Chapter 4 California Environmental Quality Act (CEQA) Evaluation

4.1 Determining Significance under the California Environmental Quality Act

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (U.S.C.) 327. Caltrans is the lead agency under CEQA and NEPA.

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

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

under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

4.2 Effects of the Proposed Project

The significance of the potential impacts of the build alternatives under CEQA was assessed based on the CEQA Environmental Checklist provided in Appendix A and the analyses of project impacts discussed in detail in Chapter 3, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures. The impacts of the build alternatives are summarized in the following sections, including the identification of the level of significance of the potential adverse effects under CEQA. This section discusses the impacts of Alternatives 2 and 3. For a discussion of the impacts of the No Build Alternative, refer to Chapter 3.

Because the significance discussion is organized by level of impact, starting with No Impact and concluding with Significant Effects, and because the CEQA Environmental Checklist asks about a variety of subjects for each environmental topic, environmental topics may be discussed in more than one level of significance discussion. For example, the discussion on Aesthetics appears in both the No Impact discussion as it relates to effects on scenic vistas and under the Less Than Significant Effects discussion as it relates to new sources of light or glare. To better help the reader, the specific CEQA Environmental Checklist questions that are addressed in the discussion are referenced below each heading for each environmental topic.

Lastly, the discussion on greenhouse gas (GHG) emissions and global climate change is discussed in detail later in Section 4.2.7, Climate Change. While Caltrans has included this good-faith effort to provide the public and decision makers with as much information as possible about the project, it is Caltrans' determination that, in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change (see Section 4.2.7, Climate Change, and Appendix A, Section VII, Greenhouse Gas Emissions). Caltrans does remain firmly committed to implementing measures to help reduce the potential GHG effects of the project, as described in the measures outlined in Section 4.2.7, Climate Change.

4.2.1 No Effects

As indicated in Chapter 3 (Section 3.0) and the CEQA Environmental Checklist in Appendix A, the proposed build alternatives would not impact the following environmental resources: timberlands (forest land), coastal zone, wild and scenic rivers, and mineral resources. The proposed project would have no impacts on these resources due to the absence of these resources from the project area; therefore, no avoidance, minimization, and/or mitigation measures are required for these topics. No further discussion of these environmental resources is provided in this chapter.

4.2.1.1 Aesthetics Questions a):

As described in Section 3.1.7, Visual/Aesthetics, the project is located within an urbanized area that is primarily built out. None of the affected roadways are designated scenic highways, and there are no scenic vistas within the project area. There is no potential for the build alternatives to result in an adverse effect on a scenic vista or to substantially damage scenic resources within a State scenic highway.

4.2.1.2 Agriculture and Forest Resources Questions c) and d):

As described in Section 3.1.3, Farmlands/Timberlands, the build alternatives would not result in conversion of forest/timberland or loss of forest land.

4.2.1.3 Biological Resources Checklist Questions c) and f):

As discussed in Section 3.3, Biological Resources, there are no wetlands as defined by Section 404 of the Clean Water Act (CWA) within the Biological Study Area (BSA). In addition, there are no habitat conservation plans within the BSA that would apply to the project.

4.2.1.4 Hazards and Hazardous Material Checklist Questions f) and h):

The project is located within an urbanized freeway corridor that is not adjacent to wild lands and is not within the vicinity of a private airstrip.

4.2.1.5 Hydrology and Water Quality Checklist Questions g), i), and j):

As described in Section 3.2.1, Hydrology and Floodplains, the proposed project is a transportation improvement project, and it does not place housing or modify floodplains that would result in housing being in a 100-year floodplain and would not expose people or structures to a significant loss, injury, or death involving flooding. The project area is not located within an area susceptible to inundation by seiche, tsunami, or mudflow.

4.2.1.6 Land Use and Planning Checklist Question c):

As described in Section 3.3, Biological Environment, there are no habitat or natural community conservation plans within the project area.

4.2.1.7 Mineral Resources Checklist Questions a) and b):

The project is located in an urbanized transportation corridor. There are no known mineral resources or locally important mineral resource recovery sites designated on local, general, or specific plans, or other land use plans within the project area.

4.2.1.8 Noise Checklist Questions e) and f):

The project is located within the Ontario International Airport influence areas. However, the proposed project is a transportation project within an urbanized transportation corridor designed to enhance public safety and relieve congestion. The build alternatives' proposed improvements would not expose people residing or working in the area to excessive aircraft noise.

4.2.1.9 Recreation Checklist Questions a) and b):

As described in Section 3.1.2, Growth, the proposed project's improvements are not intended or anticipated to induce any substantial direct or indirect change in the location, distribution, amount, or rate of growth in the project area, county, or region. The project does not include the construction of and would not increase the use of existing neighborhood or regional parks or recreational facilities. The proposed project is a transportation project within an urbanized transportation corridor, designed to enhance public safety and relieve congestion.

4.2.1.10 Transportation/Traffic Checklist Question c):

The proposed project would widen Interstate 10 (I-10) within the vicinity of the LA/Ontario International Airport. The build alternatives would not result in change to air traffic patterns.

4.2.1.11 Utilities and Service Systems Checklist Questions a), b), e), and g):

The proposed project is a transportation project within an urbanized transportation corridor, designed to enhance public safety and relieve congestion. All stormwater within the State's right-of-way (ROW) will not require treatment by or the expansion/ reconstruction of wastewater treatment facilities or require a determination from a treatment provider to verify capacity. All construction debris will be characterized and recycled or disposed of at licensed solid waste disposal facilities in accordance with federal, State, and local statutes and regulations.

4.2.2 Less than Significant Effects of the Proposed Project

Based on the CEQA Environmental Checklist in Appendix A and the analyses in Chapter 3, the build alternatives are anticipated to result in less than significant impacts related to the environmental resources discussed below. No measures are required for these impacts; however, where feasible, additional measures have been identified to further reduce project effects, as applicable:

4.2.2.1 Agriculture and Forest Resources Checklist Questions a), b), and e):

As described in Section 3.1.3, Farmlands/Timberlands, Alternative 2 would not result in the current or future conversion of any Prime, Unique, or Important Farmland, or result in direct or indirect zoning changes to Prime, Unique, or Important Farmland designated by the California Resources Agency in the Farmland Mapping and Monitoring Program (FMMP). Although Alternative 3 would require minor partial acquisitions of designated grazing land in Ontario, the land is not currently occupied by any grazing animals, and there is no sign that any of the parcels have been used for grazing or other agricultural purposes in recent years. In addition, the site is zoned as Office/Commercial in the Guasti Plaza Specific Plan Land Use Map, adopted by the City of Ontario in May 2011. Conversion of agricultural land to transportation use is also required in Redlands; however, the area required for conversion is minimal (105 square feet) and most of the parcels would continue to be used for agricultural uses.

4.2.2.2 Air Quality Checklist Question a) – e):

Consistency with Air Quality Management Plans

A consistency analysis determination plays an essential role in local agency project review by linking local planning and unique individual projects to the Air Quality Management Plan (AQMP) in the following ways: it fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the proposed project under consideration at a stage early enough to ensure that air quality concerns are fully addressed, and it provides the local agency with ongoing information, assuring local decision makers that they are making real contributions to clean air goals defined in the most current AQMP (adopted 2012). Because the AQMP is based on projections from local General Plans, projects that are consistent with the local General Plan are generally considered consistent with the AQMP.

The overall control strategy for the 2012 AQMP is designed to meet applicable federal and State requirements, including attainment of ambient air quality standards. The focus of the 2012 AQMP is to demonstrate attainment of the federal 2006 24-

hour particulate matter less than 2.5 microns in diameter (PM2.5) ambient air quality standard, as well as an update to further define measures to meet the federal and State 8-hour ozone (O3) standards. The attainment demonstration for the recent 8-hour O3 standard (75 parts per billion [ppb]) will be addressed in the next O3 plan.

The 2012 AQMP provides base year emissions and future baseline emission projections. In doing so, the 2012 AQMP relies on the most recent zoning and land use designations and the best available information, including the California Air Resources Board's latest emission factors for the on-road mobile source emissions inventory, latest in-use fleet inventory for the off-road mobile source emission inventory, latest point source inventory, updated area source inventories, and the Southern California Association of Government's (SCAG) forecast growth assumptions based on its recent 2012-2035 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). The baseline emission projections provide a snapshot of the future air quality conditions, including the effects from already adopted rules and regulations.

On September 11, 2014, the SCAG Regional Council approved Amendment #2 to the 2012- 2035 RTP/SCS after a 30-day public review and comment period. Amendment #2 was developed as a response to changes to projects in the 2012-2035 RTP/SCS but also includes the complete list of modeled projects. The 2012-2035 RTP/SCS includes both Alternatives 2 and 3. Alternative 2 is identified by RTP ID 4H01001 and is described as "I-10 HOV Lane Addition – from Haven (Ontario) to Ford Street (Redlands) – Widening from 8-10 lanes, aux lanes widening, undercrossing, and reconstruction of ramps where needed." Alternative 3 is identified by RTP IDs 4122004 and 4122005 and is described as "I-10 Express Lane Addition from Garey Avenue to the Ford Street Undercrossing – Express Lane widening to implement two (2) express lanes in each direction for a total of 12 lanes including auxiliary lane widening, undercrossings, overcrossings, and reconstruction of ramps where needed." Alternatives 2 and 3 are included in the 2012-2035 RTP/SCS; therefore, the proposed project would be consistent with the 2012 AQMP.

Air Quality Standards and Pollutant Concentrations

The regional emissions analysis contained in Section 3.2.6 includes existing conditions/baseline emissions 2025 and 2045 Build Alternative emissions. Build Alternative emissions would be less than existing conditions for all pollutants, except for $PM_{2.5}$ and PM_{10} in 2045 (see Tables 3.2.6-6 through 3.2.6-8).

As stated above, the Build Alternatives would be consistent with the AQMP and are included in the 2012-2035 RTP/SCS attainment demonstration. Therefore, despite the increase in emissions for the criteria pollutant particulate matter, the Build Alternatives would not result in a significant impact.

A detailed discussion of mobile source air toxic (MSAT) emissions is included in Section 3.2.6, Air Quality. Emissions were estimated by calculating emission factors using CT-EMFAC and applying the emission factors to speed and VMT data. Table 3.2.6-9 shows that MSAT emissions would decrease when comparing 2025 and 2045 Build Alternatives to existing conditions. Therefore, MSAT concentrations would result in a less than significant impact. Refer to Section 3.2.6 for a detailed discussion of diesel particulate matter.

Cumulative Emissions

Refer to Section 3.6 for a discussion of cumulative emissions.

Odors

Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases. Construction emissions would be temporary and limited to the immediate area surrounding the construction site and would not have a significant effect on sensitive receptors, as discussed in Section 3.2.6, Air Quality. Measures AQ-1 through AQ-21 would minimize construction emissions and potential effects on adjacent sensitive receptors. The construction emission effects of the build alternatives on air quality would be less than significant.

4.2.2.3 Biological Resources Checklist Questions d) and e):

As discussed in Section 3.3, Biological Resources, the Santa Ana River is considered a wildlife corridor within the project area. The use of the Santa Ana River as a wildlife crossing is considered to be constrained because of degradation due to urban development and the existing concrete-lined channel. Construction of additional bridge structures in the channelized Santa Ana River would be required, and impacts to this wildlife crossing are less than significant.

There are no known local policies or ordinances protecting biological resources within the project area or habitat conservation plans, natural community plans, or other approved local, regional, or State conservation plans applicable to the project area. The build alternatives would not conflict with and would have no effect on

local, State, or regional conservation policies, ordinances, or plans protecting biological resources. Tree removal would be necessary to construct the build alternatives and would be replaced in accordance with local ordinances.

4.2.2.4 Cultural Resources Checklist Questions b) and d):

As described in Section 3.1.8, Cultural Resources, the Curtis Homestead (CA-SBR-12989H) was identified as the only historic archaeological site within the project area of potential effects (APE). Impacts to this resource would be less than significant under Alternative 3; however, as an additional measure, this site would be delineated as an environmentally sensitive area (ESA) by a qualified archaeologist.

No sites with human remains have been identified within the project area, and the likelihood of encountering one of these sites is low. Although considered unlikely, a potential exists to encounter human remains during ground-disturbing activities; however, the type of construction planned in these locations does not propose disturbing intact native sediments below fill. Currently, no such sites would be impacted. With the implementation of avoidance, minimization, and/or mitigation measures, the potential project effects of the build alternatives would be further minimized.

4.2.2.5 Geology and Soils Checklist Questions a) – e)

As described in Section 3.2.3, Geology/Soils/Seismic/Topography, the build alternatives are not located in a fault zone; however, geophysical investigations conducted at the Highland Avenue structure concluded that although there were some possible geophysical anomalies at the Highland Avenue site, these features did not project through the overcrossing or its abutments, so no further investigations were done at the site. Based on the studies conducted, the potential for liquefaction, soil expansion, and erosion is low. The build alternatives are not anticipated to induce any potential geologic events.

The build alternatives would have less than significant effects on cultural resources identified in the Geology and Soils Checklist Questions a) – e).

4.2.2.6 Hazards and Hazardous Materials Checklist Questions a) – c) and e):

The proposed project is a transportation project, designed to enhance public safety and relieve congestion and would not result in a significant hazard to the public or environment associated with the transport, disposal, or use of hazardous material, nor result in conditions that increase risk related to foreseeable upset or accident

conditions that would result in the release of hazardous materials into the environment. Construction of the proposed project would not require the extensive or ongoing use of acutely hazardous materials or substances. Construction activities would be short term and may occur over 54 months, and they would involve the limited transport, storage, use, or disposal of hazardous materials. Some examples of hazardous materials handling include fueling and servicing construction equipment onsite and the transport of fuels, lubricating fluids, and solvents. These types of materials, however, are not acutely hazardous, and all storage, handling, and disposal of these materials are regulated by the California Department of Toxic Substances Control (DTSC), United States Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and other local agency ordinances. Adherence to the regulations set forth by county, State, and federal agencies would reduce the potential for hazardous materials impacts to less than significant.

4.2.2.7 Hydrology and Water Quality Checklist Questions a) – f) and h):

As described in Section 3.2.2, Water Quality and Stormwater Runoff, project effects on water quality are primarily related to construction disturbed soil area (up to 661 acres), the construction/modification of drainages/structures within drainages and dewatering during construction and stormwater runoff, and increased volumes related to increases in impervious surfaces during operation (up to 140 acres). Construction and operational water quality discharges are regulated through the CWA, as implemented through EPA, USACE, SWRCB, and RWQCB. Project compliance with state and federal water quality regulations is required through the Statewide General Construction Permit, General Waste Discharge Requirement for Dewatering, and the Caltrans NPDES permit. Compliance with these requirements is required. The project effects of the build alternative on water quality and hydrology would be less than significant.

4.2.2.8 Land Use and Planning Checklist Questions a) and b):

As shown in Section 3.1.1, Land Use, and in Table 3.1.1-1, the build alternatives are partially consistent with local and regional planning documents and would improve traffic flow along the 33-mile-long project segment of the I-10 corridor. The proposed build alternative improvements, overall, do not conflict with applicable land use plans, policies, or regulations, and project effects would be less than significant. Although minor ROW acquisitions and land-use conversions are required for Alternative 3, these land uses were not adopted by the local agencies for the purpose of avoiding or mitigating an environmental effect.

As described in Section 3.1.4.1, Community Character and Cohesion, construction of the proposed project would create typical construction-related temporary and intermittent inconvenience for local and regional users and adjacent residents and business owners within and adjacent to the project corridor (i.e., construction delays, equipment operations, and temporary traffic lane and ramp closures) to accommodate construction activities. There would be no substantial barriers to access affecting the neighborhood or community cohesion within the project area during the construction period, although there would be some degree of inconvenience due to construction-related delays, obstruction closures, and equipment operation. The proposed build alternative improvements to I-10 would be undertaken to reduce congestion during peak hours. Subsequent to construction, the proposed project is anticipated to result in a beneficial impact to neighborhoods and community cohesion by reducing cut-through traffic within the adjacent neighborhoods. Community members living within the vicinity of the I-10 corridor and people commuting between Los Angeles County and San Bernardino County would benefit from the reduced congestion and the improved freeway operations. The proposed build alternative improvements would not physically divide an established community, and project effects would be less than significant.

4.2.2.9 Noise Checklist Questions c) and d):

As shown in Tables 4-2 and 4-3, without the proposed project, traffic noise levels are not anticipated to significantly increase in the project vicinity above existing levels. While auto and truck traffic may result in an increase of ambient noise levels by design year 2045, existing soundwalls within the project area would adequately maintain or reduce rising noise levels. With the project, most receivers would experience an increase of 1 to 4 dB from existing noise levels. Typically, noise increases of 3 dB or less are inaudible to the human ear.

4.2.2.10 Population and Housing Checklist Questions a) – c):

As described in Section 3.1.2, Growth, the proposed project's improvements are not intended or anticipated to induce any substantial direct or indirect change in the location, distribution, amount, or rate of growth in the project area, county, or region. Additionally, as described in Section 3.1.4.2, Relocations and Real Property Acquisition, the project would not displace a substantial number of people. The proposed project is a transportation project within an urbanized transportation corridor, designed to enhance public safety and relieve congestion.

4.2.2.11 Public Services Checklist Question a) Schools, Parks, Other Public Facilities:

As described in Section 3.1.1.4, Parks and Recreational Facilities, all schools, parks, and other public facilities are summarized in Table 3.1.1-3. Alternative 2 would have no permanent effects on schools, parks and recreational facilities, or other public facilities; however, Alternative 3 requires a temporary construction easement (TCE) of 0.08 acre at Edison Elementary School in Ontario. In addition, construction of the build alternatives may require temporary construction and/or aerial easements and/or partial acquisitions from the following:

- Santa Ana River Trail
- Orange Blossom Trail and the Zanja Trail (future)
- MacArthur Park

Project effects on the recreational use of the properties would be limited to construction-related noise, dust, and visual effects, and use could continue during construction. Although partial acquisitions at the boundaries adjacent to the project may be necessary, acquisitions would be minor and would not affect the overall recreational value or use. Project effects on the Santa Ana River Trail would require the temporary closure of the trail; however, a detour would be provided along the other side to maintain continuity and use. Project effects on these resources would be minimal and would not be considered physical adverse effects requiring replacement or modification. The proposed build alternative improvements would be less than significant on schools, parks, and other public facilities.

4.2.2.12 Transportation/Traffic Checklist Questions d) – f):

The proposed project would not substantially increase hazards due to design features or incompatible uses. Overall, the project would reduce hazards due to design features by including many design improvements over the existing condition.

As described in Section 2.4, the proposed project would improve several interchanges along I-10. Alternative 2 interchange improvements includes 3 system interchanges (I-10/Interstate 15 [I-15] interchange, I-10/Interstate 215 [I-215] interchange, and I-10/State Route [SR] 210 interchange) and 21 local street interchanges from Haven Avenue to Ford Street. Alternative 3 includes 3 system interchanges (I-10/I-15 interchange, I-10/I-215 interchange, and I-10/SR-210 interchange) and 30 local street interchanges, including 1 interchange (Indian Hill Boulevard) in Los Angeles County.

Both build alternatives would require reconstruction of several connectors and interchange ramps to accommodate the I-10 widening.

The proposed project would not result in inadequate emergency access. The proposed project would generally improve emergency access. The project would maintain existing arterials crossing I-10 with some widening and other improvements to those crossings that would provide improved emergency access across I-10. The project would increase emergency access to incidents along I-10 by providing additional auxiliary lanes along I-10, as described in Chapter 2.

The proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. As described in Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, the project would maintain existing bikeways in the corridor and construct additional bikeways and pedestrian facilities along arterials within the project limits. Bike lanes (Class I or Class II), which have been identified in the local circulation plans, will be incorporated into the design of the proposed arterial improvements along Euclid Avenue, Vineyard Avenue, and Tennessee Street. Sidewalks will be provided on both sides of local arterials in which improvements are proposed, including Monte Vista Avenue, Sultana Avenue, Campus Avenue, Euclid Avenue, Vineyard Avenue, Richardson Avenue, and Tennessee Street. Pedestrian facilities on arterials being improved will meet current Americans with Disabilities Act (ADA) standards.

4.2.2.13 Utilities and Service Systems Checklist Questions c), d), and f):

As described in Section 3.1.5, Utilities/Emergency Services, there are approximately 655 utilities within the project area, including overhead and underground electrical, natural gas, oil and petroleum pipelines, telephone and communication, cable television, water, and sewer. The locations of all utilities within the project area are provided in Appendix J, Section J1, Utility Plans. Most of the utilities run perpendicular to I-10 or along local streets, while approximately 17 facilities run parallel to I-10.

Up to 131 of the 665 utilities within the project area, including 4 cable television, 6 fiber-optic lines, 14 gas lines, 6 gasoline lines, 1 petroleum line, 28 power/electrical lines, 1 power transformer, 20 sewer lines, 1 storm drain line, 6 telephone lines, 2 wastewater lines, 40 water lines, and 2 unknown utility lines, have the potential to be impacted by the proposed improvements. Up to 71 of these potentially impacted

utilities would require minor to moderate work, such as extending the utility, constructing a structure or encasement around the utility, pouring a slurry mixture over the utility, or requiring a hand digging method when performing excavation around the utility. Up to 60 utilities would need to be removed and completely relocated to accommodate the proposed project improvements.

Relocation of all 50-kilovolt (kV) lines or greater, shall be in accordance with California Public Utilities Commission (CPUC) General Order 131-D. Relocation of these high-voltage transmission lines requires a long lead time and have the potential to result in significant impacts; however, coordination with utility companies has been ongoing and, during PS&E, the coordination will focus on relocating facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. Additionally, those utilities located within the proposed ROW and parallel to the corridor will require approval from Caltrans for an exception to the utility longitudinal encroachment policy. The proposed build alternative improvements would be less than significant on utilities and service systems.

Additionally, the build alternatives include modifications (i.e., extensions and widening) to existing stormwater drainage facilities within the State and local street ROWs to accommodate the widened freeway. The build alternatives would also increase impervious surfaces by up to 104 acres and disturb up to 432 acres during construction. As described in Section 3.2.2, Water Quality and Stormwater Runoff, stormwater management features in the State ROWs and construction site best management practices (BMPs) are proposed to accommodate and treat construction and operational stormwater to the maximum extent practicable (MEP), utilizing the best available and best conventional technologies. All storm drain systems for the build alternatives have been accounted for in the project design, and improvements were included in the design where necessary; therefore, impacts to stormwater facilities would be less than significant.

The proposed project would utilize the municipal supply for water required for construction and irrigation, and it would not require new or expanded entitlements. Project effects on municipal water supply would be less than significant. All construction debris will be recycled and/or appropriately disposed of at licensed solid waste facilities, in accordance with federal, State, and local regulations and policies. The effects of the proposed build alternative improvements would be less than significant on water supply and landfill capacity.

4.2.3 Significant Environmental Effects of the Proposed Project

The following environmental resources are determined to be significantly affected by implementation of the proposed build alternatives; however, these effects would be considered less than significant with the proposed measures outlined in Chapter 3 and as discussed below.

4.2.3.1 Aesthetics Checklist Questions b), c) and d):

As described in Section 3.1.7, Visual/Aesthetics, both build alternatives would require removal of eucalyptus trees and other vegetation within the interchange area, which is likely to have an adverse effect on visual quality; however, replacement vegetation, as described in Section 3.1.7.4, would be planted, so these effects would be temporary as vegetation matures.

Euclid Avenue has been listed in the National Register of Historic Places (NRHP) within Upland and Ontario, and it has been designated as a historic district within Ontario. The existing Euclid Avenue Bridge is not included in the NRHP designation. This bridge would be replaced under Alternative 3, which would provide an opportunity to design the bridge area to be visually compatible with the historic median. With implementation of measure VA-11, no significant impacts to the Euclid Avenue Bridge are anticipated.

The project is located within an urbanized area that is primarily built out. The build alternatives are not anticipated to result in a substantial effect on the existing visual quality or character with implementation of measures VA-1 through VA-37. Based on the analysis in Section 3.1.7, the general visual character of I-10 would not be greatly altered by the addition of one or two lanes (depending on the alternative and location).

The existing I-10 is currently well lit with street lighting along the corridor, within existing interchanges, and on adjacent local streets. There is a potential to create spot locations with additional new lighting along I-10 or at interchange locations; however, all lighting would be consistent with existing lighting and Caltrans' policy. Any new lighting would be directed downward and focused using cut-off fixtures and shielding to block light trespass into areas outside of Caltrans' ROW. The addition of traffic lanes is anticipated to create a new source of lighting or glare along I-10, but implementation of measure VA-37 will require installation of shielded fixtures that prevent light trespass onto adjacent properties. Additional traffic lanes and/or new

light sources associated with the build alternatives would result in less than significant effects on daytime or nighttime views in the area.

4.2.3.2 Biological Resources Checklist Questions a) and b):

As described in Section 3.3.5, Threatened and Endangered Species, the coastal California gnatcatcher (CAGN) and Delhi Sands flower-loving fly (DSF) are State or federal threatened and endangered-listed species that have the potential to occur within the BSA. CAGN has a low potential to occur in the BSA, and the DSF has a moderate potential to occur within the project area. For the CAGN, a finding of "No effect" is anticipated when consultation with the United States Fish and Wildlife Service (USFWS) has been completed.

A habitat assessment conducted in 2014 identified all potentially suitable habitat for DSF within the BSA. Based on this information, Alternative 2 would result in 2.14 acres of permanent effects to potentially suitable DSF habitat. Alternative 3 would result in 9.67 acres of permanent effects to potentially suitable DSF habitat. The affected DSF potentially suitable habitat areas all occur between the existing edge of shoulder and the Caltrans ROW line. Caltrans will initiate consultation with USFWS for take of DSF. The build alternatives may affect DSF; however, potential impacts to DSF would be mitigated through compensatory mitigation at a USFWS-approved conservation program such as the Reichel HCP, the Angelus Block Property, the Owl Company Property, the Laing Homes (King is Coming) Site, the Hospital Site, the Colton Substation Site, and/or the Vulcan Materials DSF Mitigation Bank.

The build alternatives may contribute to direct or indirect cumulative impacts related to threatened or endangered species; however, the project's contribution to cumulative effects would be mitigated through measures approved by USFWS and AS-1 through AS-6, TE-1 through TE-4, and NC-1 through NC-2. Adverse cumulative effects to threatened and endangered species are not anticipated.

4.2.3.3 Cultural Resources Checklist Questions a) and c):

The following assessment conforms to CEQA requirements and evaluates effects to historical resources in accordance with Section 15064.5(b) of the CEQA Guidelines. Because the Section 106 process has the most guidance, Caltrans policy is to generally use the methodologies used for Section 106 effects analysis for CEQA impact analysis as well. The APE contains 11 historical resources for the purposes of CEQA, 6 of which are CEQA-only historical resources and are identified below.

Properties listed or formally determined eligible for listing in the NRHP are automatically listed in the California Register of Historical Resources (CRHR) and are historical resources for the purposes of CEQA. Properties listed in the CRHR and/or local designations are also considered historical resources under CEQA.

Caltrans Professionally Qualified Staff (PQS) has determined there is no impact to the following historical resources within the project area limits:

- Terrace Park
- B.W. Cave Residence
- Mill Creek *Zanja*
- 1055 E. Highland Avenue

The only proposed work that would occur at the locations of these four historical resources as a result of this project would be restriping or median reconstruction; therefore, the project would not result in direct or indirect substantial adverse changes to these historical resources as defined in Section 15064.5(b) of the CEQA Guidelines (for additional analysis on the Mill Creek *Zanja* and 1055 E. Highland Avenue, see the Finding of Effect [FOE] prepared for this project).

Curtis Homestead

Caltrans PQS, Archaeology, has determined there is no substantial adverse change through the implementation of an ESA for this historical resource because the impacts to the portions of this historical resource that are located within the project area limits would be avoided through the establishment of an ESA, enforcement measures, and conditions that are included in the attached documentation. Gary Jones, who meets the PQS Standards in Section 106 Programmatic Agreement (PA) Attachment 1 as a Principal Investigator, has reviewed the documentation and determined that it is adequate.

Euclid Avenue/SR-83

No work would occur at this location under Alternatives 1 and 2.

Alternative 3 would construct improvements to Euclid Avenue between Olive Street in Upland and Armsley Square/E. La Deney Drive in Ontario, and it would reconstruct the Euclid Avenue/I-10 overcrossing (OC) (Bridge No. 54 0445). The Euclid Avenue/I-10 OC was constructed when I-10 was constructed in the 1950s to carry Euclid Avenue over the new freeway. The bridge was reconstructed in 1970. The Euclid Avenue/I-10 OC was not identified as a character-defining feature of the

historical resource in the nomination paperwork prepared for this resource, and this bridge is listed in the Caltrans Historic Bridge Inventory as Category 5, "Not NRHP eligible." Replacement of this bridge would not result in a direct substantial adverse change to this historical resource; however, the replacement bridge could result in indirect effects to the historical resource. The design and aesthetics of the replacement structure would be consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (SOIS). For example, the proposed replacement structure would include a landscaped deck to the extent possible to improve the historic setting of the historical resource at this location by improving the viewshed from a hardscaped bridge deck to a landscape design consistent with the existing landscape design. Therefore, reconstruction of this structure would not result in a substantial adverse change to a historical resource and could be considered a benefit to this historical resource.

In addition, Alternative 3 would add an additional eastbound (EB) turn pocket on the west side of the median located between 7th Street and I-10. Alternative 3 would also remove an additional 5 feet from the east side of this median. This median was previously substantially altered during reconstruction of the Euclid Avenue/I-10 OC and is not a character-defining feature of this historical resource. Additional modification of this median would not demolish or materially alter the historical resource in an adverse manner.

Landscape

Alternative 3 would remove mature landscaping in the project area; however, vegetation would be replaced with appropriate species and conforming with the historical landscape design (two rows of trees down the center median with a single row of trees in the parkways) to the extent feasible upon completion of construction. Therefore, Alternative 3 would not result in demolition or material alteration of the historical resource. Any mature vegetation that would be removed under Alternative 3 would be relocated and replanted consistent with the SOIS. Because the mature vegetation would be relocated or replanted in accordance with the SOIS, Alternative 3 would not result in the demolition or material alteration of the historical resource in an adverse manner as defined in Section 15064.5(b)(3) of the CEQA Guidelines.

Medians

Alternative 3 would require a tapering reduction of the medians to accommodate proposed turn pockets and queuing within the project footprint. Alternative 3 would minimally alter the property in terms of the reduction of the width of the medians;

however, Euclid Avenue would continue to be used as it has been historically, and the proposed modifications could be reversed in the future to restore the 60-foot width of the medians. Therefore, this proposed modification is consistent with the SOIS and would not result in demolition or material alteration of a historical resource as defined in Section 15064.5(b)(3) of the CEQA Guidelines.

Curbs

Alternative 3 would require minor sliver acquisitions of cobblestone curbs within the project footprint. The sliver acquisitions of the curbs are minimal in nature when considering the total length of the resource (8.4 miles) and would result in minimal damage to part of the historical resource because the sliver acquisition would be barely perceptible to the casual observer. Furthermore, any curbs that would be removed to construct Alternative 3 would be rebuilt in accordance with the SOIS. Because the curbs would be reconstructed in accordance with the SOIS, Alternative 3 would not result in demolition or material alteration of a historical resource as defined in Section 15064.5(b)(3) of the CEQA Guidelines.

Sidewalks

No historical sidewalks would be removed under Alternative 3; therefore, Alternative 3 would not result in demolition or material alteration of a historic resource as defined in Section 15064.5(b) of the CEQA Guidelines.

Because the proposed modifications to the historical resource are consistent with the SOIS, the project would not result in a substantial adverse change to a historical resource as defined in Section 15064.5(b)(3) of the CEQA Guidelines, which states that generally a project that conforms with the SOIS shall be considered as mitigated to a level of less than significant impact on a historical resource.

Caltrans PQS, Principal Architectural Historian, has determined that for this historical resource, no substantial adverse change, either direct or indirect, would result from Alternative 3 because the proposed work that affects this historical resource within the project area limits will be mitigated below the level of significant impact by using the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings.* Andrew Walters, who meets the PQS Standards in Section 106 PA Attachment 1 as a Principal Architectural Historian, and has the appropriate education and experience, has reviewed the documentation and determined that it is adequate.

City of Ontario Euclid Avenue Historic District

The impacts to this property would be the same as identified above for Euclid Avenue/SR-83 (e.g., roadway and landscaping modifications and curb replacement); therefore, the proposed modifications to this historical resource is consistent with the SOIS, and the project would not result in a substantial adverse change to a historical resource as defined in Section 15064.5(b)(3) of the CEQA Guidelines.

1531 N. Euclid Avenue

Although the project would not directly impact this parcel, the impacts to the median adjacent to this property would be the same as identified above for Euclid Avenue/SR-83 (e.g., roadway and landscaping modifications and curb replacement). Construction-related noise would be temporary, occur during specified daylight business hours, and would result in a temporary less than significant impact. The project would increase throughput and relieve traffic congestion and associated noise; therefore, the proposed project would be a benefit to this resource. The property has historically been located adjacent to a major arterial roadway, and the project would not result in a change of setting because the arterial road would retain its historic use. Therefore, potential impacts to this historical resource are temporary in nature and would result in a less than significant impact to this historical resource during construction and would result in a long-term benefit due to expected noise reduction related to relieving traffic congestion.

1540 N. Euclid Avenue

Although the project would not directly impact this parcel, the impacts to the median adjacent to this property would be the same as identified above to Euclid Avenue/ SR-83 (e.g., roadway and landscaping modifications and curb replacement). Construction-related noise would be temporary, occur during specified daylight business hours, and result in a temporary less than significant impact. The project would increase throughput and relieve traffic congestion and associated noise; therefore, the proposed project would be a benefit to this resource. The property has historically been located adjacent to a major arterial roadway, and the project would not result in a change of setting because the arterial road would retain its historic use. Therefore, potential impacts to this historical resource are temporary in nature and would result in a less than significant impact to this historical resource during construction and would result in a long-term benefit due to expected noise reduction related to relieving traffic congestion.

1524 N. Euclid Avenue

Although the project would not directly impact this parcel, the impacts to the median adjacent to this property would be the same as identified above to Euclid Avenue/ SR-83 (e.g., roadway and landscaping modifications and curb replacement). Construction-related noise would be temporary, occur during specified daylight business hours, and result in a temporary less than significant impact. The project would increase throughput and relieve traffic congestion and associated noise; therefore, the proposed project would be a benefit to this resource. The property has historically been located adjacent to a major arterial roadway, and the project would not result in a change of setting because the arterial road would retain its historic use. Therefore, potential impacts to this historical resource are temporary in nature and would result in a less than significant impact to this historical resource during construction and would result in a long-term benefit due to expected noise reduction related to relieving traffic congestion.

The Peppers/El Carmelo

An existing soundwall located just south of Highland Avenue, which provides noise abatement for the residential buildings lining Highland Avenue, would be replaced as part of this project, and an existing chain-link fence, which encloses the Caltrans ROW from The Peppers/El Carmelo, would be replaced with a soundwall.

The project would result in the construction of a soundwall within the Caltrans ROW, adjacent to the eastern/northern boundary of The Peppers/El Carmelo. The proposed soundwall would not result in the demolition or material alteration of the historical resource because it would be located outside of the historical resource's boundary. Therefore, it would not result in a substantial adverse change to a historical resource as defined in Section 15064.5(b) of the CEQA Guidelines and is consistent with the SOIS.

A TCE for this project could be required to construct a soundwall at The Peppers/El Carmelo due to the cut slope at this location. The TCE would allow for ingress/egress of construction equipment and personnel to construct the wall, which cannot be constructed from the Caltrans ROW. No physical destruction or damage to all or part of the property is anticipated, and any other potential effects would be temporary in nature. Because the soundwall would be located within Caltrans ROW and the only construction activities that would occur on the historical resource would be limited to an approximately 20-foot buffer of the property boundary for a possible TCE for ingress/egress, no alteration of the property would occur as a result of this project.

Therefore, the project would not result in a substantial adverse change to a historical resource as defined in Section 15064.5(b) of the CEQA Guidelines and is consistent with the SOIS.

Currently, The Peppers/El Carmelo is subject to noise from vehicular traffic, which diminishes the setting of the historical resource. The proposed soundwall would reduce the noise that results from automobile traffic traveling on I-10. A eucalyptus windrow was planted along the eastern/northern boundary within The Peppers/El Carmelo site boundary, approximately when I-10 was constructed in the late 1950s. The windrow was intended to visually screen the historic property, but it does not provide noise reduction. The proposed soundwall would be constructed adjacent to the windrow, which would also physically and visually separate the proposed soundwall from the terraced citrus groves, which are a character-defining feature of the site, and from the historic residence. Therefore, the proposed soundwall would not demolish or materially alter the historical resource in a manner that would result in a substantial adverse change as defined in Section 15064.5(b)(3) of the CEQA Guidelines and is consistent with the SOIS.

With the implementation of measures CUL-1 through CUL-8, the project would mitigate to less than significant impacts to cultural resources.

As discussed in Section 3.2.4, Paleontology, both of the build alternatives have the potential to impact significant paleontological resources during construction; however, because fossils are located subsurface, there is no way to know the full extent of the effect of the two build alternatives on fossil resources until excavation is underway. Impacts to paleontological resources are anticipated to be less than significant with mitigation. Measures would be implemented during construction to mitigate impacts.

4.2.3.4 Hazards and Hazardous Materials Checklist Question d) and g):

As described in Section 3.2.5, Hazardous Waste/Materials, properties that could be acquired and are considered recognized environmental conditions (RECs) are shown in Table 3.2.5-1. Also described in Section 3.2.5 are other site concerns related to leaking underground storage tanks (LUSTs), historical spills along I-10, lead-based paint (LBP), aerially deposited lead (ADL), asbestos-containing materials (ACMs), and soil within or adjacent to the project area.

Property acquisition or disturbance without further investigation or characterization could result in a significant hazard to the public; however, the procedures for

hazardous materials investigation for the project are addressed in measures HAZ-1 through HAZ-9. If any hazardous materials are located within the area to be acquired, proper removal procedures in accordance with standard provisions and requirements would minimize any direct or indirect adverse temporary impacts.

With the implementation of measures HAZ-1 through HAZ-9, the potential project effects of the build alternatives on properties potentially containing hazardous materials would mitigate to less than significant.

As described in Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, construction of the project would occur over several months. Construction of this project is anticipated to take approximately 42 months for Alternative 2 and 60 months for Alternative 3. Construction is anticipated to take place between 2019 and 2024, with construction progressing from west to east. It is anticipated that the first 11 miles of improvements from Los Angeles County to I-15 would be performed between 2019 and 2022 and the remainder of the corridor between 2021 and 2024. Construction of interchange ramps, local arterials, and overcrossing structure replacement will be staggered to minimize impacting two adjacent interchanges at the same time.

Proposed mainline improvements would necessitate the construction of structures as described in Section 2, Project Description. Construction-related delays are anticipated along I-10, I-15, I-215, and SR-210 and at interchanges, as well as on the surrounding arterials, including SR-83 and SR-38, and could result in significant effects on emergency response. Project construction-related closures would be addressed through a comprehensive Transportation Management Plan (TMP), as required by measure T-1, which includes requirements for coordination with and notification to the corridor cities and emergency responders.

4.2.3.5 Noise Checklist Questions a) and b):

CEQA Noise Discussion

Determining significance for noise impacts pursuant to CEQA is independent of the NEPA 23 CFR 772 analysis discussed in Chapter 3, which is centered on Noise Abatement Criteria. When determining whether a noise impact is significant under CEQA, noise analysis focuses on a comparison of the existing noise level at the time of the NOP and the future build noise level. The CEQA noise analysis entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting,

the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

Construction Noise and Vibration

During the construction phases of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 4-1 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is anticipated to generate noise levels ranging from 80 to 89 A-weighted decibels (dBA) at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 decibels (dB) per doubling of distance.

Table 4-1 Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2011

Temporary construction noise impacts are anticipated at areas located immediately adjacent to the proposed project alignment. The noise-level requirements are specified in measure N-2. Measures related to equipment shall apply to the equipment on the job or related to the job including, but not limited to, trucks, transit mixers, or transient equipment that may or may not be owned by the Contractor.

It is possible that certain construction activities could cause intermittent localized concern from vibration in the project area. During certain construction phases, processes such as earth moving with bulldozers, the use of vibratory compaction rollers, impact pile driving, demolitions, or pavement braking may cause construction-related vibration impacts such as human annoyance or, in some cases, building damages. It may be necessary to use this type of equipment close to residential buildings. Implementation of measure N-4 would eliminate or minimize vibration impacts during construction activities.

Minor deviations from this section concerning hours of work that do not significantly change the cost of the work may be permitted upon the written request of the Contractor if, in the opinion of the Resident Engineer, the work will be expedited and sound levels resulting from this work will not cause adverse public reaction. Compliance with Caltrans' Standard Specifications is required, and the project effects of the build alternatives related to construction noise would be less than significant.

Operational Noise

The information provided in Tables 4-2 through 4-5 compare existing noise levels to future build noise levels at each receptor. These tables also show the anticipated noise reduction associated with the recommended noise abatement for these receptors, as described in Section 3.2.7, Noise. The anticipated noise reduction for Tables 4-2 and 4-3 was calculated based on noise measurements in Appendix B of the Noise Study Report. The predicted noise reduction presented in Tables 4-4 and 4-5 was calculated based on noise measurements in Appendix A of the Noise Study Report Addendum. Related significance discussion for each alternative is provided below.

Tables 4-3 and 4-5 provide predicted noise levels for impacted receivers located south of I-10 and UPRR railroad tracks, between Segments 9 and 11, as shown in Appendix L2. Receivers located in this area are exposed to train noise in addition to traffic noise; therefore, the composite noise levels of trains and I-10 traffic were modeled for these receivers. However, noise impacts are based on traffic noise levels only.

A project is considered to have a significant noise impact when it causes an adopted noise standard to be exceeded at a sensitive receptor and when it substantially increases noise exposure. On June 24, 2015, the PDT made the determination that noise increases over 5 dB would be considered significant for the purposes of this CEQA analysis, because a 5-dB increase is generally perceived as a distinctly noticeable increase. Furthermore, a receiver is considered to be benefitted if they are predicted to experience a decrease in noise levels from existing conditions compared to Design Year (2045) build conditions.

Alternative 1 (No Build)

As previously discussed in Section 3.2.7, noise in the study area is dominated by traffic on I-10, and there are numerous soundwalls along both sides of the freeway. The bordering communities within the corridor are already impacted by highway noise, and these conditions are projected to worsen. Noise measurement results indicate that traffic noise levels at various locations along the I-10 corridor either

approach or exceed the aforementioned Noise Abatement Criteria (NAC) for frequent outdoor use areas during the peak noise hour. Noise modeling results indicate many residential land use locations within the corridor are projected to experience a zero- to 4-dB increase under the Design Year (2045) no-build condition. Future operation of alternative improvements to I-10 would not occur under the No Build Alternative; therefore, abatement associated with the proposed project alternatives would not be implemented.

Alternative 2

With consideration of the abatement measures as required in N-1, and as shown in Tables 4-2 and 4-4, predicted noise levels range from a 3-dB increase (R13.3 and R13.4) to a 12-dB decrease (R10.9A) from the future no build compared to the future build alternative with abatement. Predicted increases in noise from existing conditions compared to the future build alternative with abatement would not be perceptible and are considered less than significant as they do not exceed the 5-dB significance criteria. Additionally, future conditions under Build Alternative 2 with abatement would result in beneficial noise reductions compared to the future no build noise impacts for 144 receptors in Tables 4-2 and 4-4.

Alternative 3

With consideration of the abatement measures as required in N-1, and as shown in Tables 4-4 and 4-5, predicted noise impacts range from a 4-dB increase (R2.63, R14.9A, R9.21A, and R9.22) to a 10-dB decrease (R10.7 and R10.9A) from the existing conditions compared to the future build alternative with abatement. Predicted increases in noise from existing conditions compared to the future build alternative with abatement would not be perceptible and are considered less than significant. Receivers R4.14 and R4.17 are predicted to experience a noise increase of 5 dB from existing conditions to Design Year (2045) under Alternative 3; however, future Design Year conditions for these two receivers are predicted to be exposed to noise levels below the 67 dBA NAC established by Caltrans and FHWA. Consequently, the predicted noise increase for receivers R4.14 and R4.17 is considered less than significant. Additionally, future conditions under Alternative 3 with abatement would result in beneficial noise reductions compared to the future no build noise impacts for 252 receptors, as shown in Tables 4-4 and 4-5.

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R9.17A	76	75	74	S1749	-2	-8	-10	No Impact
R10.1	75	73	74	S1819	-1	-9	-10	No Impact
R10.2	70	68	70		0	-5	-5	No Impact
R10.3	70	69	69		-1	-5	-6	No Impact
R10.4	75	74	76		1	-12	-11	No Impact
R10.5	68	67	66		-2	-3	-5	No Impact
R10.6	70	69	67		-3	-5	-8	No Impact
R10.7	72	71	69		-3	-7	-10	No Impact
R10.8	70	69	67		-3	-5	-8	No Impact
R10.9	73	72	70		-3	-6	-9	No Impact
R10.9A	76	75	73		-3	-9	-12	No Impact
R10.10	67	66	65		-2	-5	-7	No Impact
R10.11	65	64	64		-1	-5	-6	No Impact
R10.12	71	70	69	S1833	-2	-5	-7	No Impact
R10.13	76	75	73		-3	-7	-10	No Impact
R11.3	72	72	72	S1877	0	-5	-5	No Impact
R11.4	74	74	74		0	-7	-7	No Impact
R11.5	72	72	71		-1	-6	-7	No Impact
R11.6	68	68	68		0	-6	-6	No Impact
R11.7	68	68	68		0	-5	-5	No Impact
R11.8	70	70	70		0	-4	-4	No Impact
R11.9	70	70	70		0	-6	-6	No Impact
R11.10	68	68	68		0	-5	-5	No Impact
R11.11	67	67	67		0	-4	-4	No Impact
R11.12	65	65	65		0	-4	-4	No Impact

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R11.14	71	74	72	S1907	1	-5	-4	No Impact
R11.14A	73	76	75		2	-7	-5	No Impact
R11.15	62	65	65		3	-4	-1	No Impact
R11.15A	68	71	70		2	-5	-3	No Impact
R11.16	72	75	73		1	-7	-6	No Impact
R11.16A	66	70	69		3	-5	-2	No Impact
R11.17	73	77	74		1	0	1	Less than Significant
R11.18	71	75	72		1	-7	-6	No Impact
R11.19	66	69	68		2	0	2	Less than Significant
R11.20	62	65	65		3	-1	2	Less than Significant
R11.21	64	67	66		2	-4	-2	No Impact
R11.22	62	66	66		4	-4	0	No Impact
R11.23	65	69	68		3	-6	-3	No Impact
R11.24-1	73	77	73		0	-8	-8	No Impact
R11.24-2	74	77	77		3	-7	-4	No Impact
R11.25-1	73	74	71		-2	-6	-8	No Impact
R11.25-2	73	75	74		1	-4	-3	No Impact
R11.26-1	63	67	66		3	-6	-3	No Impact
R11.26-2	66	69	67		1	-4	-3	No Impact
R11.44	67	71	74	S1969	7	-7	0	No Impact
R12.10	66	67	68	S2033	2	-7	-5	No Impact

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R13.3	66	67	69	S2079 (Not Recommended)	3	0	3	Less than Significant
R13.4	68	69	71		3	0	3	Less than Significant
R13.5	65	66	67		2	0	2	Less than Significant
R14.3	67	67	68	S2145	1	-6	-5	No Impact
R14.4	75	77	76		1	0	1	Less than Significant
R14.4[Int]	55	57	56		1	-6	-5	No Impact
R14.5	71	73	73		2	-6	-4	No Impact
R14.6	71	73	73		2	-7	-5	No Impact
R14.7	73	75	76		3	-7	-4	No Impact
R14.7A	67	69	69		2	-6	-4	No Impact
R14.7B	69	71	71		2	-8	-6	No Impact
R14.8	65	67	67		2	-6	-4	No Impact
R14.8A	59	61	62		3	-3	0	No Impact
R14.8B	65	67	68		3	-8	-5	No Impact
R14.9	71	73	74		3	-6	-3	No Impact
R14.9A	72	74	75		3	0	3	Less than Significant
R14.10	68	70	71		3	-5	-2	No Impact
R14.11	68	70	71		3	-5	-2	No Impact
R14.11A	62	64	64		2	-5	-3	No Impact
R14.12	61	63	63		2	-4	-2	No Impact
R17.34	69	69	70	S2384 & S2382	1	0	1	Less than Significant

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R17.38	75	77	78	S2434A & S2438	3	-11	-8	No Impact
R17.39	71	73	75		4	-5	-1	No Impact
R17.40	68	70	71		3	-7	-4	No Impact
R17.41	71	73	74		3	-7	-4	No Impact
R17.42	68	70	71		3	-5	-2	No Impact
R17.43	68	70	72		4	-5	-1	No Impact
R17.44	67	69	71		4	-5	-1	No Impact
R17.45	66	68	69		3	-5	-2	No Impact
R17.46	65	66	68		3	-5	-2	No Impact
R17.47A	66	67	68		2	-5	-3	No Impact
R17.48	67	68	68		1	-2	-1	No Impact
R17.38	75	77	78	S2434B & S2438	3	-10	-7	No Impact
R17.39	71	73	75		4	-8	-4	No Impact
R17.40	68	70	71		3	-7	-4	No Impact
R17.41	71	73	74		3	-7	-4	No Impact
R17.42	68	70	71		3	-5	-2	No Impact
R17.43	68	70	72		4	-7	-3	No Impact
R17.44	67	69	71		4	-7	-3	No Impact
R17.45	66	68	69		3	-6	-3	No Impact
R17.46	65	66	68		3	-5	-2	No Impact
R17.47A	66	67	68		2	-5	-3	No Impact
R17.48	67	68	68		1	-2	-1	No Impact
R17.18	65	64	65	S2435 & S2437	0	0	0	No Impact
R17.24	66	65	67		1	-2	-1	No Impact
R17.25	68	66	67		-1	-6	-7	No Impact

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R17.26	70	68	69		-1	-7	-8	No Impact
R17.27	68	66	66		-2	-7	-9	No Impact
R17.28	61	59	60		-1	-2	-3	No Impact
R17.29	68	66	66		-2	-5	-7	No Impact
R17.30	70	68	69		-1	0	-1	No Impact
R17.31	60	58	59		-1	-7	-8	No Impact
R18.6-1	66	66	67		1	-5	-4	No Impact
R18.6-2	69	69	68		-1	-6	-7	No Impact
R18.7-1	65	65	65		0	-6	-6	No Impact
R18.7-2	67	67	66		-1	-4	-5	No Impact
R18.8-1	65	65	66		1	-7	-6	No Impact
R18.8-2	68	68	67		-1	-7	-8	No Impact
R18.9-1	62	62	62		0	-6	-6	No Impact
R18.9-2	64	64	63		-1	-4	-5	No Impact
R18.10-1	60	60	61		1	-4	-3	No Impact
R18.10-2	63	63	63	S2476	0	-4	-4	No Impact
R18.11-1	67	67	68		1	-5	-4	No Impact
R18.11-2	70	70	70		0	-6	-6	No Impact
R18.12-1	67	67	68		1	-6	-5	No Impact
R18.12-2	70	70	69		-1	-6	-7	No Impact
R18.13-1	65.5	66	66		0.5	-6	-6	No Impact
R18.13-2	67.8	68	68		0.2	-7	-7	No Impact
R18.14-1	68.2	68	69		0.8	-6	-5	No Impact
R18.14-2	70.8	71	72		1.2	-8	-7	No Impact
R18.15-1	66.5	67	67		0.5	-5	-5	No Impact

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R18.15-2	69	69	70		1	-6	-5	No Impact
R18.16-1	62.3	62	64		1.7	-6	-4	No Impact
R18.16-2	67.4	67	69		1.6	-5	-3	No Impact
R18.17	62.3	62	63		0.7	-3	-2	No Impact
R18.18	62	62	63		1	-3	-2	No Impact
R18.19	62.9	63	63		0.1	-1	-1	No Impact
R19.3	72	71	71		-1	-5	-6	No Impact
R19.4	71	70	70		-1	-5	-6	No Impact
R19.5	67	68	69		2	-5	-3	No Impact
R19.5A	70	71	72	S2619	2	-3	-1	No Impact
R19.5B	61	62	63		2	-2	0	No Impact
R19.5C	68	69	70		2	-5	-3	No Impact
R19.6	69	69	70		1	-6	-5	No Impact
R19.7	72	72	73		1	-7	-6	No Impact
R20.41	70	70	71		1	-2	-1	No Impact
R20.42	69	69	70		1	-5	-4	No Impact
R20.42A	69	69	69		0	0	0	No Impact
R20.42A[Int]	44	44	44		0	-4	-4	No Impact
R20.43	69	69	70		1	-7	-6	No Impact
R20.44	69	68	68	S2638B & S2654B	-1	-5	-6	No Impact
R20.45	70	69	70		0	-6	-6	No Impact
R20.46	69	68	68		-1	-5	-6	No Impact
R20.47	68	67	68		0	-5	-5	No Impact
R20.47A	69	68	69		0	0	0	No Impact
R20.47A[Int]	44	43	44		0	-5	-5	No Impact

Table 4-2 Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level (dBA)[1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 2 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 2 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R20.48	70	69	70		0	-6	-6	No Impact
R20.49	63	62	63		0	-1	-1	No Impact
R21.75	64	64	66	S2730	2	-7	-5	No Impact
R21.25	73	69	69		-4	-5	-9	No Impact
R21.25A	65	65	66		1	0	1	Less than Significant
R21.25A[Int]	25	25	26		1	-3	-2	No Impact
R21.26	58	58	59		1	-1	0	No Impact
R21.27	57	57	58	S2737	1	-2	-1	No Impact
R21.28	69	69	70		1	-2	-1	No Impact
R21.29	81	81	82		1	0	1	Less than Significant
R21.30	73	73	74		1	-7	-6	No Impact
R21.31	67	67	68		1	-5	-4	No Impact
R21.39	67	69	70		3	-7	-4	No Impact
R21.40	69	71	71		2	-7	-5	No Impact
R21.41	65	67	67	S2765	2	-7	-5	No Impact
R21.41[Int]	40	42	42		2	-10	-8	No Impact
R21.42	58	60	60		2	-3	-1	No Impact

[1] Existing noise conditions as measured and modeled for the project Noise Study Report.
[2] Future conditions are the predicted noise conditions for horizon year (2045). Predicted noise levels were derived from the Noise Study Report, Appendix B, Predicted Future Noise Levels and Noise Barrier Analysis.
[3] Includes replace in-kind, and recommended walls as discussed in the Section 3.3 of the NADR. Recommended locations and heights for new soundwalls are discussed in the NADR.
[4] Assumes any proposed abatement in the future build condition.
[Int] Interior
Note: All measurements are in dBA.

Table 4-3 NSR and NADR Addendum Noise Impact Analysis – Alternative 2

Receiver	Existing Noise Level + Train Noise Level (dBA) [1]	Predicted[2] Traffic Noise Level with the No-Build Alternative + Train Noise (dBA)	Predicted2 Traffic Noise Level with Alternative 2	Predicted[2] Traffic Noise Level with Alternative 2 + Train Noise	Recommended[3] Soundwall (#)	Future Conditions with Alternative 2 minus Existing Conditions	Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level 4	Impact
R10.17A	67	67	65	67	S1818	0	5	-5	Beneficial
R10.17	70	70	68	70		0	7	-7	Beneficial
R10.19	66	66	64	67	S1834	1	6	-5	Beneficial
R10.20B	68	68	66	69		1	7	-6	Beneficial

[1] Existing noise conditions as measured and modeled for the project Noise Study Report Addendum.

[2] Future conditions are the predicted noise conditions for horizon year (2045). Predicted noise levels were derived from the Noise Study Report Addendum, Appendix A, Predicted Future Noise Levels and Noise Barrier Analysis.

[3] Includes recommended walls as discussed in the Section 3.3 of the NADR Addendum. Recommended locations and heights for new soundwalls are discussed in the NADR Addendum.

[4] Assumes any proposed abatement in the future build condition.

Note: All measurements are in dBA.

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R1.38	68	67	67	S699	-1	-1	-2	No Impact
R1.39	72	71	71		-1	-5	-6	No Impact
R1.40	73	72	72		-1	-7	-8	No Impact
R1.41	61	61	61		0	0	0	No Impact
R2.45	65	67	67	SW2 (Replace In-Kind)	2	0	2	Less than Significant
R2.46	63	64	65		2	0	2	Less than Significant
R2.47	62	63	64		2	0	2	Less than Significant
R2.49	59	60	62	SW6 (Replace In-Kind)	3	0	3	Less than Significant
R2.50	59	60	60		1	0	1	Less than Significant
R2.51	65	65	65	SW10 (Replace In-Kind)	0	0	0	No Impact
R2.52	68	68	67		-1	0	-1	No Impact
R2.53	64	64	64		0	0	0	No Impact
R2.54	66	66	65		-1	0	-1	No Impact
R2.55	61	61	62		1	0	1	Less than Significant
R2.56	64	64	65		1	0	1	Less than Significant
R2.26	73	70	71	SW29 & SW23 (SW29 Replace In-Kind)	-2	0	-2	No Impact
R2.27	73	70	71		-2	0	-2	No Impact
R2.28	71	68	68		-3	0	-3	No Impact
R2.29-1	68	65	66		-2	0	-2	No Impact
R2.29-2	71	68	68		-3	0	-3	No Impact
R2.30	67	64	64		-3	0	-3	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R2.57	65	67	68	SW22 & SW30 (Replace In-Kind)	3	0	3	Less than Significant
R2.58	65	67	67		2	0	2	Less than Significant
R2.60	66	68	69		3	-1	2	Less than Significant
R2.61	63	65	66		3	-1	2	Less than Significant
R2.62	58	62	63		5	-2	3	Less than Significant
R2.63	57	61	61		4	0	4	Less than Significant
R2.64	59	63	64		5	-3	2	Less than Significant
R2.65	61	65	64		3	0	3	Less than Significant
R4.5-1	76	78	79	S1117	3	-8	-5	No Impact
R4.5-1[Int]	51	53	54		3	-8	-5	No Impact
R4.5-2	77	79	80		3	0	3	Less than Significant
R4.5-2[Int]	52	54	55		3	0	3	Less than Significant
R4.60	67	69	69	SW66	2	-2	0	No Impact
R4.70	66	68	69		3	-2	1	Less than Significant
R4.80	63	65	65	SW66 & SW68	2	-1	1	Less than Significant
R4.90	64	66	66		2	-1	1	Less than Significant

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R4.10	62	64	64	SW94	2	0	2	Less than Significant
R4.11	59	61	62		3	0	3	Less than Significant
R4.12	64	66	66		2	0	2	Less than Significant
R4.13	66	68	69		3	0	3	Less than Significant
R4.14	61	63	66		5	0	5*	Less than Significant
R4.15	66	68	69		3	0	3	Less than Significant
R4.16	63	65	66		3	0	3	Less than Significant
R4.17	60	62	65		5	0	5*	Less than Significant
R4.19	64	66	67		3	0	3	Less than Significant
R4.20	63	65	66		3	0	3	Less than Significant
R4.21	62	64	65		3	0	3	Less than Significant
R4.22	59	61	62		3	0	3	Less than Significant
R4.23	63	65	65		2	0	2	Less than Significant
R4.24	63	65	66		3	0	3	Less than Significant

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R4.25	66	67	68		2	0	2	Less than Significant
R4.26	67	68	68		1	0	1	Less than Significant
R4.27	65	67	68		3	0	3	Less than Significant
R4.28	65	67	68		3	0	3	Less than Significant
R4.29	64	66	67		3	0	3	Less than Significant
R4.30	66	66	67		1	0	1	Less than Significant
R4.31	66	66	66		0	0	0	No Impact
R4.32	61	63	63		2	0	2	Less than Significant
R4.33	61	63	63		2	0	2	Less than Significant
R4.34	63	64	64		1	0	1	Less than Significant
R4.35	62	64	64		2	0	2	Less than Significant
R4.36	60	62	63		3	0	3	Less than Significant
R4.37	60	62	63		3	0	3	Less than Significant
R4.38	63	63	64		1	0	1	Less than Significant
R4.39	63	63	64		1	-1	0	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R5.21A	68	68	68	S1132	0	-5	-5	No Impact
R5.21B	73	73	73		0	0	0	No Impact
R5.21B[Int]	43	43	43		0	-7	-7	No Impact
R6.19	61	62	62	S1190	1	0	1	Less than Significant
R6.20	71	72	73		2	-7	-5	No Impact
R6.21	61	62	62		1	-5	-4	No Impact
R6.22	60	61	62		2	-5	-3	No Impact
R7.27	66	66	67	SW230	1	-1	0	No Impact
R7.28	67	67	68		1	-1	0	No Impact
R7.29	62	62	62		0	0	0	No Impact
R7.30	67	67	68		1	-1	0	No Impact
R7.31	65	65	65		0	-1	-1	No Impact
R7.32	67	67	68		1	-1	0	No Impact
R7.33	67	67	67		0	0	0	No Impact
R7.34	67	67	66		-1	0	-1	No Impact
R7.35	66	66	65	S1244	-1	0	-1	No Impact
R7.36	67	67	68	SW246	1	0	1	Less than Significant
R7.36A	67	67	67		0	0	0	No Impact
R7.37	66	67	67		1	0	1	Less than Significant
R7.38	67	68	68		1	0	1	Less than Significant
R7.39	67	68	69		2	0	2	Less than Significant

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R7.41	71	72	73	S1262	2	-7	-5	No Impact
R7.2	66	67	68	SW231	2	0	2	Less than Significant
R7.3	62	63	64		2	0	2	Less than Significant
R7.4	67	68	68		1	0	1	Less than Significant
R7.5	62	63	63		1	0	1	Less than Significant
R7.6	61	62	62		1	0	1	Less than Significant
R7.7	65	66	66		1	0	1	Less than Significant
R7.8	69	70	70		1	0	1	Less than Significant
R7.9	63	64	64	SW245	1	0	1	Less than Significant
R7.10-1	61	61	61		0	0	0	No Impact
R7.10-2	62	62	62		0	0	0	No Impact
R7.11	62	62	62		0	0	0	No Impact
R7.12	63	63	63		0	0	0	No Impact
R7.12-2	64	64	64		0	0	0	No Impact
R7.13-1	65	65	65		0	0	0	No Impact
R7.13-2	66	66	66		0	0	0	No Impact
R7.14	65	65	65		0	0	0	No Impact
R7.15-1	66	66	66		0	0	0	No Impact
R7.15-2	68	68	68		0	0	0	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R7.19	66	66	66	SW259	0	0	0	No Impact
R7.2	66	66	66		0	0	0	No Impact
R7.21	64	64	65		1	0	1	Less than Significant
R7.22	66	66	65		-1	0	-1	No Impact
R7.23	68	68	67	SW275 (Replace In-Kind)	-1	-2	-3	No Impact
R7.24	67	67	68		1	-1	0	No Impact
R7.42	72	73	75	S1266	3	-7	-4	No Impact
R7.43-1[Int]	45	46	47		2	-6	-4	No Impact
R7.43-2[Int]	50	51	52		2	-7	-5	No Impact
R7.44-1[Int]	42	43	44		2	-2	0	No Impact
R7.44-2[Int]	45	46	48		3	-3	0	No Impact
R8.1	69	71	70	S1285 & SW275 (SW 275 Replace In-Kind)	1	0	1	Less than Significant
R8.1[Int]	44	46	45		1	-3	-2	No Impact
R8.2-1	75	77	76		1	0	1	Less than Significant
R8.2-1[Int]	50	52	51		1	-7	-6	No Impact
R8.2-2	76	78	79		3	0	3	Less than Significant
R8.2-2[Int]	51	53	54		3	-6	-3	No Impact
R8.3	75	77	77		2	-5	-3	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R8.6	66	68	69	SW296 (Replace In-Kind)	3	0	3	Less than Significant
R8.7	68	69	70		2	0	2	Less than Significant
R8.8	67	69	70		3	0	3	Less than Significant
R8.9	66	68	69		3	0	3	Less than Significant
R8.10	66	69	69		3	0	3	Less than Significant
R8.11	66	69	69		3	0	3	Less than Significant
R8.14	59	61	62		3	0	3	Less than Significant
R8.14A	64	66	67		3	0	3	Less than Significant
R8.14B	62	64	64		2	0	2	Less than Significant
R8.14C	63	65	65		2	0	2	Less than Significant
R8.12	66	69	69	S21	3	-3	0	No Impact
R8.13	67	70	71		4	-7	-3	No Impact
R8.15	62	65	65		3	-1	2	Less than Significant
R8.16	71	74	74	S1276	3	-10	-7	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R8.18	62	64	64	SW278	2	0	2	Less than Significant
R8.19	64	66	67		3	0	3	Less than Significant
R8.20	64	66	67		3	0	3	Less than Significant
R8.21	67	68	69		2	0	2	Less than Significant
R8.22	67	68	69		2	0	2	Less than Significant
R8.23	68	69	70		2	0	2	Less than Significant
R8.26	63	65	65		2	0	2	Less than Significant
R8.27	62	64	65		3	0	3	Less than Significant
R8.28	62	64	65		3	0	3	Less than Significant
R8.29	64	65	65		2	0	2	Less than Significant
R8.29	63	64	65		2	0	2	Less than Significant
R8.30	64	65	66		2	0	2	Less than Significant

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R8.31	67	68	69	S1306	2	-2	0	No Impact
R8.32-1	70	71	72		2	-6	-4	No Impact
R8.32-2	73	74	75		2	-6	-4	No Impact
R8.33-1	64	65	65		1	-3	-2	No Impact
R8.33-2	66	67	68		2	-4	-2	No Impact
R8.34-1	69	70	71		2	-3	-1	No Impact
R8.34-2	74	75	76		2	-6	-4	No Impact
R8.35	63	64	65		2	-4	-2	No Impact
R8.36-1	67	68	69		2	-5	-3	No Impact
R8.36-2	70	71	72		2	-6	-4	No Impact
R8.37	71	72	73		2	-6	-4	No Impact
R8.38	62	63	64		2	-3	-1	No Impact
R8.39	71	72	73		2	-6	-4	No Impact
R8.40	63	64	65		2	-4	-2	No Impact
R8.41	66	67	68		3	-6	-4	No Impact
R8.42-1	67	68	69		3	-5	-3	No Impact
R8.42-2	71	72	73		2	-6	-4	No Impact
R8.43-1	64	65	66		2	-5	-3	No Impact
R8.43-2	66	67	68		2	-5	-3	No Impact
R8.44-1	65	66	67		3	-5	-3	No Impact
R8.44-2	67	68	69		2	-5	-3	No Impact
R8.45-1	65	66	67		2	-3	-1	No Impact
R8.45-2	70	71	72		2	-6	-4	No Impact
R8.46-1	64	65	66		2	-3	-1	No Impact
R8.46-2	70	71	72		2	-5	-3	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R8.47-1	66	67	67		2	-5	-4	No Impact
R8.47-2	77	78	79		2	-10	-8	No Impact
R8.48-1	80	80	76		-4	0	-4	No Impact
R8.48-1[Int]	55	55	51		-4	-7	-11	No Impact
R8.48-2	80	80	81		1	0	1	Less than Significant
R8.48-2[Int]	55	55	56		1	-5	-4	No Impact
R8.48-3	81	81	82		1	0	1	Less than Significant
R8.48-3[Int]	56	56	57		1	-1	0	No Impact
R8.49	65	65	65		0	-2	-2	No Impact
R8.50	75	75	74		-1	-6	-7	No Impact
R8.50 A-1	77	77	71		-6	0	-6	No Impact
R8.50 A-1[Int]	52	52	46		-6	-4	-10	No Impact
R8.50 A-2	80	80	81		2	0	2	Less than Significant
R8.50 A-2[Int]	55	55	56		2	-7	-6	No Impact
R8.50 B-1	73	73	68		-5	0	-5	No Impact
R8.50 B-1[Int]	48	48	43		-5	-3	-8	No Impact
R8.50 B-2	77	77	78		1	0	1	Less than Significant
R8.50 B-2[Int]	52	52	53		1	-8	-7	No Impact
R8.50 C-1	70	70	66		-4	0	-4	No Impact
R8.50 C-1[Int]	45	45	41		-4	-2	-6	No Impact
R8.50 C-2	76	76	75		-1	0	-1	No Impact
R8.50 C-2[Int]	51	51	50		-1	-6	-7	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R9.2	61	62	64	SW697 (Replace In-Kind)	3	0	3	Less than Significant
R9.3	62	63	64		2	0	2	Less than Significant
R9.4	64	65	67		3	0	3	Less than Significant
R9.6	65	66	67		2	0	2	Less than Significant
R9.7	62	63	65		3	0	3	Less than Significant
R9.8	65	66	67		2	0	2	Less than Significant
R9.9	64	65	67		3	0	3	Less than Significant
R9.10	65	66	67		2	0	2	Less than Significant
R9.11	67	66	66		-1	0	-1	No Impact
R9.13	67	66	66		-1	0	-1	No Impact
R9.14	67	66	66		-1	0	-1	No Impact
R9.15	65	64	65		0	0	0	No Impact
R9.16	65	64	65		0	0	0	Less than Significant
R9.17	68	67	67		-1	0	-1	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R10.1	75	73	76	S1819	1	-9	-8	No Impact
R10.2	70	68	71		1	-7	-6	No Impact
R10.3	70	69	70		0	-6	-6	No Impact
R10.4	75	74	79		4	-13	-9	No Impact
R10.5	68	67	67		-1	-4	-5	No Impact
R10.6	70	69	68		-2	-5	-7	No Impact
R10.7	72	71	70		-2	-8	-10	No Impact
R10.8	70	69	68		-2	-6	-8	No Impact
R10.9	73	72	71		-2	-6	-8	No Impact
R10.9A	76	75	74		-2	-8	-10	No Impact
R10.10	67	66	66		-1	-5	-6	No Impact
R10.11	65	64	65		0	-5	-5	No Impact
R10.12	71	70	70	S1833	-1	-5	-6	No Impact
R10.13	76	75	74		-2	-7	-9	No Impact
R11.3	72	72	73	S1877	1	-5	-4	No Impact
R11.4	74	74	75		1	-7	-6	No Impact
R11.5	72	72	73		1	-6	-5	No Impact
R11.6	68	68	69		1	-5	-4	No Impact
R11.7	68	68	69		1	-6	-5	No Impact
R11.8	70	70	71		1	-5	-4	No Impact
R11.9	70	70	70		0	-5	-5	No Impact
R11.10	68	68	69		1	-5	-4	No Impact
R11.11	67	67	68		1	-4	-3	No Impact
R11.12	65	65	66		1	-4	-3	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R11.14	71	74	73	S1907	2	-5	-3	No Impact
R11.14A	73	76	77		4	-11	-7	No Impact
R11.15	62	65	66		4	-5	-1	No Impact
R11.15A	68	71	71		3	-6	-3	No Impact
R11.16	72	75	74		2	-8	-6	No Impact
R11.16A	66	70	70		4	-6	-2	No Impact
R11.17	73	77	75		2	-8	-6	No Impact
R11.18	71	75	74		3	-8	-5	No Impact
R11.19	66	69	69		3	-2	1	Less than Significant
R11.20	62	65	66		4	-3	1	Less than Significant
R11.21	64	67	67		3	-5	-2	No Impact
R11.22	62	66	66		4	-5	-1	No Impact
R11.23	65	69	69		4	-6	-2	No Impact
R11.24-1	73	77	75		2	-9	-7	No Impact
R11.24-2	74	77	78		4	-7	-3	No Impact
R11.25-1	73	74	72		-1	-6	-7	No Impact
R11.25-2	73	75	75		2	-5	-3	No Impact
R11.26-1	63	67	66		3	-5	-2	No Impact
R11.26-2	66	69	68		2	-5	-3	No Impact
R11.44	67	71	74	S1969	7	-7	0	No Impact
R12.1	66	67	69	S2033	3	-7	-4	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R13.3	66	67	70	S2079	4	-6	-2	No Impact
R13.4	68	69	71		3	-7	-4	No Impact
R13.5	65	66	69		4	-4	0	Less than Significant
R14.3	67	67	68	S2145	1	-5	-4	No Impact
R14.4	75	77	76		1	0	1	Less than Significant
14.4[Int]	55	57	56		1	-5	-4	No Impact
R14.5	71	73	75		4	-6	-2	No Impact
R14.6	71	73	74		3	-6	-3	No Impact
R14.7	73	75	77		4	-8	-4	No Impact
R14.7A	67	69	70		3	-5	-2	No Impact
R14.7B	69	71	72		3	-6	-3	No Impact
R14.8	65	67	68		3	-5	-2	No Impact
R14.8A	59	61	62		3	-3	0	No Impact
R14.8B	65	67	68		3	-5	-2	No Impact
R14.9	71	73	75		4	-6	-2	No Impact
R14.9A	72	74	76		4	0	4	Less than Significant
R14.1	68	70	72		4	-5	-1	No Impact
R14.11	68	70	72		4	-5	-1	No Impact
R14.11A	62	64	65		3	-4	-1	No Impact
R14.12	61	63	64		3	-4	-1	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
15.1	68	68	68	SW5	0	0	0	No Impact
15.2	68	68	69		1	0	1	Less than Significant
15.3	66	66	65		-1	0	-1	No Impact
15.4	65	65	66		1	0	1	Less than Significant
15.5	65	65	66		1	0	1	Less than Significant
15.6	66	66	67		1	0	1	Less than Significant
R15.7	69	67	68		-1	0	-1	No Impact
R15.8	69	67	68		-1	0	-1	No Impact
R15.9	69	67	67		-2	0	-2	No Impact
R15.10	67	65	65		-2	0	-2	No Impact
R15.11	68	66	65		-3	0	-3	No Impact
R16.1	63	64	66	S2238	3	-1	2	Less than Significant
R16.11	61	62	64		3	-2	1	Less than Significant
R16.12	66	67	68		2	-5	-3	No Impact
R16.13	65	66	67		2	-4	-2	No Impact
R16.14	62	63	65		3	-4	-1	No Impact
R16.15-1	67	67	68		1	-6	-5	No Impact
R16.15-1[Int]	42	42	43		1	-6	-5	No Impact
R16.15-2	71	71	72		1	-7	-6	No Impact
R16.15-2[Int]	46	46	47		1	-7	-6	No Impact
R16.16-1	67	67	67		0	-5	-5	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R16.16-1[Int]	42	42	42		0	-5	-5	No Impact
R16.16-2	71	71	72		1	-7	-6	No Impact
R16.16-2[Int]	46	46	47		1	-7	-6	No Impact
R16.17	70	70	71		1	-7	-6	No Impact
R16.18	61	62	63		2	-3	-1	No Impact
R16.19	63	64	65		2	-4	-2	No Impact
R16.20-1	66	66	67		1	-4	-3	No Impact
R16.20-1[Int]	41	41	42		1	-4	-3	No Impact
R16.20-2	69	69	70		1	-5	-4	No Impact
R16.20-2[Int]	44	44	45		1	-5	-4	No Impact
R16.21	61	61	61		0	-1	-1	No Impact
R17.34	69	69	71	S2384 & S2382	2	-8	-6	No Impact
R17.38	75	77	77	S2434B & S2438 Option 2	2	-8	-6	No Impact
R17.39	71	73	76		5	-9	-4	No Impact
R17.40	68	70	71		3	-9	-6	No Impact
R17.41	71	73	74		3	-7	-4	No Impact
R17.42	68	70	71		3	-5	-2	No Impact
R17.43	68	70	73		5	-8	-3	No Impact
R17.44	67	69	71		4	-5	-1	No Impact
R17.45	66	68	69		3	-5	-2	No Impact
R17.46	65	66	69		4	-5	-1	No Impact
R17.47A	66	67	68		2	-4	-2	No Impact
R17.48	67	68	69		2	-3	-1	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R17.18	65	64	65	S2435 & S2437	0	-1	-1	No Impact
R17.24	66	65	67		1	-3	-2	No Impact
R17.25	68	66	67		-1	-6	-7	No Impact
R17.26	70	68	69		-1	-7	-8	No Impact
R17.27	68	66	66		-2	-7	-9	No Impact
R17.28	61	59	60		-1	-2	-3	No Impact
R17.29	68	66	66		-2	-5	-7	No Impact
R17.30	70	68	69		-1	0	-1	No Impact
R17.31	60	58	59		-1	-7	-8	No Impact
R18.6-1	66	66	67	S2476	1	-6	-5	No Impact
R18.6-2	69	69	68		-1	-7	-8	No Impact
R18.7-1	65	65	65		0	-7	-7	No Impact
R18.7-2	67	67	66		-1	-5	-6	No Impact
R18.8-1	65	65	66		1	-8	-7	No Impact
R18.8-2	68	68	67		-1	-8	-9	No Impact
R18.9-1	62	62	62		0	-7	-7	No Impact
R18.9-2	64	64	63		-1	-5	-6	No Impact
R18.10-1	60	60	61		1	-5	-4	No Impact
R18.10-2	63	63	63		0	-4	-4	No Impact
R18.11-1	67	67	68		1	-6	-5	No Impact
R18.11-2	70	70	70		0	-7	-7	No Impact
R18.12-1	67	67	68		1	-6	-5	No Impact
R18.12-2	70	70	69		-1	-7	-8	No Impact
R18.13-1	66	66	66		0	-6	-6	No Impact
R18.13-2	68	68	67		-1	-6	-7	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R18.14-1	68	68	69		1	-6	-5	No Impact
R18.14-2	71	71	71		0	-7	-7	No Impact
R18.15-1	67	67	68		1	-6	-5	No Impact
R18.15-2	69	69	70		1	-6	-5	No Impact
R18.16-1	62	62	64		2	-6	-4	No Impact
R18.16-2	67	67	69		2	-5	-3	No Impact
R18.17	62	62	64		2	-4	-2	No Impact
R18.18	62	62	63		1	-3	-2	No Impact
R18.19	63	63	64		1	-2	-1	No Impact
R18.20	64	64	65		1	-1	0	No Impact
R18.21	63	63	64		1	0	1	Less than Significant
R18.22	64	64	66		2	-1	1	Less than Significant
R19.3	72	71	71		-1	-5	-6	No Impact
R19.4	71	70	70		-1	-5	-6	No Impact
R19.5	67	68	69		2	-5	-3	No Impact
R19.5A	70	71	72	S2619	2	-3	-1	No Impact
R19.5B	61	62	63		2	-2	0	No Impact
R19.5C	68	69	70		2	-5	-3	No Impact
R19.6	69	69	70		1	-6	-5	No Impact
R19.7	72	72	73		1	-7	-6	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R20.41	70	70	71	S2638B & S2654B	1	-2	-1	No Impact
R20.42	69	69	70		1	-5	-4	No Impact
R20.42A	69	69	69		0	0	0	No Impact
R20.42A[Int]	44	44	44		0	-4	-4	No Impact
R20.43	69	69	70		1	-7	-6	No Impact
R20.44	69	68	68		-1	-5	-6	No Impact
R20.45	70	69	70		0	-6	-6	No Impact
R20.46	69	68	68		-1	-5	-6	No Impact
R20.47	68	67	68		0	-5	-5	No Impact
R20.47A	69	68	69		0	0	0	No Impact
R20.47A[Int]	44	43	44		0	-5	-5	No Impact
R20.48	70	69	70		0	-6	-6	No Impact
R20.49	63	62	63		0	-1	-1	No Impact
R21.75	64	64	66	S2730	2	-7	-5	No Impact
R21.25	73	69	69	S2737	-4	-5	-9	No Impact
R21.25A	65	65	66		1	0	1	Less than Significant
R21.25A[Int]	25	25	26		1	-3	-2	No Impact
R21.26	58	58	59		1	-1	0	No Impact
R21.27	57	57	58		1	-2	-1	No Impact
R21.28	69	69	70		1	-2	-1	No Impact
R21.30	73	73	74		1	-7	-6	No Impact
R21.31	67	67	68		1	-5	-4	No Impact

Table 4-4 Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level (dBA) [1]	Predicted[2] Noise Level with the No-Build Alternative (dBA) (2045)	Predicted[2] Noise Level with Alternative 3 (dBA) (2045)	Soundwall (#)[3]	Future Conditions with Alternative 3 minus Existing Conditions	Soundwall Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R21.39	67	69	70	S2765	3	-7	-4	No Impact
R21.40	69	71	71		2	-7	-5	No Impact
R21.41	65	67	67		2	-7	-5	No Impact
R21.41[Int]	40	42	42		2	-10	-8	No Impact
R21.42	58	60	60		2	-3	-1	No Impact

[1] Existing noise conditions as measured and modeled for the project Noise Study Report.

[2] Future conditions are the predicted noise conditions for horizon year (2045). Predicted noise levels were derived from the Noise Study Report, Appendix B, Predicted Future Noise Levels and Noise Barrier Analysis.

[3] Includes replace in-kind, and recommended walls as discussed in the Section 3.3 of the NADR. Recommended locations and heights for new soundwalls are discussed in the NADR.

[4] Assumes any proposed abatement in the future build condition.

* Future Design Year conditions under Alternative 3 are predicted to be less than the Noise Abatement Criteria (NAC) of 67 dBA set by Caltrans and FHWA.

[Int] Interior

Note: All measurements are in dBA.

Table 4-5 NSR and NADR Addendum Noise Impact Analysis – Alternative 3

Receiver	Existing Noise Level + Train Noise Level (dBA) [1]	Predicted[2] Traffic Noise Level with the No-Build Alternative + Train Noise (dBA)	Predicted[2] Traffic Noise Level with Alternative 3	Predicted[2] Noise Level with Alternative 3 + Train Noise	Recommended[3] Soundwall (#)	Future Conditions with Alternative 3 minus Existing Conditions	Noise Reduction (dBA)	Increase/ Decrease from Existing Noise Level[4]	Impact
R9.21	64	67	65	67	S1708 (Not Recommended)	3	0	3	Less than Significant
R9.21A	65	68	65	69		4	0	4	Less than Significant
R9.22	65	68	66	69		4	0	4	Less than Significant
R9.23	69	69	66	70		1	0	1	Less than Significant
R9.29	67	68	67	69	S1748 (Not Recommended)	2	0	2	Less than Significant
R10.17A	67	67	65	67	S1818	0	5	-5	Beneficial
R10.17	70	70	67	70		0	7	-7	Beneficial
R11.47	64	69	66	70	S1934 (Not Recommended)	6	0	6*	Less than Significant
R11.47A	61	66	65	68		7	0	7*	Less than Significant

1 Existing noise conditions as measured and modeled for the project Noise Study Report Addendum.

2 Future conditions are the predicted noise conditions for horizon year (2045). Predicted noise levels were derived from the Noise Study Report Addendum, Appendix A, Predicted Future Noise Levels and Noise Barrier Analysis.

3 Includes recommended walls as discussed in the Section 3.3 of the NADR Addendum. Recommended locations and heights for new soundwalls are discussed in the NADR Addendum.

4 Assumes any proposed abatement in the future build condition.

* As previously noted, noise impacts are based on traffic noise levels only. Predicted Traffic Noise Levels with Alternative 3 for receivers R11.47 and R11.47A do not exceed the NAC, therefore, the increase is considered less than significant.

Note: All measurements are in dBA.

4.2.3.6 Public Services Checklist Question a) Fire and Police Protection:

Emergency service providers and medical facilities within the project area are described in Section 3.1.5, Utilities/Emergency Services. Proposed mainline improvements would necessitate the construction of structures and delays are anticipated along I-10, I-15, I-215, and SR-210 and at interchanges, as well as on the surrounding arterials, including SR-83 and SR-38, and could result in significant effects on emergency response. However, as described in Section 3.1.4, Community Impacts, none of the temporary long-term closures that have been identified would result in any substantial effect on emergency access or response times. As described in Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities, a Final TMP (measure T-1) will be prepared in coordination with local jurisdictions and emergency service providers (e.g., California Highway Patrol [CHP], local police, fire, paramedics) to identify emergency service routes that serve hospitals, fire/police stations, emergency shelters, emergency command centers, and other facilities that provide essential services in times of emergency within the study area. All emergency service routes would be maintained during construction, or alternate routes would be provided. Mitigation measure UT-3 requires emergency service providers to be alerted in advance of any temporary road closures and delays so that they have adequate time to make appropriate accommodations to ensure prompt emergency response times that fulfill their responsibilities and defined service objectives.

4.2.3.7 Transportation/Traffic Checklist Questions a) and b):

This section identifies the potential significant impacts of the proposed build alternatives (Alternatives 2 and 3) to the performance of the roadways within the project limits, based on the information provided in Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities. Each build alternative is covered separately below. For each build alternative, there is the following:

- A comparison to the existing condition, including an identification of potentially significant cumulative impacts resulting from the combination of the proposed I-10 Corridor Project (I-10 CP) and other land development and roadway improvement projects in the corridor and region.
- A reference to the comparison of the build alternatives to the No Build Alternative (Alternative 1) (as presented in Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities [Environmental Consequences]), identifying the build alternative's contribution to the cumulative impacts.

- An identification of the difference between the build alternative and the No Build Alternative (Alternative 1), related back to the existing condition

The existing condition is the "CEQA Baseline" condition.

Alternative 2

Future Build Alternative Compared to Existing Condition

A comparison of Alternative 2 in 2025 and 2045 to the existing condition reveals the following information. The data used to make the comparison are presented in the tables indicated in Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities (Environmental Consequences). Impacts identified through the comparison are cumulative impacts resulting from the combination of the proposed I-10 CP and other land development and roadway improvement projects in the corridor and region. The inclusion of other land development and roadway improvement projects in the traffic forecasts is summarized in Section 3.6.5.6, Traffic and Transportation/ Pedestrian and Bicycle Facilities (Cumulative Impacts); Section 3.6.4, Related Projects (Cumulative Impacts); and more fully explained in the Traffic Study in Section 2.2.2.

1. Under Alternative 2, on I-10, between the Los Angeles/San Bernardino (LA/SB) county line and Ford Street, in 2025, average daily traffic (ADT) is anticipated to have increased by 63,000 to 72,000, compared to the existing condition. In 2045, ADT is anticipated to have increased by 92,000 to 103,000 (see Table 3.1.6-2).
2. Under Alternative 2, on I-10, between the LA/SB county line and Ford Street in 2025, daily vehicle miles traveled (VMT) is anticipated to have increased by 1.3 million, compared to the existing condition, and by 2.9 million in 2045 (see Table 3.1.6-3).
3. Under Alternative 2, on I-10, between the LA/SB county line and Ford Street, in 2025 and in 2045, level of service (LOS) conditions ranging from LOS C to F are anticipated during peak hours in the general purpose (GP) lanes, compared to LOS B to F under the existing conditions. Under Alternative 2, in 2025, volume to capacity (v/c) ratios range from 0.01 to 0.36 greater than under the existing conditions. In 2045, v/c ratios range from 0.12 to 0.52 greater than under the existing conditions (see Tables 3.1.6-4 and 3.1.6-12).
4. Under Alternative 2, on I-10, between the LA/SB county line and Haven Avenue, in 2025 and in 2045, LOS F conditions are anticipated during peak hours in the high-occupancy vehicle (HOV) lanes except for LOS C in the EB segment during the morning peak hour in 2025. For the HOV lanes between Haven Avenue and

Ford Street, LOS conditions range from LOS B to F. Under the existing condition, LOS conditions range from LOS B to F during peak hours in the HOV lanes between the LA/SB county line and Haven Avenue. There is no HOV lane between Haven Avenue and Ford Street under the existing condition. HOV traffic would be served by existing GP lanes east of Haven Avenue under existing conditions. LOS conditions range from LOS B to F during the peak hours in the GP lanes between Haven Avenue and Ford Street. Under Alternative 2, in 2025, v/c ratios in the HOV lane between the LA/SB county line and Haven Avenue range from 0.032 to 0.79 greater than under the existing conditions. Between Haven Avenue and Ford Street, v/c ratios in the HOV lanes range from 0.64 lower than in the GP lanes under the existing conditions to 0.40 greater. In 2045, v/c ratios between the LA/SB county line and Haven Avenue range from 0.45 to 0.92 greater than under the existing conditions. Between Haven Avenue and Ford Street, v/c ratios range from 0.19 lower than existing conditions to 0.55 greater (see Tables 3.1.6-5 and 3.1.6-13).

5. Under Alternative 2, in 2025, segment speeds in the GP lanes on I-10 range from 22 to 65 mph in the eastbound direction and 12 to 65 mph in the westbound direction. Under existing conditions, speeds in the GP lanes ranges from 42 to 65 mph in the eastbound direction and 32 to 65 mph in the westbound direction during the peak hours. Segment speeds in the HOV lanes during the peak hours ranges from 36 to 65 mph in the eastbound direction and 10 to 65 mph in the westbound direction. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange speed ranges from 36 to 48 mph in the GP lanes during the peak hours, compared to existing conditions speeds of 48 to 60 mph during the peak hours. Speeds of HOVs for an entire corridor trip ranges from 43 to 65 mph during the peak hours, compared to existing conditions speeds of 52 to 61 mph during the peak hours. In 2045 under Alternative 2, segment speeds in the GP lanes on I-10 range from 19 to 64 mph in the eastbound direction and 10 to 63 mph in the westbound direction during the peak hours, compared to existing conditions speeds of 42 to 65 mph in the eastbound direction and 32 to 65 mph in the westbound direction during the peak hours. Segment speeds in the HOV lanes during the peak hours ranges from 10 to 65 mph in the eastbound direction and 10 to 60 mph in the westbound direction. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange speed ranges from 24 to 30 mph in the GP lanes during the peak hours, compared to existing conditions speeds of 48 to 60 mph during the peak hours. Speeds for HOVs for an entire corridor trip ranges from 29 to 57 mph during the peak hours, compared to

existing conditions speed of 52 to 61 mph during the peak hours (see Table 3.1.6-6).

6. Under Alternative 2, in 2025, segment travel times in the GP lanes on I-10 range from 2 to 19 minutes in the eastbound direction and 2 to 41 minutes in the westbound direction during the peak hours. Under existing conditions, segment travel times in the GP lanes ranges from 2 to 14 minutes in both directions during the peak hours. Segment travel times in the HOV lanes ranges from 2 to 12 minutes in the eastbound direction and 2 to 49 minutes in the westbound direction. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange travel time ranges from 36 to 49 minutes in the GP lanes during the peak hours, compared to the existing conditions travel times of 29 to 37 minutes during the peak hours. Travel times of HOVs for an entire corridor trip ranges from 26 to 33 minutes during the peak hours, compared to existing conditions travel times of 28 to 34 minutes during the peak hours. In 2045 under Alternative 2, segment travel times in the GP lanes on I-10 range from 2 to 42 minutes in the eastbound direction and 2 to 49 minutes in the westbound direction during the peak hours, compared to existing conditions travel times of 2 to 14 minutes in both directions during the peak hours. Segment travel times in the HOV lanes in the eastbound direction ranges from 2 to 17 minutes in the eastbound direction and 3 to 49 minutes in the westbound direction during the peak hours. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange travel time ranges from 56 to 72 minutes in the GP lanes during the peak hours, compared to the existing conditions travel times of 29 to 37 minutes during the peak hours. Travel times of HOVs for an entire corridor trip ranges from 30 to 60 minutes during the peak hours, compared to the existing conditions travel times of 28 to 34 minutes during the peak hours (see Table 3.1.6-7).
7. Under Alternative 2, on I-10 between the LA/SB county line and Ford Street, in 2025, daily and annual vehicle hours of delay (VHD) are anticipated to be approximately 20,000 and 5.1 million, respectively. In 2045, daily and annual VHD are anticipated to be approximately 27,000 and 6.8 million, respectively. Under existing conditions, daily and annual VHD are approximately 19,000 and 4.8 million, respectively (see Table 3.1.6-8).
8. Under Alternative 2, on I-10 from I-15 to SR-210, in 2025, branch connectors are anticipated to operate with v/c ratios ranging from 0.29 to 1.97 and from 0.38 to 2.18 in 2045, compared to the existing range of 0.25 to 1.81 (see Tables 3.1.6-9 and 3.1.6-14).

9. Under Alternative 2, in 2025, there are three intersections anticipated to operate at LOS F, and five to have v/c ratios greater than 1.00 during peak hours, compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under existing conditions. In 2045, there are three intersections anticipated to operate at LOS F and nine to have v/c ratios greater than 1.00 during peak hours, compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under the existing conditions (see Table 4-6).
10. Under Alternative 2, in 2045, within the project limits, the percentage of off-ramps with adequate storage at their arterial terminal is anticipated to be 56 percent, compared to 84 percent under the existing conditions (see Table 3.1.6-11).
11. Under Alternative 2, in 2045, within the project limits, the percentage of arterials with adequate storage at their intersections with freeway ramps is anticipated to be 32 percent, compared to 43 percent under the existing conditions (see Table 3.1.6-11).
12. Under Alternative 2, in 2045, within the project limits, the percentage of arterial/ arterial intersections with adequate storage is anticipated to be 33 percent, compared to 67 percent under the existing conditions (see Table 3.1.6-11).

Table 4-6 shows that, under Alternative 2, in 2025, there are three intersections with a significant cumulative impact. The intersections are designated on the table with a "Y" (Yes) in the column labeled "Cumulative Significant Impact." Table 4-6 also shows that, under Alternative 2 in 2045, there are three intersections with a significant cumulative impact.

An increase in the v/c ratio of a freeway segment is an indication of a cumulative impact on the freeway mainline. Based on the increases in freeway GP and HOV lane v/c ratios cited above in Items 3 and 4, there is a cumulative impact on the freeway mainline.

Table 4.6 Years 2025 and 2045 Alternative 2 (HOV) – Peak-Hour Intersection LOS Significant Impact Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025														Year 2045													
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
		East/ West Street	North/ South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS			D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		
Monte Vista Avenue	71	I-10 WB Ramp	Monte Vista Ave	Sig	0.83	25.3	C	0.77	22.3	C	0.90	28.6	C	1.02	38.2	D	0.93	31.2	C	0.92	34.7	C	N	N	0.99	39.6	D	1.19	57.7	E	1.00	46.4	D	1.09	49.8	D	N	N
	72	I-10 EB Off-Ramp/ Palo Verde St	Monte Vista Ave	Sig	0.83	31.7	C	1.00	45.8	D	0.93	36.1	D	1.18	57.4	E	0.94	33.8	C	1.01	50.5	D	N	N	1.01	46.1	D	1.29	74.6	E	1.07	49.5	D	1.19	69.9	E	N	N
	73	Palo Verde St	I-10 EB On-Ramp	Sig	0.36	10.7	B	0.37	13.0	B	0.38	9.8	A	0.41	11.6	B	0.38	10.2	B	0.40	14.5	B	N	N	0.43	10.3	B	0.46	13.1	B	0.42	10.6	B	0.46	13.5	B	N	N
Mountain Avenue	241	7th St/ Shopping Center	Mountain Ave	Sig	0.56	16.5	B	0.79	26.4	C	0.67	17.2	B	0.96	35.1	D	0.71	17.0	B	1.02	38.7	D	N	N	0.84	19.6	B	1.01	40.3	D	0.78	21.3	C	1.03	46.1	D	N	N
	242	I-10 WB On-/ Off-Ramp	Mountain Ave	Sig	0.70	20.0	C	0.79	25.3	C	0.85	32.2	C	0.99	35.2	D	0.88	35.1	D	1.04	43.1	D	N	N	0.98	40.9	D	1.11	52.0	D	0.99	45.7	D	1.14	59.4	E	N	N
	243	I-10 EB On-/ Off-Ramp	Mountain Ave	Sig	0.57	16.2	B	0.78	29.1	C	0.59	16.7	B	0.85	32.8	C	0.60	17.5	B	0.83	32.8	C	N	N	0.68	25.7	C	0.87	34.6	C	0.67	21.5	C	0.82	35.9	D	N	N
	244	6th St	Mountain Ave	Sig	0.65	18.7	B	0.71	21.7	C	0.48	16.7	B	0.74	22.8	C	0.48	16.7	B	0.73	23.2	C	N	N	0.57	18.5	B	0.77	23.3	C	0.54	18.2	B	0.72	24.0	C	N	N
SR-83 (Euclid Avenue)	351	7th St	SB Euclid Ave	Sig	0.74	18.1	B	0.73	20.6	C	0.79	22.8	C	0.78	21.8	C	0.79	21.3	C	0.77	21.1	C	N	N	0.95	32.8	C	0.89	29.6	C	0.94	32.0	C	0.88	28.1	C	N	N
	352	7th St	NB Euclid Ave	Sig	0.52	10.3	B	0.66	13.8	B	0.60	12.9	B	0.83	17.8	B	0.62	12.9	B	0.85	18.5	B	N	N	0.69	13.6	B	0.95	20.4	C	0.71	14.9	B	0.97	21.5	C	N	N
	354	I-10 WB On-Ramp	SB Euclid Ave	UC	0.43	--	--	0.37	--	--	0.45	--	--	0.39	--	--	0.45	--	--	0.39	--	--	N	N	0.50	--	--	0.43	--	--	0.50	--	--	0.42	--	--	--	--
	355	I-10 WB On-Ramp	NB Euclid Ave	UC	0.27	--	--	0.31	--	--	0.29	--	--	0.32	--	--	0.29	--	--	0.32	--	--	N	N	0.31	--	--	0.35	--	--	0.31	--	--	0.35	--	--	--	--
	356	I-10 EB Ramp	Euclid Ave	Sig	0.97	45.3	D	1.00	52.0	D	1.00	53.6	D	**1.14**	**92.1**	**F**	1.01	53.3	D	**1.15**	**95.9**	**F**	**Y**	N	1.23	**92.5**	**F**	**1.39**	**156.7**	**F**	**1.24**	**93.9**	**F**	**1.42**	**166.5**	**F**	**Y**	N
	353	7th St	I-10 WB Off-Ramp/ 2nd Ave	AWS	0.43	13.7	B	0.57	20.9	C	0.55	21.1	C	**0.70**	**50.1**	**F**	0.58	25.3	D	**0.71**	**55.2**	**F**	**Y**	N	0.63	35.2	E	**0.78**	**98.1**	**F**	0.66	46.2	E	**0.79**	**105.7**	**F**	**Y**	N
Vineyard Avenue	611	Inland Empire Blvd	Vineyard Ave	Sig	0.52	8.3	A	0.55	9.2	A	0.63	8.9	A	0.82	12.0	B	0.64	9.1	A	0.82	12.5	B	N	N	0.57	8.2	A	0.67	10.8	B	0.72	8.4	A	0.62	8.8	A	N	N
	612	I-10 WB Ramp	Vineyard Ave	Sig	0.59	10.0	A	0.64	11.9	B	0.83	14.5	B	1.05	36.8	D	0.90	18.1	B	1.08	45.2	D	N	N	0.87	20.8	C	1.10	44.3	D	0.96	28.2	C	1.07	41.5	D	N	N
	613	I-10 EB Ramp	Vineyard Ave	Sig	0.71	16.6	B	0.65	12.1	B	0.95	29.7	C	0.89	18.7	B	0.94	26.7	C	0.89	21.8	C	N	N	1.12	61.9	E	1.09	41.5	D	1.11	58.7	E	1.10	49.8	D	N	N
	614	E G St	Vineyard Ave	Sig	0.44	9.8	A	0.43	8.9	A	0.65	12.2	B	0.54	9.8	A	0.65	12.0	B	0.51	11.4	B	N	N	0.81	18.2	B	0.66	12.2	B	0.83	16.8	B	0.72	10.4	B	N	N
	615	E D St	Vineyard Ave	Sig	0.40	15.0	B	0.55	18.3	B	0.63	16.1	B	0.71	23.7	C	0.63	16.1	B	0.70	27.3	C	N	N	0.74	20.0	C	0.90	31.5	C	0.75	19.5	B	0.92	35.8	D	N	N

Table 4.6 Years 2025 and 2045 Alternative 2 (HOV) – Peak-Hour Intersection LOS Significant Impact Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025														Year 2045													
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
		East/ West Street	North/ South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS			D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		
Etiwanda Avenue/ Commerce Drive	1112	Valley Blvd	Commerce Dr	Sig	0.36	31.6	C	0.44	32.5	C	0.30	34.0	C	0.39	31.7	C	0.32	33.2	C	0.36	33.1	C	N	N	0.36	33.6	C	0.48	36.2	D	0.39	32.7	C	0.45	32.8	C	N	N
	1111	Valley Blvd/ Ontario Mills Pkwy	Etiwanda Ave	Sig	0.38	16.5	B	0.47	20.3	C	0.44	18.7	B	0.56	22.6	C	0.40	19.4	B	0.68	23.7	C	N	N	0.45	18.6	B	0.63	26.2	C	0.48	18.0	B	0.67	21.9	C	N	N
	1113	I-10 WB On-Ramp	SB Etiwanda Ave	UC	0.12	--	--	0.19	--	--	0.24	--	--	0.41	--	--	0.29	--	--	0.53	--	--	N	N	0.29	--	--	0.39	--	--	0.32	--	--	0.53	--	--	--	--
	1114	I-10 WB Off-Ramp	Etiwanda Ave	Sig	0.55	17.8	B	0.42	12.9	B	0.50	15.2	B	0.52	12.7	B	0.54	15.5	B	0.59	15.0	B	N	N	0.53	16.0	B	0.58	15.3	B	0.57	17.0	B	0.67	18.9	B	N	N
	1115	I-10 WB On-Ramp	NB Etiwanda Ave	UC	0.23	--	--	0.38	--	--	0.23	--	--	0.40	--	--	0.25	--	--	0.42	--	--	N	N	0.26	--	--	0.44	--	--	0.26	--	--	0.44	--	--	--	--
	1116	I-10 EB On-Ramp	SB Etiwanda Ave	UC	0.06	--	--	0.19	--	--	0.06	--	--	0.17	--	--	0.06	--	--	0.18	--	--	N	N	0.06	--	--	0.18	--	--	0.06	--	--	0.19	--	--	--	--
	1117	I-10 EB Off-Ramp	Etiwanda Ave	Sig	0.77	24.5	C	0.44	13.3	B	0.62	17.4	B	0.46	10.4	B	0.63	17.6	B	0.47	10.0	B	N	N	0.68	18.6	B	0.51	12.1	B	0.72	20.1	C	0.51	12.1	B	N	N
	1118	I-10 EB On-Ramp	NB Etiwanda Ave	UC	0.14	--	--	0.41	--	--	0.15	--	--	0.45	--	--	0.15	--	--	0.45	--	--	N	N	0.18	--	--	0.52	--	--	0.19	--	--	0.57	--	--	--	--
Pepper Avenue	2101	Valley Blvd	Pepper Ave	Sig	0.64	30.9	C	0.62	31.3	C	0.62	38.6	D	0.60	28.1	C	0.60	30.7	C	0.57	28.0	C	N	N	0.60	31.0	C	0.58	30.6	C	0.71	32.8	C	0.75	32.2	C	N	N
	2102	I-10 WB Ramp	Pepper Ave	Sig	0.65	24.3	C	0.52	14.9	B	0.50	24.9	C	0.42	21.3	C	0.50	19.2	B	0.39	18.8	B	N	N	0.64	28.8	C	0.61	23.2	C	0.71	30.1	C	0.61	20.8	C	N	N
	2103	I-10 EB Ramp	Pepper Ave	Sig	0.98	53.1	D	0.89	49.6	D	0.59	28.6	C	0.52	34.1	C	0.56	26.9	C	0.50	34.1	C	N	N	0.64	25.0	C	0.65	30.2	C	0.71	27.9	C	0.68	34.0	C	N	N
La Cadena/ 9th Street	2261	I-10 WB On-Ramp	La Cadena Dr	None	0.09	4.0	A	0.17	5.3	A	0.11	4.5	A	0.20	5.7	A	0.12	4.6	A	0.21	5.9	A	N	N	0.14	4.8	A	0.24	6.4	A	0.16	5.7	A	0.26	7.2	A	N	N
	2262	I-10 WB Off-Ramp	9th St	SC	0.49	12.9	B	0.46	12.9	B	0.43	12.5	B	0.65	16.9	C	0.40	11.6	B	0.51	13.7	B	N	N	0.49	13.3	B	0.80	24.8	C	0.51	14.0	B	0.64	18.3	C	N	N
	2263	I-10 EB Ramp	9th St	AWS	0.38	11.3	B	0.44	11.9	B	0.23	10.0	B	0.35	11.1	B	0.20	9.5	A	0.34	10.9	B	N	N	0.26	10.9	B	0.38	11.7	B	0.27	10.7	B	0.41	12.2	B	N	N
Tennessee Street	2981	I-10 WB Ramp	Tennessee St	Sig	0.74	20.5	C	0.57	16.9	B	0.61	18.0	B	0.51	19.8	B	0.47	15.7	B	0.52	11.3	B	N	N	0.62	15.9	B	0.70	18.0	B	0.48	14.9	B	0.57	13.9	B	N	N
	2982	I-10 EB Ramp	Tennessee St	Sig	0.52	14.7	B	0.90	37.2	D	0.55	15.8	B	0.98	52.9	D	0.44	13.5	B	0.80	23.8	C	N	N	0.68	23.8	C	1.07	81.0	F	0.52	15.1	B	0.86	28.5	C	N	N

Table 4.6 Years 2025 and 2045 Alternative 2 (HOV) – Peak-Hour Intersection LOS Significant Impact Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025														Year 2045													
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 2 (HOV) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
		East/ West Street	North/ South Street		V/C	Avg Delay (sec)	LOS	V/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS			D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS	D/C	Avg Delay (sec)	LOS		
Ford Street	3311	Reservoir Rd/ I-10 WB On-Ramp	Ford St	SC	1.25	253.2	F	0.60	45.6	E	0.89	32.9	C	0.75	20.6	C	0.88	37.2	D	0.73	20.0	C	N	N	0.55	20.9	C	0.50	22.0	C	0.59	19.1	B	0.66	17.8	B	N	N
	3312	I-10 EB Off-Ramp	Ford St	SC	0.50	13.9	B	0.86	29.5	D	0.71	19.1	C	1.09	85.3	F	0.67	22.5	C	0.87	29.2	D	N	N	0.72	17.4	C	**1.07**	**76.3**	**F**	0.67	17.1	C	0.81	27.3	D	N	N
	3313	Parkford Dr	Ford St	SC	0.40	21.9	C	0.65	31.8	D	0.47	27.9	D	0.79	48.8	E	0.53	33.3	D	**0.83**	**57.0**	**F**	**Y**	N	0.45	24.9	C	**1.18**	**162.3**	**F**	0.51	30.0	D	**0.97**	**89.6**	**F**	**Y**	N
	3314	Redlands Blvd/I-10 EB On-Ramp/ WB Off-Ramp	Ford St	Sig	0.62	19.8	B	0.52	32.8	C	0.62	23.3	C	0.48	18.1	B	0.66	23.2	C	0.55	18.8	B	N	N	0.84	35.1	D	1.01	44.0	D	0.87	31.7	C	0.89	28.6	C	N	N
	3315	Oak St	Ford St	SC	0.27	19.2	C	0.10	12.5	B	0.25	19.1	C	0.12	14.0	B	0.25	19.2	C	0.12	14.1	B	N	N	0.27	20.6	C	0.12	14.6	B	0.26	20.1	C	0.12	14.2	B	N	N
Wabash Avenue	3431	I-10 WB Off-Ramp/ Reservoir Rd	Wabash Ave	SC	0.12	12.7	B	0.08	10.7	B	0.19	12.4	B	0.18	11.1	B	0.19	12.2	B	0.17	10.9	B	N	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	3432	I-10 EB On-Ramp	Wabash Ave	None	0.02	1.4	A	0.01	1.2	A	0.03	2.4	A	0.05	2.7	A	0.03	2.2	A	0.04	2.5	A	N	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
1. LOS – Level of Service; V/C – Volume to Capacity; D/C – Demand Volume to Capacity
2. Sig –Signal; UC – Uncontrolled without conflicting movements; SC – Stop Controlled; AWS – All Way Stop; None – Uncontrolled with conflicting movements
3. For UC intersections, the d/c was calculated based on a saturation flow rate of 1,500 vehicles per hour. Average delay and LOS are not calculated for these intersections, denoted with double dashes (--). The significant impact does not apply to UC intersections.
4. For SC intersections, the average delay and LOS are for the worst stop-controlled approach; the v/c or d/c is for the worst stop-controlled approach.
5. Rows are bold when an intersection is forecast to operate at LOS F under Alternatives 1, 2 and 3.
6. Shaded cells indicate a significant impact.
7. n/a – Analysis for year 2045 is not conducted for the Wabash Avenue interchange due to studies currently being conducted to improve the interchange under RTP# 4M01032.

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Future Build Alternative Compared to Future No Build

Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities (Environmental Consequences), provides a comparison of Alternative 2 to Alternative 1 (No Build) in 2025 and 2045. That comparison identifies the contribution of Alternative 2 to cumulative impacts. As shown in Tables 3.1.6-4 and 3.1.6-12, v/c ratios for the I-10 freeway mainline under Alternative 2 are 0.16 lower to 0.14 higher than under Alternative 1 (No Build) in 2025 and 0.17 lower to 0.08 higher in 2045. Because Tables 3.1.6-4 and 3.1.6-12 show that, for segments on I-10 between the LA/SB county line and Ford Street, LOS is F under Alternative 1 (No Build), the contribution of Alternative 2 to the cumulative impact on the freeway mainline is less than significant.

Table 4-6 shows (in the column labeled "Project Contribution Significant Impact") that there are no intersections with project contributions to cumulative impacts that are significant.

Difference between Future Build Alternatives and Future No Build Alternative Related to Existing Condition

A comparison of the existing condition and the difference between Alternative 1 and the No Build Alternative reveals the following information. The data used to make the comparison are presented in the tables indicated in Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities (Environmental Consequences).

1. On I-10, between the LA/SB county line and Ford Street, in 2025, ADT under Alternative 2 is anticipated to be greater than under the Alternative 1 (No Build) condition by 14,000 to 26,000, compared to the existing condition ADT of 151,000 to 230,000. In 2045, ADT under Alternative 2 is anticipated to be greater than under the Alternative 1 condition by 9,000 to 26,000, compared to the existing condition ADT of 151,000 to 230,000 (see Table 3.1.6-2).
2. On I-10, between the LA/SB county line and Ford Street, in 2025, daily VMT under Alternative 2 is anticipated to be greater than under the Alternative 1 (No Build) condition by 256,000, compared to the existing condition daily VMT of approximately 7.1 million. In 2045, daily VMT under Alternative 2 is anticipated to be greater than under the Alternative 1 (No Build) condition by 267,000, compared to the existing condition daily VMT of approximately 7.1 million (see Table 3.1.6-3).
3. In 2025, there is no difference in the LOS anticipated on I-10 between the LA/SB county line and Ford Street in the GP lanes under both Alternative 2 and

Alternative 1 (No Build), except for the LOS F during the morning peak hour under Alternative 2 for the EB segment between the LA/SB county line and Haven Avenue, compared to LOS D under Alternative 1 (No Build). In 2045, there is no difference in the LOS anticipated on I-10 between the LA/SB county line and Ford Street under both Alternative 2 and Alternative 1 (No Build), except for the LOS C during the evening peak hour under Alternative 2 for the westbound (WB) segment between California Street and Ford Street, compared to LOS F under Alternative 1 (No Build). Under existing conditions, LOS conditions ranging from LOS C to F are anticipated during peak hours in the GP lanes. The peak-hour v/c ratios for the GP lanes in 2025 are anticipated to be 0.16 lower to 0.14 greater under Alternative 2 than under Alternative 1 (No Build), compared to v/c ratios of 0.52 to 1.17 under the existing conditions. In 2045, the v/c ratios are anticipated to be 0.17 lower to 0.08 greater under Alternative 2 than under Alternative 1 (No Build), compared to v/c ratios of 0.52 to 1.17 under the existing conditions (see Tables 3.1.6-4 and 3.1.6-12).

4. There is no difference in the LOS anticipated on I-10 between the LA/SB county line and Haven Avenue under both Alternative 2 and Alternative 1 (No Build) in the HOV lanes during peak hours in 2025 and in 2045. The LOS anticipated for these two conditions is LOS C and F, compared to LOS B to F under the existing conditions. Between Haven Avenue and Ford Street, LOS conditions range from LOS B to F under Alternative 2 during the peak hours in 2025 and 2045. There is no HOV lane between Haven Avenue and Ford Street under Alternative 1 (No Build) and existing conditions. HOV traffic would be served by existing GP lanes east of Haven Avenue. LOS conditions range from LOS C to F during the peak hours in the GP lanes between Haven Avenue and Ford Street under Alternative 1 (No Build) and LOS B to F under the existing condition. Under Alternative 2, in 2025, v/c ratios in the HOV lanes between the LA/SB county line and Haven Avenue range from 0.03 to 0.31 greater than under Alternative 1 (No Build), compared to v/c ratios of 0.36 to 0.81 under the existing conditions. Between Haven Avenue and Ford Street, v/c ratios in the HOV lanes range from 0.85 lower than in the GP lanes under the Alternative 1 (No Build) conditions to 0.14 greater, compared to v/c ratios of 0.52 to 1.17 in the GP lanes under the existing conditions. In 2045, v/c ratios between the LA/SB county line and Haven Avenue range from 0.06 to 0.32 greater than under the Alternative 1 (No Build) conditions, compared to v/c ratios of 0.36 to 0.81 under existing conditions. Between Haven Avenue and Ford Street, v/c ratios in the HOV lanes range from 0.50 lower than in the GP lanes under Alternative 1 (No Build) conditions to 0.15

greater, compared to v/c ratios of 0.52 to 1.17 in the GP lanes under the existing conditions (see Tables 3.1.6-5 and 3.1.6-13).

5. On I-10, in 2025, segment speeds in the GP lanes during peak hours are anticipated to be 10 mph slower to 15 mph faster under Alternative 2 than under Alternative 1 (No Build), compared to segment speeds under the existing conditions ranging from 32 to 65 mph. For an entire corridor trip between the LA/SBd County line and Ford Street speed are anticipated to be 4 mph slower to 7 mph faster under Alternative 2 than under Alternative 1 (No Build), compared to speeds under existing conditions ranging from 48 to 60 mph. Speeds for HOVs for an entire corridor trip are expected to be 10 to 19 mph faster under Alternative 2 than under Alternative 1 (No Build), compared to speeds under existing conditions ranging from 52 to 61 mph. In 2045, segment speeds in the GP lanes during peak hours are anticipated to be 7 mph slower to 12 mph faster under Alternative 2 than under Alternative 1 (No Build), compared to segment speeds under the existing conditions ranging from 32 to 65 mph. For an entire corridor trip between the LA/SBd County line and Ford Street speed are anticipated to be 1 mph slower to 8 mph faster under Alternative 2 than under Alternative 1 (No Build), compared to speeds under existing conditions ranging from 48 to 60 mph. Speeds for HOVs for an entire corridor trip are expected to be 5 to 21 mph faster under Alternative 2 than under Alternative 1 (No Build), compared to speeds under existing conditions ranging from 52 to 61 mph (see Table 3.1.6-6).
6. On I-10, in 2025, segment travel times in the GP lanes during peak hours are anticipated to be 7 minutes less to 4 minutes more under Alternative 2 than under Alternative 1 (No Build), compared to segment travel times under the existing conditions ranging from 4 to 14 minutes. For an entire corridor trip between the LA/SBd County line and Ford Street travel times are anticipated to be 9 minutes less to 3 minutes more under Alternative 2 than under Alternative 1 (No Build), compared to travel times under existing conditions ranging from 29 to 37 minutes. Travel times for HOVs for an entire corridor trip are expected to be 5 to 22 minutes less under Alternative 2 than under Alternative 1 (No Build), compared to travel times under existing conditions ranging from 28 to 34 minutes. In 2045, segment travel times in the GP lanes during peak hours are anticipated to be 21 minutes less to 6 minutes more under Alternative 2 than under Alternative 1 (No Build), compared to segment travel times under the existing conditions ranging from 2 to 14 minutes. For an entire corridor trip between the LA/SBd County line and Ford Street travel times are anticipated to be 3 to 21 minutes less under Alternative 2 than under Alternative 1 (No Build), compared to travel times under

existing conditions ranging from 29 to 37 mph. Travel times for HOVs for an entire corridor trip are expected to be 24 to 11 minutes less under Alternative 2 than under Alternative 1 (No Build), compared to travel times under existing conditions ranging from 28 to 34 minutes (see Table 3.1.6-7).

7. Under Alternative 2, on I-10, between the LA/SB county line and Ford Street, in 2025, daily and annual VHD are anticipated to be approximately 1,300 and 339,000 less, respectively, than under Alternative 1 (No Build), compared to 19,000 daily and 4.8 million annual VHD under the existing conditions. Under Alternative 2, on I-10, between the LA/SB county line and Ford Street, in 2045, daily and annual VHD are anticipated to be approximately 4,600 and 1.1 million less, respectively, than under Alternative 1 (No Build), compared to 19,000 daily and 4.8 million annual VHD under the existing conditions (see Table 3.1.6-8).
8. Under Alternative 2, on I-10 from I-15 to SR-210, branch connectors are anticipated to operate with v/c ratios ranging from 0.07 less to 0.45 greater under Alternative 1 (No Build) and from 0.08 less to 0.70 greater in 2045, compared to the existing range of 0.25 to 1.81 (see Tables 3.1.6-9 and 3.1.6-14).
9. Under Alternative 2, in 2025, there is no difference in the number of intersections anticipated to operate at LOS F and to have v/c ratios greater than 1.00 during peak hours than under Alternative 1 (No Build), compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under existing conditions. In 2045, there are two fewer intersections anticipated to operate at LOS F and four more having v/c ratios greater than 1.00 during peak hours, under Alternative 2, than under Alternative 1 (No Build), compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under the existing conditions (see Table 4-6).
10. In 2045, within the project limits, the percentage of off-ramps with adequate storage at their arterial terminal is anticipated to be greater by 12 percent under Alternative 2 than under Alternative 1 (No Build), compared to 84 percent of off-ramps with adequate storage at their arterial terminal under the existing conditions (see Table 3.1.6-11).
11. In 2045, within the project limits, the percentage of arterials with adequate storage at their intersections with freeway ramps is anticipated to be greater by 6 percent under Alternative 2 than under Alternative 1 (No Build), compared to 43 percent of arterials with adequate storage at their intersections with freeway ramps under the existing conditions (see Table 3.1.6-11).

12. In 2045, within the project limits, the percentage of arterial/arterial intersections with adequate storage is anticipated to be the same between Alternative 2 and Alternative 1 (No Build) with 33 percent, compared to 67 percent of arterial/arterial intersections with adequate storage under the existing conditions (see Table 3.1.6-11).

Alternative 3

Future Build Alternative Compared to Existing Condition

A comparison of Alternative 3 in 2025 and 2045 to the existing condition reveals the following information.

1. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2025, ADT is anticipated to have increased by 72,600 to 106,000, compared to the existing condition. In 2045, ADT is anticipated to have increased by 109,000 to 139,000 (see Table 3.1.6-2).
2. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2025, daily VMT is anticipated to have increased by 1.8 million compared to the existing condition and by 3.6 million in 2045 (see Table 3.1.6-3).
3. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2025, LOS F conditions are generally anticipated during peak hours in the GP lanes. In 2045, LOS F conditions are generally anticipated during the peak hours in the GP lanes. Under the existing condition, LOS conditions range from LOS B to F. Under Alternative 3, in 2025, v/c ratios range from 0.01 to 0.31 greater than existing conditions. In 2045, v/c ratios range from 0.10 to 0.58 greater than existing conditions (see Tables 3.1.6-4 and 3.1.6-12).
4. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2025 and in 2045, LOS A to D conditions are anticipated during peak hours in the Express Lanes (tolled). Under the existing conditions, there is no HOV or Express Lane between Haven Avenue and Ford Street. HOV traffic would be served by the existing GP lanes east of Haven Avenue. Under the existing condition, LOS conditions range from LOS B to F during peak hours in the HOV lanes between the LA/SB county line and Haven Avenue. LOS conditions range from LOS C to F in the GP lanes east of Haven Avenue. Under Alternative 3, in 2025, v/c ratios between the LA/SB county line and Haven Avenue range from 0.02 lower than under the existing conditions to 0.29 greater. Between Haven Avenue and Ford Street, v/c ratios range from 0.47 to 0.14 lower than under the existing conditions. In 2045, v/c ratios between the LA/SB county line and Haven Avenue range from

0.04 to 0.41 greater than under the existing conditions. Between Haven Avenue and Ford Street, v/c ratios range from 0.34 to 0.14 lower than existing conditions (see Tables 3.1.6-5 and 3.1.6-13).

5. Under Alternative 3, on I-10, in 2025, segment speeds in the GP lanes on I-10 range from 22 to 64 mph in the eastbound direction and 18 to 64 mph in the westbound direction. Under existing conditions, speeds in the GP lanes range from 42 to 65 mph in the eastbound direction and 32 to 65 mph in the westbound direction during the peak hours. Segment speeds in the Express lanes during the peak hours ranges from 55 to 65 mph. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange speed ranges from 38 to 54 mph in the GP lanes during the peak hours, compared to existing conditions speeds of 48 to 60 mph during the peak hours. Speeds on the Express lanes for an entire corridor trip ranges from 62 to 65 mph during the peak hours, compared to existing conditions HOV speeds of 52 to 61 mph during the peak hours. In 2045 under Alternative 3, segment speeds in the GP lanes on I-10 range from 10 to 61 mph in the eastbound direction and 10 to 55 mph in the westbound direction during the peak hours, compared to existing conditions speeds of 42 to 65 mph in the eastbound direction and 32 to 65 mph in the westbound direction. Segment speeds in the Express lanes during the peak hours ranges from 54 to 65 mph. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange speed ranges from 25 to 42 mph in the GP lanes during the peak hours, compared to existing conditions speeds of 48 to 60 mph during the peak hours. Speeds on the Express lanes for an entire corridor trip ranges from 58 to 62 mph during the peak hours, compared to existing conditions HOV speeds of 52 to 61 mph during the peak hours (see Table 3.1.6-6).
6. Under Alternative 3, on I-10, segment travel times in the GP lanes on I-10 ranges from 2 to 18 minutes in the eastbound direction and 2 to 27 minutes in the westbound direction during the peak hours. Under existing conditions, segment travel times in the GP lanes ranges from 2 to 14 minutes in both directions during the peak hours. Segment travel times in the Express lanes ranges from 2 to 12 minutes in the eastbound direction and 2 to 13 minutes in the westbound direction. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange travel time ranges from 31 to 45 minutes in the GP lanes during the peak hours, compared to the existing conditions travel times of 29 to 37 minutes during the peak hours. Travel times on the Express lanes for an entire corridor trip ranges from 26 to 29 minutes during the peak hours, compared to existing conditions HOV travel times of 28 to 34 minutes during the peak hours.

In 2045 under Alternative 3, segment travel times in the GP lanes on I-10 range from 2 to 31 minutes in the eastbound direction and 3 to 49 minutes during the peak hours, compared to existing conditions travel time of 2 to 14 minutes in both directions during the peak hours. Segment travel times in the Express lanes ranges from 2 to 13 minutes in the eastbound direction and 2 to 14 in the westbound direction. For an entire corridor trip between the LA/SBd County line and the Ford Street interchange travel time ranges from 41 to 70 minutes in the GP lanes during the peak hours, compared to the existing conditions travel times of 29 to 37 minutes during the peak hours. Travel times on the Express lanes for an entire corridor trip ranges from 27 to 30 minutes during the peak hours, compared to the existing conditions HOV travel times of 28 to 34 minutes during the peak hours (see Table 3.1.6-7).

7. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2025, daily and annual VHD are anticipated to be approximately 20,000 and 4.9 million, respectively. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2045, daily and annual VHD are anticipated to be approximately 24,000 and 6.0 million, respectively. Under the existing conditions, daily and annual VHD are approximately 19,000 and 4.8 million, respectively (see Table 3.1.6-8).
8. Under Alternative 3, on I-10 from I-15 to SR-210, branch connectors are anticipated to operate with v/c ratios ranging from 0.36 to 2.03 in 2025 and from 0.43 to 2.25 in 2045, compared to the existing range of 0.25 to 1.81 (see Tables 3.1.6-9 and 3.1.6-14).
9. Under Alternative 3, in 2025, none of the intersections are anticipated to operate at LOS F and one to have a v/c ratio greater than 1.00 during peak hours, compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under the existing conditions. In 2045, there is one intersection anticipated to operate at LOS F and ten to have v/c ratios greater than 1.00 during peak hours, compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under the existing conditions (see Table 4-7).
10. Under Alternative 3, in 2045, within the project limits, the percentage of off-ramps with adequate storage at their arterial terminal is anticipated to be 79 percent compared to 84 percent under the existing conditions (see Table 3.1.6-11).
11. Under Alternative 3, in 2045, within the project limits, the percentage of arterials with adequate storage at their intersections with freeway ramps is anticipated to

be 50 percent compared to 43 percent under the existing conditions (see Table 3.1.6-11).

12. Under Alternative 3, in 2045, within the project limits, the percentage of arterial/ arterial intersections with adequate storage is anticipated to be 33 percent compared to 67 percent under the existing conditions (see Table 3.1.6-11).

Table 4-7 shows that, under Alternative 3, in 2025, none of the intersections are found to have a significant cumulative impact. Under Alternative 3, in 2045, there is one intersection with a significant cumulative impact. The intersection is designated on the table with a "Y" (Yes) in the column labeled "Cumulative Significant Impact."

An increase in the v/c ratio of a freeway segment is an indication of a cumulative impact on the freeway mainline. Based on the increases in freeway GP lane v/c ratios cited above in Item 3, there is a cumulative impact on the freeway mainline.

Future Build Alternative Compared to Future No Build

Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities (Environmental Consequences), provides a comparison of Alternative 3 to Alternative 1 (No Build) in 2025 and 2045. That comparison identifies the contribution of Alternative 3 to cumulative impacts. As shown in Tables 3.1.6-4 and 3.1.6-12, v/c ratios for the I-10 freeway mainline under Alternative 3 are 0.18 lower to 0.14 higher than under Alternative 1 (No Build) in 2025 and 0.17 lower to 0.11 higher in 2045. Because Tables 3.1.6-4 and 3.1.6-12 show that, for segments on I-10 between the LA/SB county line and Ford Street, LOS is F under Alternative 1 (No Build), the contribution of Alternative 3 to the cumulative impact on the freeway mainline is less than significant.

Table 4-7 shows (in the column labeled "Project Contribution Significant Impact") that there are no intersections with project contributions to cumulative impacts that are significant.

Table 4.7 Years 2025 and 2045 Alternative 3 (Express) – Peak-Hour Intersection LOS Significant Impact Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025														Year 2045													
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
		East/West Street	North/South Street		v/c	Avg Delay (sec)	LOS	v/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS			d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS		
Monte Vista Avenue	71	I-10 WB Ramp	Monte Vista Ave	Sig	0.83	25.3	C	0.77	22.3	C	0.9	28.6	C	1.02	38.2	D	0.54	22.3	C	0.58	21	C	N	N	0.99	39.6	D	1.19	57.7	E	0.68	21.3	C	0.67	24.7	C	N	N
	72	I-10 EB Off-Ramp/ Palo Verde St	Monte Vista Ave	Sig	0.83	31.7	C	1	45.8	D	0.93	36.1	D	1.18	57.4	E	0.76	31.9	C	0.79	39.1	D	N	N	1.01	46.1	D	1.29	74.6	E	0.85	39.5	D	1	46.7	D	N	N
	73	Palo Verde St	I-10 EB On-Ramp	Sig	0.36	10.7	B	0.37	13	B	0.38	9.8	A	0.41	11.6	B	0.41	12.1	B	0.49	14.3	B	N	N	0.43	10.3	B	0.46	13.1	B	0.47	12.1	B	0.55	16.3	B	N	N
Mountain Avenue	241	7th St/Shopping Center	Mountain Ave	Sig	0.56	16.5	B	0.79	26.4	C	0.67	17.2	B	0.96	35.1	D	0.7	17.6	B	0.94	36.2	D	N	N	0.84	19.6	B	1.01	40.3	D	0.78	21.2	C	0.99	42.7	D	N	N
	242	I-10 WB On/Off Ramp	Mountain Ave	Sig	0.7	20	C	0.79	25.3	C	0.85	32.2	C	0.99	35.2	D	0.89	33.3	C	1.03	40	D	N	N	0.98	40.9	D	1.11	52	D	0.99	46.2	D	1.11	54.2	D	N	N
	243	I-10 EB On/Off Ramp	Mountain Ave	Sig	0.57	16.2	B	0.78	29.1	C	0.59	16.7	B	0.85	32.8	C	0.62	17.8	B	0.83	32.3	C	N	N	0.68	25.7	C	0.87	34.6	C	0.69	19	B	0.84	36.9	D	N	N
	244	6th St	Mountain Ave	Sig	0.65	18.7	B	0.71	21.7	C	0.48	16.7	B	0.74	22.8	C	0.48	16.9	B	0.74	23	C	N	N	0.57	18.5	B	0.77	23.3	C	0.55	19.2	B	0.74	24.2	C	N	N
Euclid Avenue	351	7th St	SB Euclid Ave	Sig	0.74	18.1	B	0.73	20.6	C	0.48	16.7	B	0.74	22.8	C	0.48	16.9	B	0.74	23.0	0.48	N	N	0.95	32.8	C	0.90	29.6	C	1.04	46.5	D	1.00	40.1	D	N	N
	352	7th St	NB Euclid Ave	Sig	0.52	10.3	B	0.66	13.8	B	0.79	22.8	C	0.78	21.8	C	0.88	22.6	C	0.91	28.3	0.79	N	N	0.69	13.6	B	0.95	20.4	C	0.79	12.9	B	1.02	38.7	D	N	N
	353	7th St	I-10 WB Off-Ramp/ 2nd Ave	AWS	0.43	13.7	B	0.57	20.9	C	0.60	12.9	B	0.83	17.8	B	0.70	11.1	B	0.92	28.9	0.60	N	N	0.63	35.2	E	**0.78**	**98.1**	**F**	0.56	15.9	B	0.74	16.7	B	N	N
	354	I-10 WB On-Ramp	SB Euclid Ave	UC	0.43	--	--	0.37	--	--	0.55	21.1	C	**0.70**	**50.1**	**F**	0.49	17.4	B	0.67	15.6	0.55	N	N	0.50	--	--	0.43	--	--	0.55	--	--	0.49	--	--	--	--
	355	I-10 WB On-Ramp	NB Euclid Ave	UC	0.27	--	--	0.31	--	--	0.45	--	--	0.39	--	--	0.50	--	--	0.46	--	0.45	N	N	0.31	--	--	0.35	--	--	0.27	--	--	0.29	--	--	--	--
	356	I-10 EB Ramp	Euclid Ave	Sig	0.97	45.3	D	1	52	D	0.29	--	--	0.32	--	--	0.23	--	--	0.25	--	0.29	N	N	**1.23**	**92.5**	**F**	**1.39**	**156.7**	**F**	0.86	24.9	C	1.02	49.1	D	N	N
Vineyard Avenue	611	Inland Empire Blvd	Vineyard Ave	Sig	0.52	8.3	A	0.55	9.2	A	1.00	53.6	D	**1.14**	**92.1**	**F**	0.58	20.7	C	0.69	28.6	1.00	N	N	0.57	7.5	A	0.67	12.9	B	0.69	7.9	A	0.61	9.0	A	N	N
	612	I-10 WB Ramp	Vineyard Ave	Sig	0.59	10	A	0.64	11.9	B	0.63	8.9	A	0.82	12.0	B	0.64	9.1	A	0.83	9.5	0.63	N	N	1.02	34.7	C	1.16	58.6	E	1.08	46.4	D	1.14	54.6	D	N	N
	613	I-10 EB Ramp	Vineyard Ave	Sig	0.71	16.6	B	0.65	12.1	B	0.83	14.5	B	1.05	36.8	D	0.83	15.5	B	1.00	28.0	0.83	N	N	1.12	60.6	E	1.09	45.6	D	1.16	71.3	E	1.19	72.5	E	N	N

Table 4.7 Years 2025 and 2045 Alternative 3 (Express) – Peak-Hour Intersection LOS Significant Impact Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025														Year 2045													
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
		East/West Street	North/South Street		v/c	Avg Delay (sec)	LOS	v/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS			d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS		
	614	E G St	Vineyard Ave	Sig	0.44	9.8	A	0.43	8.9	A	0.95	29.7	C	0.89	18.7	B	0.98	32.9	C	0.97	23.4	0.95	N	N	0.87	18.3	B	0.71	13.2	B	0.92	19.8	B	0.72	11.0	B	N	N
	615	E D St	Vineyard Ave	Sig	0.4	15	B	0.55	18.3	B	0.65	12.2	B	0.54	9.8	A	0.73	12.6	B	0.63	8.8	0.65	N	N	0.73	20.1	C	0.90	32.4	C	0.77	19.7	B	0.97	37.8	D	N	N
Etiwanda Ave/Commerce Dr	1111	Valley Blvd/ Ontario Mills Pkwy	Etiwanda Ave	Sig	0.38	16.5	B	0.47	20.3	C	0.44	18.7	B	0.56	22.6	C	0.45	17.7	B	0.67	23.5	C	N	N	0.45	18.6	B	0.63	26.2	C	0.46	17	B	0.63	21.6	C	N	N
	1112	Valley Blvd	Commerce Dr	Sig	0.36	31.6	C	0.44	32.5	C	0.3	34	C	0.39	31.7	C	0.32	35.2	D	0.38	33.5	C	N	N	0.36	33.6	C	0.48	36.2	D	0.34	34.7	C	0.45	31.6	C	N	N
	1113	I-10 WB On-Ramp	SB Etiwanda Ave	UC	0.12	--	--	0.19	--	--	0.24	--	--	0.41	--	--	0.27	--	--	0.41	--	--	N	N	0.29	--	--	0.39	--	--	0.25	--	--	0.41	--	--	--	--
	1114	I-10 WB Off-Ramp	Etiwanda Ave	Sig	0.55	17.8	B	0.42	12.9	B	0.5	15.2	B	0.52	12.7	B	0.55	14.8	B	0.53	12.6	B	N	N	0.53	16	B	0.58	15.3	B	0.59	16.7	B	0.62	13	B	N	N
	1115	I-10 WB On-Ramp	NB Etiwanda Ave	UC	0.23	--	--	0.38	--	--	0.23	--	--	0.4	--	--	0.29	--	--	0.46	--	--	N	N	0.26	--	--	0.44	--	--	0.26	--	--	0.47	--	--	--	--
	1116	I-10 EB On-Ramp	SB Etiwanda Ave	UC	0.06	--	--	0.19	--	--	0.06	--	--	0.17	--	--	0.06	--	--	0.18	--	--	N	N	0.06	--	--	0.18	--	--	0.06	--	--	0.2	--	--	--	--
	1117	I-10 EB Off-Ramp	Etiwanda Ave	Sig	0.77	24.5	C	0.44	13.3	B	0.62	17.4	B	0.46	10.4	B	0.63	17.6	B	0.49	10.3	B	N	N	0.68	18.6	B	0.51	12.1	B	0.72	19.6	B	0.57	12.4	B	N	N
	1118	I-10 EB On-Ramp	NB Etiwanda Ave	UC	0.14	--	--	0.41	--	--	0.15	--	--	0.45	--	--	0.15	--	--	0.44	--	--	N	N	0.18	--	--	0.52	--	--	0.19	--	--	0.54	--	--	--	--
Pepper Ave	2101	Valley Blvd	Pepper Ave	Sig	0.64	30.9	C	0.62	31.3	C	0.62	38.6	D	0.6	28.1	C	0.58	29.9	C	0.55	29.4	C	N	N	0.6	31	C	0.58	30.6	C	0.65	52.3	D	0.75	33.8	C	N	N
	2102	I-10 WB Ramp	Pepper Ave	Sig	0.65	24.3	C	0.52	14.9	B	0.5	24.9	C	0.42	21.3	C	0.51	19	B	0.43	17.4	B	N	N	0.64	28.8	C	0.61	23.2	C	0.79	32.4	C	0.63	22.9	C	N	N
	2103	I-10 EB Ramp	Pepper Ave	Sig	0.98	53.1	D	0.89	49.6	D	0.59	28.6	C	0.52	34.1	C	0.59	27	C	0.5	29.4	C	N	N	0.64	25	C	0.65	30.2	C	0.77	26.7	C	0.68	34.6	C	N	N
La Cadena Dr/9th St	2261	I-10 WB On-Ramp	La Cadena Dr	None	0.09	4	A	0.17	5.3	A	0.11	4.5	A	0.2	5.7	A	0.13	4.6	A	0.23	6.6	A	N	N	0.14	4.8	A	0.24	6.4	A	0.15	5.2	A	0.24	6.6	A	N	N
	2262	I-10 WB Off-Ramp	9th St	SC	0.49	12.9	B	0.46	12.9	B	0.43	12.5	B	0.65	16.9	C	0.41	11.7	B	0.7	19	C	N	N	0.49	13.3	B	0.8	24.8	C	0.53	14.6	B	0.8	26.4	D	N	N
	2263	I-10 EB Ramp	9th St	AWS	0.38	11.3	B	0.44	11.9	B	0.23	10	B	0.35	11.1	B	0.22	9.9	A	0.38	11.6	B	N	N	0.26	10.9	B	0.38	11.7	B	0.32	11.7	B	0.35	12.9	B	N	N
Tenneseee St	2981	I-10 WB Ramp	Tenneseee St	Sig	0.74	20.5	C	0.57	16.9	B	0.61	18	B	0.51	19.8	B	0.46	15.9	B	0.49	13	B	N	N	0.62	15.9	B	0.7	18	B	0.47	14.6	B	0.56	14.9	B	N	N
	2982	I-10 EB Ramp	Tenneseee St	Sig	0.52	14.7	B	0.9	37.2	D	0.55	15.8	B	0.98	52.9	D	0.45	14.1	B	0.75	24	C	N	N	0.68	23.8	C	1.07	81	F	0.55	15.4	B	0.84	29.1	C	N	N

Table 4.7 Years 2025 and 2045 Alternative 3 (Express) – Peak-Hour Intersection LOS Significant Impact Determination for the Build Alternatives

Interchange Location	Intersection #	Intersection Location		Traffic Control	Year 2012						Year 2025														Year 2045													
					Existing Traffic						Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact	Alternative 1 (No Build) Traffic on No Build Geometry						Alternative 3 (Express) Traffic on Build Geometry						Cumulative Significant Impact	Project Contribution Significant Impact
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
		East/West Street	North/South Street		v/c	Avg Delay (sec)	LOS	v/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS			d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS	d/c	Avg Delay (sec)	LOS		
Ford St	3311	Reservoir Rd/ I-10 WB On-Ramp	Ford St	SC	1.25	253.2	F	0.6	45.6	E	0.89	32.9	C	0.75	20.6	C	0.73	23.2	C	0.64	14.1	B	N	N	0.55	20.9	C	0.5	22	C	0.51	10.2	B	0.5	9.6	A	N	N
	3312	I-10 EB Off-Ramp	Ford St	SC	0.5	13.9	B	0.86	29.5	D	0.71	19.1	C	1.09	85.3	F	0.59	19.3	C	0.93	34.8	D	N	N	0.72	17.4	C	1.07	76.3	F	0.58	15.7	C	0.9	33.2	D	N	N
	3313	Parkford Dr	Ford St	SC	0.4	21.9	C	0.65	31.8	D	0.47	27.9	D	0.79	48.8	E	0.49	28.9	D	0.76	44.6	E	N	N	0.45	24.9	C	1.18	162.3	F	0.47	25.9	D	**1.26**	**197.6**	**F**	**Y**	N
	3314	Redlands Blvd/I-10 EB On-Ramp/WB Off-Ramp	Ford St	Sig	0.62	19.8	B	0.52	32.8	C	0.62	23.3	C	0.48	18.1	B	0.86	23.7	C	0.55	24.9	C	N	N	0.84	35.1	D	1.01	44	D	0.84	32.4	C	1.04	42.6	D	N	N
	3315	Oak St	Ford St	SC	0.27	19.2	C	0.1	12.5	B	0.25	19.1	C	0.12	14	B	0.25	19.4	C	0.12	14.5	B	N	N	0.27	20.6	C	0.12	14.6	B	0.27	21.2	C	0.12	14.6	B	N	N
Wabash Avenue	3431	I-10 WB Off-Ramp/Reservoir Rd	Wabash Ave	SC	0.12	12.7	B	0.08	10.7	B	0.19	12.4	B	0.18	11.1	B	0.17	12.1	B	0.15	10.8	B	N	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	3432	I-10 EB On-Ramp	Wabash Ave	None	0.02	1.4	A	0.01	1.2	A	0.03	2.4	A	0.05	2.7	A	0.03	2.1	A	0.03	2	A	N	N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
1. LOS – Level of Service; V/C – Volume to Capacity; D/C – Demand Volume to Capacity
2. Sig –Signal; UC – Uncontrolled without conflicting movements; SC – Stop Controlled; AWS – All Way Stop; None – Uncontrolled with conflicting movements
3. For UC intersections, the d/c was calculated based on a saturation flow rate of 1,500 vehicles per hour. Average delay and LOS are not calculated for these intersections, denoted with double dashes (--). The significant impact does not apply to UC intersections.
4. For SC intersections, the average delay and LOS are for the worst stop-controlled approach; the v/c or d/c is for the worst stop-controlled approach.
5. Rows are bold when an intersection is forecast to operate at LOS F under Alternatives 1, 2 and 3.
6. Shaded cells indicate a significant impact.
7. n/a – Analysis for year 2045 is not conducted for the Wabash Avenue interchange due to studies currently being conducted to improve the interchange under RTP# 4M01032.

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Difference between Future Build Alternatives and Future No Build Related to Existing Condition

A comparison of the existing condition and the difference between Alternative 3 and Alternative 1 (No Build) reveals the following information. The data used to make the comparison are presented in the tables indicated in Section 3.1.6.3, Traffic and Transportation/Pedestrian and Bicycle Facilities (Environmental Consequences).

1. On I-10, between the LA/SB county line and Ford Street, in 2025, ADT under Alternative 3 is anticipated to be greater than under the Alternative 1 (No Build) condition by 32,000 to 48,000, compared to the existing condition ADT of 151,000 to 230,000. In 2045, ADT under Alternative 3 is anticipated to be greater than under the Alternative 1 (No Build) condition by 19,000 to 56,000, compared to the existing condition ADT of 151,000 to 230,000 (see Table 3.1.6-2).
2. On I-10, between the LA/SB county line and Ford Street, in 2025, daily VMT under Alternative 3 is anticipated to be greater than under the Alternative 1 (No Build) condition by 486,000 compared to the existing condition daily VMT of approximately 7.1 million. In 2045, daily VMT under Alternative 3 is anticipated to be greater than under the Alternative 1 (No Build) condition by 990,000, compared to the existing condition daily VMT of approximately 7.1 million (see Table 3.1.6-3).
3. There is no difference in the LOS letter grade of F anticipated on I-10 between the LA/SB county line and Ford Street under both Alternative 3 and Alternative 1 (No Build) in the GP lanes during peak hours in 2025 and 2045, except for LOS D anticipated in 2025 during the morning peak hour EB between the LA/SB county line and Haven Avenue and LOS D anticipated in 2045 during the evening peak hour WB between California Street and Ford Street. Under the existing conditions, LOS conditions ranging from LOS C to F are anticipated during peak hours in the GP lanes. The peak-hour v/c ratios for the GP lanes in 2025 are anticipated to be 0.18 lower to 0.15 higher under Alternative 3 than under Alternative 1 (No Build), compared to v/c ratios of 0.52 to 1.17 under the existing conditions. In 2045, the v/c ratios are anticipated to be 0.17 lower to 0.11 higher under Alternative 3 than under Alternative 1 (No Build), compared to v/c ratios of 0.52 to 1.17 under the existing conditions (see Tables 3.1.6-4 and 3.1.6-12).
4. Express Lanes LOS conditions, in 2025 and 2045, are anticipated to range from LOS A to D during the peak hours under Alternative 3. There are no HOV lanes or Express Lanes between Haven Avenue and Ford Street under Alternative 1 (No Build) and existing conditions. HOV traffic would be served by existing GP lanes

east of Haven Avenue. LOS conditions range from LOS C to F under Alternative 1 (No Build) in both the HOV lanes between the LA/SB county line and Haven Avenue and in the GP lanes between Haven Avenue and Ford Street during the peak hours in 2025 and 2045. Under the existing condition during the peak hours, LOS conditions range from LOS D to F in the HOV lanes between the LA/SB county line and Haven Avenue. In the GP lanes between Haven Avenue and Ford Street, LOS conditions range from LOS B to F. Under Alternative 3, in 2025, v/c ratios between the LA/SB county line and Haven Avenue range from 0.03 to 0.46 lower than under Alternative 1 (No Build), compared to v/c ratios of 0.63 to 0.81 under the existing conditions. Between Haven Avenue and Ford Street, v/c ratios range from 0.36 to 0.77 lower than in the GP lanes under Alternative 1 (No Build), compared to v/c ratios of 0.52 to 1.17 in the GP lanes under the existing conditions. In 2045, v/c ratios between the LA/SB county line and Haven Avenue range from 0.18 to 0.61 lower than under the Alternative 1 (No Build) conditions, compared to v/c ratios of 0.63 to 0.81 under the existing conditions. Between Haven Avenue and Ford Street, v/c ratios range from 0.52 to 0.68 lower than in the GP lanes Alternative 1 (No Build) conditions, compared to v/c ratios of 0.52 to 1.17 in the GP lanes under the existing conditions (see Tables 3.1.6-5 and 3.1.6-13).

5. On I-10, in 2025, segment speeds in the GP lanes during peak hours are anticipated to be 5 mph slower to 16 mph faster under Alternative 3 than under Alternative 1 (No Build), compared to segment speeds under the existing conditions ranging from 32 to 65 mph. Segment speeds for the Express lanes ranges from 55 to 65 mph in both directions during the peak hours. For an entire corridor trip between the LA/SBd County line and Ford Street speed are anticipated to be 2 to 8 mph faster under Alternative 3 than under Alternative 1 (No Build), compared to speeds under existing conditions ranging from 48 to 60 mph. Speeds on the Express lanes for an entire corridor trip are expected to be 10 to 30 mph faster under Alternative 3 than under Alternative 1 (No Build) for HOVs, compared to HOV speeds under existing conditions ranging from 52 to 61 mph. In 2045, segment speeds in the GP lanes during peak hours are anticipated to be 7 mph slower to 24 mph faster under Alternative 3 than under Alternative 1 (No Build), compared to segment speeds under the existing conditions ranging from 32 to 65 mph. Segment speeds on the Express lanes ranges from 54 to 65 mph in both directions during the peak hours. For an entire corridor trip between the LA/SBd County line and Ford Street speed are anticipated to be 4 to 13 mph faster under Alternative 3 than under Alternative 1 (No Build), compared to

speeds under existing conditions ranging from 48 to 60 mph. Speeds on the Express lanes for an entire corridor trip are expected to be 26 to 39 mph faster under Alternative 3 than under Alternative 1 (No Build) for HOVs, compared to HOV speeds under existing conditions ranging from 52 to 61 mph (see Table 3.1.6-6).

6. On I-10, in 2025, segment travel times in the GP lanes during peak hours are anticipated to be 10 minutes less to 1 minute more under Alternative 3 than under Alternative 1 (No Build), compared to segment travel times under the existing conditions ranging from 2 to 14 minutes. Segment travel times in the Express lanes ranges from 2 to 13 minutes during the peak hours. For an entire corridor trip between the LA/SBd County line and Ford Street travel times are anticipated to be 2 to 16 minutes less under Alternative 3 than under Alternative 1 (No Build), compared to travel times under existing conditions ranging from 29 to 37 minutes. Travel times on the Express lanes for an entire corridor trip are expected to be 5 to 26 minutes less under Alternative 3 than under Alternative 1 (No Build) for HOVs, compared to HOV travel times under existing conditions ranging from 28 to 34 minutes. In 2045, segment travel times in the GP lanes during peak hours are anticipated to be 36 minutes less to 4 minutes more under Alternative 3 than under Alternative 1 (No Build), compared to segment travel times under the existing conditions ranging from 2 to 14 minutes. Segment travel times on the Express lanes ranges from 2 to 14 minutes during the peak hours. For an entire corridor trip between the LA/SBd County line and Ford Street travel times are anticipated to be 10 to 28 minutes less under Alternative 3 than under Alternative 1 (No Build), compared to travel times under existing conditions ranging from 29 to 37 mph. Travel times on the Express lanes for an entire corridor trip are expected to be 20 to 50 minutes less under Alternative 3 than under Alternative 1 (No Build) for HOVs, compared to HOV travel times under existing conditions ranging from 28 to 34 minutes (see Table 3.1.6-7).
7. Under Alternative 3, on I-10, between the LA/SB county line, in 2025, daily and annual VHD are anticipated to be approximately 1,900 and 485,000 less, respectively, than under Alternative 1 (No Build), compared to 19,000 daily and 4.8 million annual VHD under the existing conditions. Under Alternative 3, on I-10, between the LA/SB county line and Ford Street, in 2045, daily and annual VHD are anticipated to be approximately 485,000 and 1.9 million less, respectively, than under Alternative 1 (No Build), compared to 19,000 daily and 4.8 million annual VHD under the existing conditions (see Table 3.1.6-8).

8. Under Alternative 3, on I-10 from I-15 to SR-210, in 2025, branch connectors are anticipated to operate with v/c ratios ranging from 0.03 less to 0.42 greater than under Alternative 1 (No Build) and from 0.08 to 0.81 greater in 2045, compared to the existing range of 0.25 to 1.81 (see Tables 3.1.6-9 and 3.1.6-14).
9. Under Alternative 3, in 2025, there are three fewer intersections anticipated to operate at LOS F and four less having v/c ratios greater than 1.00 during peak hours than under Alternative 1 (No Build), compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under the existing conditions. In 2045, there are four fewer intersections anticipated to operate at LOS F and three less having v/c ratios greater than 1.00 during peak hours under Alternative 3 than under Alternative 1 (No Build), compared to one intersection operating at LOS F and one with a v/c ratio over 1.00 under the existing conditions (see Table 4-7).
10. In 2045, within the project limits, the percentage of off-ramps with adequate storage at their arterial terminal is anticipated to be greater by 35 percent under Alternative 3 than under Alternative 1 (No Build), compared to 84 percent of off-ramps with adequate storage at their arterial terminal under the existing conditions (see Table 3.1.6-11).
11. In 2045, within the project limits, the percentage of arterials with adequate storage at their intersections with freeway ramps is anticipated to be greater by 24 percent under Alternative 3 than under Alternative 1 (No Build), compared to 43 percent of arterials with adequate storage at their intersections with freeway ramps under the existing conditions (see Table 3.1.6-11).
12. In 2045, within the project limits, the percentage of arterial/arterial intersections with adequate storage is anticipated to be the same under Alternative 3 as under Alternative 1 (No Build), compared to 67 percent of arterial/arterial intersections with adequate storage under the existing conditions (see Table 3.1.6-11).

4.2.3.8 Mandatory Findings of Significance

The discussion in this section provides mandatory findings as required in Section 15065 of the CEQA Guidelines.

4.2.3.9 Adverse Effects on Human Beings Mandatory Findings c):

The concept of Express Lanes proposed under Alternative 3 is a new concept in San Bernardino County; therefore, the level of public acceptance is unknown. This may be perceived as a substantial adverse impact.

4.2.3.10 Wildlife and History Mandatory Finding a):

As described in Sections 3.1.8, Cultural; 3.2.4, Paleontology; and 3.3, Biological Environment, and as determined in the corresponding CEQA impact determinations in Chapter 4 for cultural, paleontology, and biology, the build alternatives' project effects would not significantly degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. Project impacts on wildlife are less than significant with implementation of the biological measures provided in Appendix E (AS-1 through AS-6, TE-1 through TE-4, and NC-1 through NC-2). With incorporation of mitigation measures PA-1 and CUL-1 through CUL-8, project impacts on history would be less than significant and would not eliminate important examples of the major periods of California history or prehistory.

4.2.3.11 Cumulatively Considerable Effects Mandatory Findings b):

With implementation of the measures described below in Section 4.3, all impacts associated with the build alternatives would be less than significant with mitigation. Similarly, the reasonably foreseeable projects contained within Table 3.6-1 would also be required to address potential impacts through mitigation as part of project approvals required by the implementing jurisdiction in which they are located.

4.2.4 Unavoidable Significant Environmental Effects

Measures have been proposed to mitigate potentially significant adverse impacts of the build alternatives; however, the following impacts may remain significant and unavoidable:

4.2.5 Significant Irreversible Environmental Changes

Section 3.4, Relationship between Local Short-Term Uses of the Human Environment and the Maintenance of Long-Term Productivity, and Section 3.5, Irreversible and Irretrievable Commitments of Resources that would be involved in the Proposed Project, describe the potential long-term commitments of resources if a build alternative is implemented. Construction of the build alternatives would result in long-term and permanent commitments of natural, physical, human, and fiscal resources to the project. Land acquired for the project would be permanently committed to a transportation use and would no longer be available for other uses. Other permanent environmental changes associated with the build alternatives include

altered viewsheds, consumption of construction materials and energy, and increases in PM emissions, noise, and residential and business relocations.

4.2.6 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources, including passenger cars, light-duty trucks, other trucks, buses, and motorcycles, make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts resulting from climate change (e.g., adjusting transportation design standards to withstand more intense storms and higher sea levels)[18].

There are four primary strategies for reducing GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity, (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.[19]

[18] http://climatechange.transportation.org/ghg_mitigation/
[19] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

4.2.6.1 Regulatory Setting

State

With the passage of several pieces of legislation, including State Senate and Assembly Bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate.

Assembly Bill (AB) 1493, Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

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

AB 32, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

EO S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and State agencies with regard to climate change.

EO S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill (SB) 97, Chapter 185, 2007, Greenhouse Gas Emissions: SB 97 required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the ARB to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation,

land use, and housing policies to plan for the achievement of the emissions target for their region.

SB 391 Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither EPA nor FHWA has issued explicit guidance or methods to conduct project-level GHG analysis.[20] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision making and improve efficiency at the program level, and it will inform the analysis and stewardship needs of project-level decision making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the State is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

EO 13514 (October 5, 2009): This order is focused on reducing GHGs internally in federal agency missions, programs, and operations, but it also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

[20] To date, no national standards have been established regarding mobile source GHGs, nor has EPA established any ambient standards, criteria, or thresholds for GHGs resulting from mobile sources.

EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act (CAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. EPA, in conjunction with the National Highway Traffic Safety Administration (NHTSA), issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[21]

EPA and NHTSA are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards, this program is projected to save approximately 4 billion barrels of oil and 2 billion metric tons of GHG emissions.

The complementary EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will significantly cut GHG emissions and domestic oil use. This program responds to President Barack Obama's 2010 request to jointly establish GHG emissions and fuel efficiency standards for the medium- and heavy-duty

[21] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

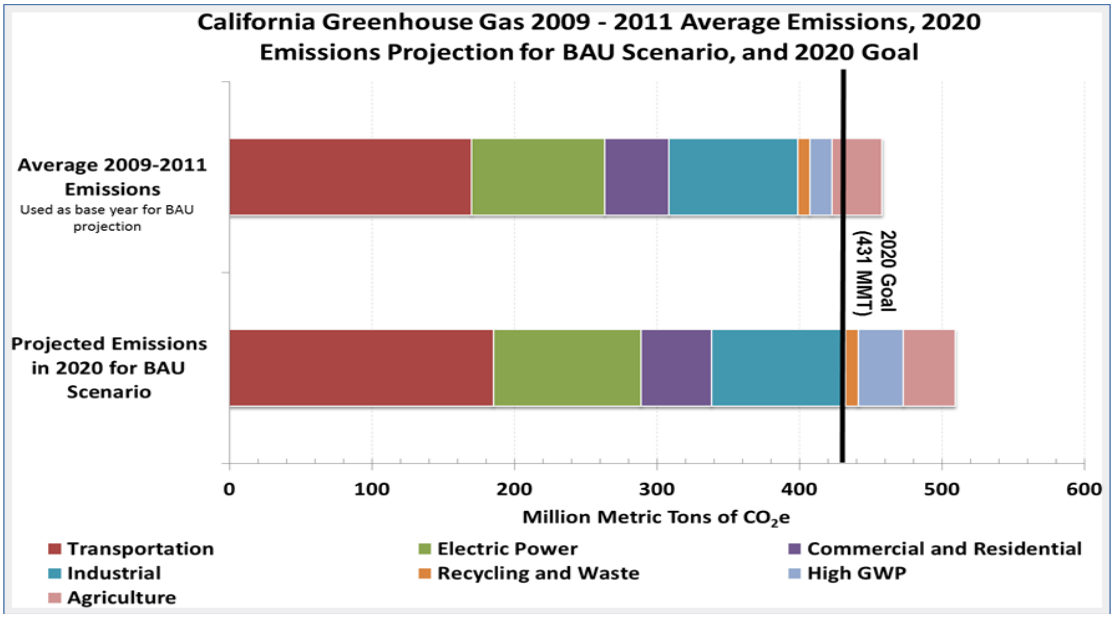
highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by approximately 270 million metric tons and save approximately 530 million barrels of oil over the life of model year 2014 to 2018 heavy-duty vehicles.

4.2.6.2 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[22] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: May 2014). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2009, 2010, and 2011, as shown in Figure 4-1.

[22] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).



Source: http://www.arb.ca.gov/cc/inventory/data/bau.htm

Figure 4-1 California Greenhouse Gas Forecast

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans, which was published in December 2006.[23]

One of the main strategies in Caltrans' Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph) and speeds over 55 mph; the most severe emissions occur from zero to 25 mph (see Figure 4-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

[23] Caltrans Climate Action Program is located at the following Web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf.

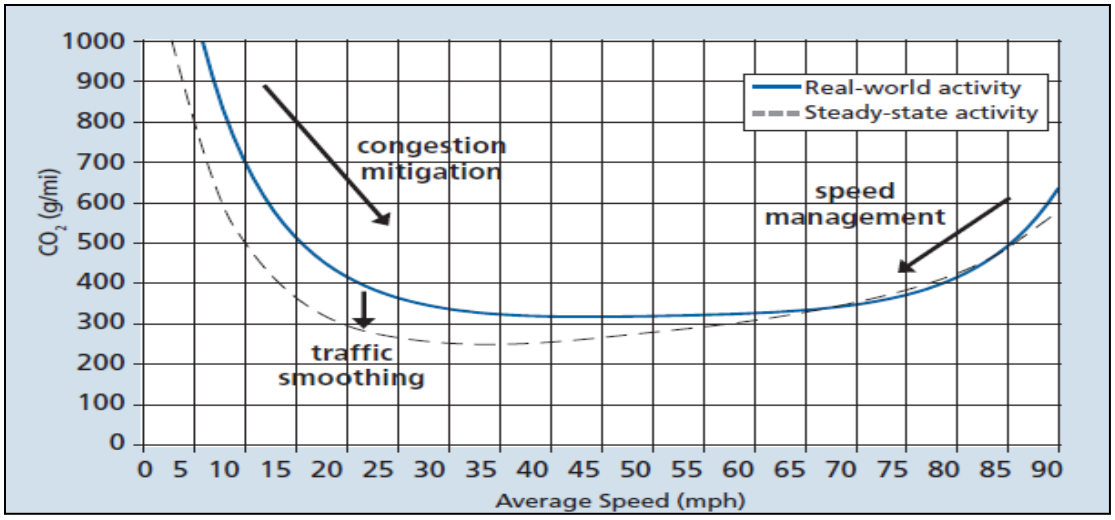


Figure 4-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions[24]

The I-10 corridor within the project limits is currently experiencing congestion and traffic delays during the peak hours due to demand exceeding capacity, resulting from local, regional, and interregional traffic demand. In addition, forecasted local and regional traffic demand is expected to increase, resulting in the need to improve the I-10 corridor. The proposed project alternatives are designed to improve traffic operations on I-10 in San Bernardino County to reduce congestion, increase throughput, and enhance trip reliability for the planning design year of 2045.

Existing GHG emissions are presented in Table 4-8, and future GHG emissions are presented in Tables 4-9 and 4-10. Emissions were estimated using Caltrans CT-EMFAC version 5.0, which is based on EMFAC2011.

Table 4-8 Estimated Existing Annual Carbon Dioxide Emissions

Source	Carbon Dioxide (Metric Tons per Year)	Annual VMT (per 1,000,000)
Existing Conditions (2012)	1,181,102	2,457

Source: Air Quality Report, TAHA 2016.

[24] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>.

Table 4-9 Estimated 2025 Annual Carbon Dioxide Emissions

Source	Metric Tons per Year	Percent Change Compared to No Build	Annual VMT (per 1,000,000)
Alternative 1 (No Build Alternative)	1,328,541	-	2,768
Alternative 2	1,322,275	-	1.7% decrease
Net Change from No Build to Alternative 2	(6,266)	<1% decrease	2,721
Alternative 3	1,451,131	-	9.2% increase
Net Change from No Build to Alternative 3	122,590	9% increase	3,023

Source: Air Quality Report, TAHA 2016.

Table 4-10 Estimated 2045 Annual Carbon Dioxide Emissions

Source	Metric Tons per Year	Percent Change Compared to No Build	Annual VMT (per 1,000,000)
Alternative 1 (No Build Alternative)	1,586,298	-	3,298
Alternative 2	1,628,457	-	3,366
Net Change from No Build to Alternative 2	42,159	3% increase	2.1% increase
Alternative 3	1,748,113	-	3,661
Net Change from No Build to Alternative 3	161,815	10% increase	11.0% increase

Source: Air Quality Report, TAHA 2016.

Operational Emissions

No Build Alternative

The No Build Alternative would not include any of the proposed improvements, as described in Chapter 2 and would result in increased and continuing congestion. The No Build Alternative would result in greater amounts of GHG emissions than Alternative 2 and less than Alternative 3 in 2025. For horizon year 2045 conditions, the No Build Alternative would result in less GHG emissions (see Tables 4-8 and 4-9) compared to both build alternatives.

Build Alternatives

Alternative 2 would result in negligible changes in GHG emissions in 2025 (i.e., less than 1 percent decrease) and 3 percent increases in 2045. Alternative 3 would increase GHG emissions by 9 percent in 2025 and 10 percent in 2045. Between the two build alternatives, Alternative 2 would generate less GHG emissions than

Alternative 3. Compared to the existing conditions, Alternatives 2 and 3 would increase the GHG emissions by 12 and 23 percent in 2025 and by 38 and 48 percent in 2045, respectively.

The regional increase in emissions is related to population growth in southern California. The 2012-2035 RTP/SCS was developed to include a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the National Ambient Air Quality Standards (NAAQS) as set forth by the federal CAA. The proposed project was included in emissions modeling for the 2012–2035 RTP/SCS. Therefore, despite the estimated increase in emissions compared to the No Build Alternative, the proposed project is consistent with the 2012–2035 RTP/SCS and the goals to reduce regional emissions.

Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operation. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved TMPs, and changes in materials, the GHG emissions produced during construction would be lessened to some degree by longer intervals between maintenance and rehabilitation events.

Construction GHG emissions for Alternatives 2 and 3 are presented in Table 4-11. The CEQA baseline emissions for construction are zero. Construction emissions were estimated using RoadMod. Alternative 2 would generate 5,504 metric tons per year and 19,265 total metric tons over the 42-month schedule. Alternative 3 would generate 5,711 metric tons per year and 28,557 total metric tons over the 60-month schedule. Between the two build alternatives, Alternative 2 would generate less GHG construction emissions than Alternative 3.

Table 4-11 Estimated Construction Carbon Dioxide Emissions

Alternative	Carbon Dioxide		Construction Duration
	Metric Tons per Year	Total Metric Tons	
Alternative 2	5,504	19,265	60 months
Alternative 3	5,711	28,557	42 months

As discussed in Section 3.2.6, Air Quality, measures AQ-1, AQ-2, AQ-13, AQ-15, AQ-16, and AQ 19 through AQ-21 will help minimize construction-related GHG emissions.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO_2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO_2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study[25], brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO_2 emissions during a typical urban trip. Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, and idling) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model's results compared to the estimated emissions of the various alternatives with baseline in an attempt to determine impacts. Although work by EPA and ARB is underway on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling.

ARB is currently not using EMFAC to create its inventory of GHG emissions. It is unclear why ARB has made this decision. Their Web site only states:

> REVISION: Both the EMFAC and OFFROAD Models develop CO_2 and CH_4 [methane] emission estimates; however, they are not currently used as the basis for [ARB's] official [greenhouse gas] inventory

[25] Matthew Bartha, Kanok Boriboonsomsin. 2009. Energy and emissions impacts of a freeway-based dynamic eco-driving system. Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410.

> which is based on fuel usage information. . . However, ARB is working towards reconciling the emission estimates from the fuel usage approach and the models.[26]

Other Variables

With the current science, project-level analysis of GHG emissions has limitations. Although a GHG analysis is included for this project, there are numerous key GHG variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012 ,"[27] which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy has improved each year beginning in 2005 and is now at a record high. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003 and subsequently began setting increasingly higher fuel economy standards for future vehicle model years. EPA estimates that light-duty fuel economy rose by 16 percent from 2007 to 2012. Table 4-12 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012-2016 and 2017-2025 CAFE Standards.

Table 4-12 Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1-36.5	38.3-38.9	48.7-49.7

Source: EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf

Second, near-zero carbon vehicles will come into the market during the design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of

[26] http://www.arb.ca.gov/msei/offroad.htm
[27] http://www.epa.gov/oms/fetrends.htm

> such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case."[28]

The greater percentage of alternative fuel vehicles on the road in the future will reduce overall GHG emissions compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California has recently adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in Title 17, California Code of Regulations, Sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Lastly, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, "Effects of Gasoline Prices on Driving Behavior and Vehicle Market,"[29] the Congressional Budget Office found the following results based on data collected from California: (1) freeway motorists adjust to higher gas prices by making fewer trips and driving more slowly; (2) the market share of sports utility vehicles is declining; and (3) the average prices for larger, less-fuel-efficient models declined from 2003 to 2008 as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel efficient vehicles. More recent reports from the Energy Information Agency[30] and Bureau of Economic Analysis[31] also show slowing regrowth of vehicle sales in the years since its dramatic drop in 2009 due to the Great Recession as gasoline prices continue to climb to $4 per gallon and beyond.

Limitations and Uncertainties with Impact Assessment

Taken from p. 5-22 of the National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012), Figure 4-3 illustrates how the range of uncertainties in assessing GHG impacts grows with each step of the analysis:

[28] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf
[29] http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf
[30] http://www.eia.gov/oiaf/aeo/tablebrowser/aeo_query_server/?event=ehExcel.getFile&study=AEO2013&region=0-0&cases=ref2013-d102312a&table=114-AEO2013&yearFilter=0
[31] Historical Vehicle Sales: www.bea.gov/national/xls/gap_hist.xls

"Moss and Schneider (2000) characterize the 'cascade of uncertainty' in climate change simulations Figure 4-3). As indicated in Figure 4-3, the emission estimates used in this EIS have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources […] Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood."[32]

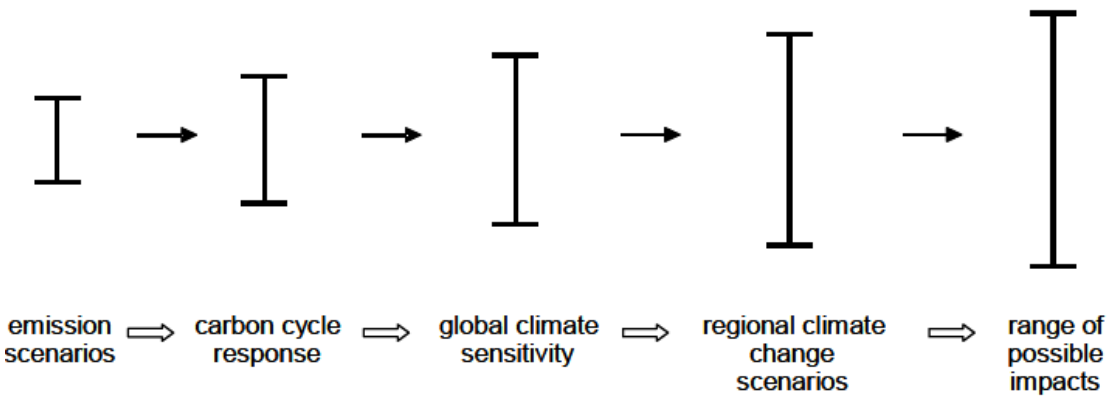


Figure 4-3 Cascade of Uncertainties

Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global GHG emissions, as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce GHG emissions. Non-mitigation IPCC scenarios project an increase in global

[32] http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf. page 5-22

GHG emissions by 9.7 up to 36.7 billion metric tons CO_2 from 2000 to 2030, which represents an increase of between 25 and 90 percent.[33]

The assessment is further complicated by the fact that changes in GHG emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of GHG emissions, rather than causing "new" GHG emissions. It is difficult to assess the extent to which any project-level increase in CO_2 emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

CEQA Conclusion

As discussed above, both the future with project and future no build show increases in CO_2 emissions over the existing levels; the future build CO_2 emissions are higher than the future no build emissions. In addition, as discussed above, there are also limitations with EMFAC and with assessing what a given CO_2 emissions increase means for climate change. Therefore, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

4.2.6.3 GHG Reduction Strategies

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EO S-3-05 and EO S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from Former Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 4-4.

[33] Intergovernmental Panel on Climate Change (IPCC). February 2007. Climate Change 2007: The Physical Science Basis: Summary for Policy Makers. http://www.ipcc.ch/SPM2feb07.pdf[ipcc.ch].

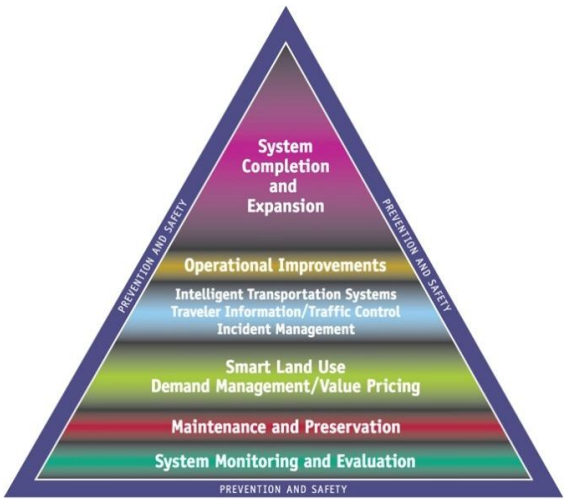


Figure 4-4 Mobility Pyramid

Caltrans is supporting efforts to reduce VMT by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans also assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, supporting legislative efforts to increase fuel economy, and participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by EPA and ARB.

Caltrans is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under SB 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the

CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 4-13 summarizes the Caltrans and statewide efforts that are being implemented to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans' decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)[34] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

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

1. Caltrans and CHP are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS commonly consists of electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. In addition, the San Bernardino Associated Governments (SANBAG) provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity.
3. Landscaping reduces surface warming and, through photosynthesis, decreases CO_2. The project would include planting in the intersection slopes, drainage channels, and seeding in areas next to frontage roads, as well as planting a variety of different-sized plant material and scattered skyline trees where appropriate but not to obstruct the view of the mountains. These trees will help offset any potential CO_2 emissions increase.

[34] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

Table 4-13 Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/ Process	Estimated CO_2 Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & ITS Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, Cal/EPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.0045	0.0065 0.045 0.0225
Nonvehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal/EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

4. The project would incorporate the use of energy-efficient lighting, such as light-emitting diode (LED) traffic signals. LED bulbs cost $60 to $70 each but last 5 to 6 years, compared to the 1-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.[35]
5. The construction contractor must comply with SCAQMD rules, ordinances, and regulations in regards to air quality restrictions.

4.2.6.4 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the State's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011[36], outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision makers manage climate risks.

Climate change adaptation must also involve the natural environment. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will

[35] Knoxville Business Journal, "LED Lights Pay for Themselves," May 19, 2008 at http://www.knoxnews.com/news/2008/may/19/led-traffic-lights-pay-themselves/.
[36] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation.

help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed many State agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, State, and federal public and private entities to develop *The California Climate Adaptation Strategy* (December 2009)[37], which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across State agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08, which specifically asked the Resources Agency to identify how State agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other State agencies were involved in the creation of the Adaptation Strategy document, including Cal/EPA; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors, including Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the State's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report[38] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon, and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.

[37] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF.
[38] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

- A synthesis of existing information on projected sea level rise impacts to state infrastructure (e.g., roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by the Coastal Ocean Climate Action Team (CO-CAT), as well as Caltrans, as a method to initiate action and discussion of potential risks to the State's infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academy of Science's study.

All State agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge, and storm wave data.

All projects that have filed a Notice of Preparation (NOP) as of the date of EO S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The NOP for this project was filed in October 2012. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

EO S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects; however, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able to review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

4.3 Mitigation Measures for Significant Impacts under CEQA

Avoidance, minimization, and/or mitigation measures are those discussed in Chapter 3 within each section under avoidance, minimization, and/or mitigation measures. Measures pursuant to CEQA were identified for each potentially significant effect of the project, described above in Section 4.2.3. Please refer to Chapter 3 for specific measures. Identified mitigation measures pursuant to CEQA that reduce impacts to less than significant include Aesthetics measures VA-1 through VA-38; Biological measures AS-1 through AS-6, TE-1 through TE-4, and NC-1; Cultural Resources measures CUL-1 through CUL-7 and PA-1; Hazardous Waste measures HAZ-1 through HAZ-9; Noise measures N-1 through N-4; and Transportation/Traffic measure T-2.