sensitive land uses in the vicinity. It is noted that limitations on allowable hours for construction could also result in significant adverse impacts on traffic movement if construction is limited to the daylight hours and prohibited during nighttime hours. Project level analysis will determine the level of mitigation; 	Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<ul style="list-style-type: none"> ▪ Using equipment and trucks for project construction with the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible); ▪ Use of hydraulically or electrically powered impact tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment whenever feasible; ▪ Locating stationary noise sources as far from sensitive receptors as possible, and they shall: be muffled and enclosed within temporary sheds; incorporate insulation barriers; or apply other measures to the extent feasible; ▪ To reduce the potential for noise impacts from pile driving, use of alternate methods of driving, if feasible. Alternate measures may 	

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>include pre-drilling of piles or the use of more than one pile driver to lessen the total time required for driving piles;</p> <ul style="list-style-type: none"> ▪ Erect temporary plywood noise barriers around the entire construction site if necessary to buffer noise from sensitive land uses; ▪ Use noise control blankets on any structure as it is erected to reduce noise emission from the site where applicable; ▪ Evaluate the feasibility of noise control at the receivers (i.e., nearby sensitive receptors such as residences, schools, hospitals, etc.) by temporarily improving the noise reduction capability of adjacent buildings; ▪ Monitor the effectiveness of noise attenuation measures with noise measurements; and ▪ Establish a process for responding to and tracking complaints pertaining to construction noise with the following components: <ul style="list-style-type: none"> ▪ A procedure for notifying local jurisdictions, sheriff and/or police department staff, and building division staff throughout Contra Costa; ▪ A plan for posting signs on-site pertaining to permitted construction days and hours and complaint procedures and who to notify in 	

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		the event of a problem; <ul style="list-style-type: none"> ▪ A listing of telephone numbers (during regular construction hours and off-hours); ▪ The designation of a construction complaint manger for the project; and ▪ Notify neighbors within 300 feet of the project construction area at least 30 days in advance of pile-driving activities about the estimated duration of the activity. 	
2.8-2 Transportation improvements proposed as part of the 2009 CTP could result in noise levels that approach or exceed the FHWA and FTA Noise Abatement Criteria or could cause noise levels to increase by 3 dBA or more when compared to existing conditions.	Significant, but Mitigable	<p><i>Mitigation Measure 2.8-2</i></p> <p>Where transportation improvements could result in noise levels that approach or exceed the FHWA and FTA Noise Abatement Criteria or could cause noise levels to increase by 3 dBA or more, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with Caltrans' standards for construction. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Adjustments to proposed roadway or transit alignments to reduce noise levels in noise sensitive areas; ▪ Construction of sound walls adjacent to new or modified roads or transit lines, especially when projects are located in the vicinity of sensitive receptors. Noise level increases could, in most cases, be mitigated to levels at 	Less than Significant

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation	
2.8-3	Transportation improvements proposed as part	Cumulatively	Mitigation measures 2.8-1 and 2.8-2, as listed	Significant

- or below existing levels if soundwalls were constructed along the rights-of-way. A determination of the specific heights, lengths and feasibility of soundwalls must be part of the project-level environmental assessment;
- Adjustments to proposed roadway or transit alignment to reduce noise levels in noise sensitive areas. Depressed roadway alignments are effective at mitigating roadside noise levels;
- Insulation of buildings or construction of noise barriers around sensitive receptors;
- Vibration isolation of track segments; and
- Adoption of policies and development standards by local jurisdictions that reduce the exposure of sensitive receptors to noise generated by new or expanded transportation facilities, if they have not already done so in their General Plan Noise Elements and implementing ordinances. Such policies and standards may include noise attenuation by design when residential, educational, and other sensitive uses are to be developed near major transportation facilities or corridors. Locally-adopted noise reduction standards should correspond with the best guidance available from Caltrans and other responsible agencies, without thwarting efforts to create transit-oriented and affordable development.

Table S-1: Summary of Impacts and Mitigation

	<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
	of the 2009 CTP together with regional growth and development could contribute to cumulative noise levels.	Significant, Project Contribution Cumulatively Considerable	above, would contribute to reducing the cumulative impact. However, these mitigation measures, are not assumed to fully reduce the potentially significant cumulative noise to a less-than-significant level due to the uncertainty of the cumulative future noise environment, the localized nature of noise impacts, and community perceptions of noise.	
2.9	<i>Cultural Resources</i>			
2.9-1	Construction of new transportation projects supported by the 2009 CTP has the potential to adversely affect archaeological or paleontological resources or buried human remains through damage or destruction of those resources.	Significant, but Mitigable	<p><i>Mitigation Measure 2.9-1</i></p> <p>Where construction of new transportation projects has the potential to adversely affect archaeological or paleontological resources or buried human remains through damage or destruction of those resources, sponsors shall consider measures to minimize or eliminate significant paleontological and archeological resource impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with review or investigation by the Native American Heritage Commission where appropriate. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Preparation of a research design and testing plan in advance of implementation of the construction of the project, in order to efficiently facilitate the avoidance of cultural sites all together; ▪ Preservation in place. This is the preferred manner of mitigating impacts to archeological sites because it maintains the relationship 	Less than Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>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 projects using open space or undeveloped lands. This may also be achieved by following procedures for capping the site underneath a paved area; and</p> <ul style="list-style-type: none"> ▪ When avoiding and preserving in place are infeasible, a data recovery plan may be prepared according to CEQA 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. 	
<p>2.9-2 Construction of new transportation projects supported by the 2009 CTP has the potential to adversely affect historic architectural resources through demolition or significant changes to the historical setting.</p>	<p>Significant, but Mitigable</p>	<p><i>Mitigation Measure 2.9-2</i> Where construction of new transportation projects supported by the 2009 CTP has the potential to adversely affect historic architectural resources through demolition or significant changes to the historical setting, sponsors shall consider measures to minimize or eliminate significant historic resource impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential</p>	<p>Less than Significant</p>

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>	
		<p>mitigation measures could be drawn from or be consistent with State, federal, or local historic preservation criteria, the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings and Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ 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; and ▪ The treatment of identified historic resources in accordance with either the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. 		
2.10	Hazardous Materials			
2.10-1	<p>Hazardous materials used during construction and operation of the 2009 CTP, such as petroleum products, fuels, spent oil, and solvents, could 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><i>Mitigation Measure 2.10-1</i> Where hazardous materials used during construction and operation of the 2009 CTP could be released to the environment through improper handling or storage and expose humans and the environment to potentially hazardous conditions, sponsors shall consider measures to</p>	<p>Less than Significant</p>

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures shall be consistent with federal, state, regional and local regulatory requirements, as discussed in the Regulatory Setting above. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Utilization of construction best management practices that are typically implemented as part of construction. The use of construction best management practices would minimize the potential negative effects on groundwater and soils. Best management practices could include the following: ▪ Follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction; ▪ Avoid overtopping construction equipment fuel gas tanks; and ▪ During routine maintenance of construction equipment, properly contain and remove grease and oils; ▪ In the event of an inadvertent release of hazardous materials during project operations, cleanup shall occur in accordance with all applicable regulatory requirements; and ▪ Spent oil and other solvents used during maintenance of transportation facilities and 	

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
2.10-2	Disturbance of impacted soils or groundwater during project construction and excavation work could expose construction workers, the public, or the environment to hazardous conditions.	Significant, but Mitigable	Less than Significant
		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.	
		<p><i>Mitigation Measure 2.10-2</i> Where disturbance of impacted soils or groundwater during project construction and excavation work could expose construction workers, the public, or the environment to hazardous conditions, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures shall be consistent with federal, state, regional and local regulatory requirements, as discussed in the Regulatory Setting above. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Preparation and implementation of a soil sampling plan along construction corridors to determine the presence or absence of soil contamination. If soil contamination is found, the contaminated soil shall be removed and disposed of in accordance with all applicable regulatory requirements; ▪ In the event that soil contamination is encountered, project sponsors shall require that one competent professional with HAZWOPER (OSHA Hazardous Waste Operations and Emergency Response 	

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation
2.10-3 Disturbance of structural and building components (i.e., asbestos, lead, PCBs, and PAHs) could expose construction workers, the public, or the environment to hazardous conditions.	Significant, but Mitigable	<p>Standard) training is onsite at all times during construction phases to perform soil analyses. All construction shall cease until the contaminated soil is reused or removed and disposed of in accordance with all applicable regulatory requirements. A competent professional shall collect verification soil samples to ensure complete removal of contaminated soil; and</p> <ul style="list-style-type: none"> ▪ If any underground storage tanks are discovered during construction, all construction in the immediate area shall stop until the UST is removed under the guidance of the Contra Costa Environmental Health (CCEH) or other regulatory agency. If required by the regulatory agency, removal may include the over-excavation and disposal of any impacted soil that may be associated with such tanks to a degree considered sufficient by the CCEH. 	Less than Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
<i>2.11 Land Use and Housing</i>	Significant Unavoidable	include: <ul style="list-style-type: none"> ▪ Prior to the demolition of any building, a pre-demolition asbestos containing material (ACM) and lead-based paint (LBP) survey shall be performed by the project proponent. Abatement of known or suspected ACMs and loose or peeling LBP shall occur prior to demolition or construction activities that would disturb those materials; and ▪ In the event that PCB-containing materials are identified prior to demolition activities they shall be removed, and shall be disposed of by a licensed transportation and disposal facility in Class I hazardous waste landfill cells. 	Significant
2.11-1 The construction of new or expanded transportation facilities in the 2009 CTP could result in the conversion of important agricultural lands to transportation uses.	Significant Unavoidable	<i>Mitigation Measure 2.11-1</i> Where construction of new or expanded transportation facilities could result in the conversion of important agricultural lands to transportation uses, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Typical mitigation measures include: <ul style="list-style-type: none"> ▪ Corridor realignment, where feasible, to avoid agricultural land areas; ▪ Conservation easements on land at least equal in quality and size as partial compensation for the direct loss of agricultural land; 	Significant

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<ul style="list-style-type: none"> ▪ Buffer zones and setbacks to protect the functional aspects of agricultural land areas; and ▪ Berms and fencing to reduce conflicts between transportation uses and agricultural land uses. 	
2.11-2 Construction-related activities associated with projects comprising the 2009 CTP are likely to cause short-term disruption of adjoining land uses.	Significant, but Mitigable	<p><i>Mitigation Measure 2.11-2</i> Where construction-related activities are likely to cause short-term disruption of adjoining land uses, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Regulate construction operations on existing facilities to minimize traffic disruptions and detours, and to maintain safe traffic operations; ▪ Ensure construction operations are limited to regular business hours where feasible; and ▪ Control construction dust and noise. 	Less than Significant
2.11-3 The construction of new or expanded transportation projects in the 2009 CTP could result in long-term division or displacement of existing housing, businesses, and neighborhoods.	Significant, but Mitigable	<p><i>Mitigation Measure 2.11-3</i> Where construction of new or expanded transportation projects could result in long-term division or displacement of existing housing, businesses, and neighborhoods, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Typical mitigation measures include:</p>	Less than Significant

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation	
		<ul style="list-style-type: none"> ▪ Preparation and execution of relocation assistance plans. At a minimum, relocation assistance plans will include: ▪ Criteria for replacement housing; ▪ Reimbursement levels for moving costs and differential housing costs to those eligible for displacement; ▪ Construction schedules that allow adequate time for all commercial and industrial businesses to find and relocate to adequate substitute sites; and ▪ 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. ▪ Corridor realignment should be considered by the project sponsor, where feasible, to avoid displacement and division of neighborhoods, and to maintain or improve accessibility. 		
<p>2.12 Global Warming and Greenhouse Gases</p>				
2.12-1	Implementation of the 2009 CTP, combined with forecast countywide growth, would contribute to GHG emissions.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	<p><i>Mitigation Measure 2.12-1</i></p> <p>Where projects could contribute to GHG emissions, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be</p>	Not Cumulatively Considerable

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>consistent with the Global Warming Measures published by the Attorney General’s Office, the Bay Area Regional Agency Climate Protection Program – Consolidated Recommendations, other guidance from State and federal agencies or similar policy guidance. Typical mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Adopt and implement “green building” practices for any public buildings funded by CCTA to achieve a LEED™ Silver or better or equivalent certification; ▪ Adopt “green construction” policies and practices for all CCTA- funded projects, These should include but not be limited to requirements for use of the lowest emitting construction equipment and fuels (e.g. diesel-powered vehicles with EPA Tier 3 or better engines or retrofitting to meet equivalent emission standards as Tier 3 engines); ▪ Require use of light colored pavement for solar reflectivity and reduced heat island effects wherever construction costs are no higher than 5 or 10 percent of the least cost alternative paving material; ▪ Require installation of solar photovoltaic systems or use of renewable sources of energy for transportation buildings and maintenance facilities, wherever “feasible”, as the term is defined in CEQA; ▪ Require shade tree planting as part of specified types of construction projects or 	

Table S-1: Summary of Impacts and Mitigation

Impact	Significance	Mitigation Measures	Significance after Mitigation
		wherever CCTA-funded construction results in loss of tree cover because trees have " carbon sequestration capacity; <ul style="list-style-type: none"> ▪ Establish or update minimum standards for construction management for CCTA-funded transportation projects, including specifying minimum content for recycled products in aggregate, concrete, etc. and construction waste management;⁴ ▪ Establish standards or incentives for light pollution reduction related to street lighting and lighting of transportation and parking facilities funded by CCTA to promote low-energy use for permanent as well as temporary fixtures. 	
2.12-2 Implementation of the 2009 CTP projects would have the potential to result in a significant cumulative increase in exposure to a risk related to sea level rise.	Significant Cumulative Impact, Project Contribution Not Cumulatively Considerable	<i>Mitigation Measure 2.12-2</i> Where projects could have the potential to result in a significant cumulative increase in exposure to a risk related to sea level rise, sponsors shall consider measures to minimize or eliminate impacts as part of the design of the project and its environmental review under CEQA and NEPA. Potential mitigation measures could be drawn from or be consistent with the Global Warming Measures published by the Attorney General’s Office, the Bay Area Regional Agency Climate Protection Program – Consolidated Recommendations, other guidance from State and federal agencies or similar policy	Not Cumulatively Considerable

⁴ In a May 2007 letter, for example, the AG mentioned the value of “warm mix” asphalt to reduce GHG emissions as a feasible alternative paving material, Alameda County also has noted the value of requiring use of fly ash in concrete in its Green Building guidance materials.

Table S-1: Summary of Impacts and Mitigation

<i>Impact</i>	<i>Significance</i>	<i>Mitigation Measures</i>	<i>Significance after Mitigation</i>
		<p>guidance. Typical mitigation measures include:</p> <ul style="list-style-type: none"> <li data-bbox="1100 342 1633 643">▪ To determine the likely impacts of sea level rise on transportation infrastructure and to identify the appropriate adaption strategies to reduce or avoid these impacts, conduct a vulnerability assessment for the transportation infrastructure projects and identify the appropriate adaptation strategies to protect those transportation resources that are likely to be affected and are a priority to protect; <li data-bbox="1100 667 1633 902">▪ Consider sea level rise and potential increases in storm surge inundation in engineering designs, and incorporate mitigation measures where applicable. These mitigation measures should consider the effects on Bay resources and avoid or reduce future risk to the infrastructure and adjoining areas; and <li data-bbox="1100 927 1633 1292">▪ For those transportation projects that do not involve new infrastructure but rather invest in increasing capacity of existing infrastructure, demonstrate that they have investigated the vulnerability of their existing facilities to sea level rise and storm surge inundation and are budgeting for mitigation measures to adapt to projected sea level rise and storm surge. These mitigation measures should consider the effects on Bay resources and avoid or reduce future risk to the infrastructure and the region. 	

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