

4.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION

4.1 DETERMINING SIGNIFICANCE UNDER CEQA

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to State and Federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA responsibility for the 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 (USC) 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 some 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 impact. If the project may have a significant effect on any environmental resource, an Environmental Impact Report (EIR) must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

In making determinations of significance under CEQA, the impacts of the build alternatives are analyzed relative to baseline conditions which, for the I-710 Corridor Project, were the existing conditions in the I-710 Corridor at the time the Notice of Preparation was issued in 2008. For

comparison under NEPA, Alternative 1 provides the basis for comparison of 2035 no build conditions with the 2035 build alternatives.

The following analysis of project impacts under CEQA is based upon the CEQA checklist contained in Appendix A. Caltrans has not adopted specific “thresholds of significance” for determining whether an impact is significant. Instead, the determination of significance is based upon the context of the checklist question.

In the discussions below, the determination of significance is inferred from the checklist question, unless otherwise noted. For some environmental topics, an explicit significance criterion is defined based on the applicable question.

4.2 DISCUSSION OF SIGNIFICANCE OF IMPACTS

The significance of the potential impacts of the I-710 Corridor Project build alternatives under CEQA was assessed based on the CEQA Checklist provided in Appendix A of this EIR/EIS and the analyses of project impacts discussed in detail in Chapter 3, Affected Environment, Environmental Consequences, and Avoidance, Minimization and/or Mitigation Measures, along with additional CEQA specific analysis. The CEQA impacts of the project build alternatives are summarized in the following sections, based on the level of significance of the project’s impacts under CEQA.

Project impacts vary among the four build alternatives, with some alternatives having greater impacts to a particular environmental factor than others. For this reason, significance under CEQA is generally discussed in terms of the alternative with the most significant adverse impact. In cases where the impacts of the alternatives vary widely, clarification is provided regarding which alternatives have the most adverse impacts to a particular environmental factor.

The following analysis is organized as follows:

- Checklist questions answered “No Impact”
- Checklist questions answered “Less Than Significant Impacts”
- Checklist questions answered “Less Than Significant Impacts with Mitigation Incorporated”
- Checklist questions answered “The Project will result in a Significant Adverse Effect”
- Checklist questions are shown in **Bold**.

4.2.1 NO IMPACTS

For the following topics, the build alternatives would have no impacts.

4.2.1.1 AESTHETICS (CEQA CHECKLIST QUESTION I.B)

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

Reference: Section 3.6.

I-710 is not a designated State Scenic Highway,¹ and there are no heritage trees, historic buildings, or unique land forms that would be impacted by the build alternatives; therefore, the build alternatives would not damage scenic resources within a designated scenic corridor.

4.2.1.2 AGRICULTURE RESOURCES (CEQA CHECKLIST QUESTIONS II.A, II.B, II.C, II.D, AND II.E)

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

References: Sections 3.0 and 3.1

The Study Area does not include any designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the build alternatives would not result in any temporary or permanent impacts related to designated farmlands.

The build alternatives would result in conversion of areas currently used for agricultural production (nursery uses) to nonagricultural use. The areas identified as existing agricultural uses (Section 3.1, Table 3.1-1) are located within the cities of Long Beach, Paramount, and South Gate, and consist of numerous small strips of land within utility easements and under power lines that are being used as commercial nurseries. Alternative 5A would permanently impact approximately 17.76 acres, and Alternatives 6A/B/C would permanently impact approximately 38.71 acres of land currently used for nurseries and utility easements. The impact areas would generally occur on the edge of the parcels within the Study Area. The nursery areas are not designated as farmlands and not zoned for agricultural uses; therefore, conversion of such nursery uses is not considered an impact.

¹ http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Reference: Section 3.0

None of the lands in the Study Area are zoned for agricultural uses. Additionally, the Study Area does not include any property under Williamson Act contract. Therefore, there is no impact.

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

Reference: Section 3.0

The I-710 Corridor Project Study Area does not contain any zoned forest lands or timberlands.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Reference: Section 3.0

The I-710 Corridor Project would not result in the loss of forest land or conversion of forest land to non-forest use, as there are no such lands within the Study Area.

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

Reference: Section 3.0

Given the lack of agricultural lands, forest lands, and timberlands in the Study Area, the project would also not involve other changes in the existing environment which, due to their location or nature, could result in a conversion of farmland to nonagricultural use or a conversion of forest land to non-forest use. Therefore, the build alternatives would not result in impacts to agriculture and forest resources.

4.2.1.3 BIOLOGICAL RESOURCES (CEQA CHECKLIST QUESTIONS IV.E AND IV.F)

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

Reference: Section 3.16.1

As discussed in Section 3.16.1, the build alternatives would not conflict with any local policies or ordinances protecting biological resources. The cities of Long Beach and Los Angeles and the County of Los Angeles are the only jurisdictions in the Study Area that have biological policies relevant to the I-710 Corridor Project. The County policy is related to the protection of native oak trees, none of which were identified within the Study Area. The cities of Los Angeles and Long Beach have guidelines for acquiring a tree removal permit that would be complied with during implementation of the build alternatives. Additionally, the City of Long Beach requires that trees located within the Coastal Zone not be removed during the nesting season and that preconstruction surveys be conducted 1 week prior to construction activities. The build alternatives would comply with all of these local policies and ordinances, and conflicts would not occur.

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

Reference: Section 3.16.1

The Study Area is within areas that are largely developed and is not located within a Habitat Conservation Plan, Natural Community Conservation Plan, or any other approved local, regional, or State Habitat Conservation Plan. Therefore, the build alternatives would not result in conflicts with any biological resource habitat plans.

4.2.1.4 GEOLOGY AND SOILS (CEQA CHECKLIST QUESTION VI.E)

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

Reference: Section Chapter 2

No septic tanks or alternative wastewater disposal systems are included in the build alternatives, and soil issues related to these facilities would not be encountered. Therefore, the

build alternatives would not result in impacts related to alternative wastewater disposal and soils.

4.2.15 HAZARDS AND HAZARDOUS WASTE (CEQA CHECKLIST QUESTIONS VIII.E THROUGH VIII.H)

The following two questions are addressed together

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

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Reference: Review of existing land use maps and airport locations (see Figure 3.1-1).

The I-710 Corridor Project is not located within an airport land use plan, within 2 miles of an airport, or within the vicinity of a private airstrip. Therefore, the build alternatives would not result in a safety hazard to aircraft operations or persons living or working near an airport.

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

Reference: Section 3.24.4.4

The build alternatives would not impair the implementation of, or physically interfere with, the adopted emergency response or evacuation plans of the cities in the Study Area and the County of Los Angeles. By providing a freeway that operates more efficiently, the build alternatives would have a beneficial impact on emergency response and evacuation.

Temporary impacts to emergency services would be addressed through preparation of the Traffic Management Plan (TMP) as required in Measure CON-6, as well as the specific measures required in Measure CON-3. Note that these measures are standard Caltrans measures applicable to such large construction projects.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Reference: Existing Land Uses as shown in Figure 3.1.1

The I-710 Corridor Project is located in developed areas and is not located within areas that are at high risk for wildland fires. As a result, the build alternatives would not result in or be affected by wildland fires.

4.2.16 HYDROLOGY AND WATER QUALITY (CEQA CHECKLIST QUESTIONS IX.G, IX.I, AND IX.J)

g) Would the project place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Reference: Section 3.8.3

The build alternatives would improve and modify an existing transportation facility. This would not result in the placement of any housing in a 100-year flood hazard area and would not result in adverse impacts related to the placement of housing in a 100-year flood hazard area.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Reference: Section 3.8.3

There are no dams located in the immediate upstream area of the project whose failure could affect the project area. The build alternatives would not change the risk for people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, and would not result in adverse impacts related to risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

j) Would the project [result in increased risk for] inundation by seiche, tsunami, or mudflow?

Reference: See sources listed below.

A seiche is an earthquake-induced wave motion in a water body such a lake or inlet. There are no such lakes or inlets within the project area, and no identified risk from seiches.

A tsunami is an earthquake-induced wave motion in a sea or ocean. Tsunamis could be generated in the Pacific Ocean off the coast of Southern California and/or around the Pacific Ocean basin. The California Emergency Management Agency has prepared maps of estimated

tsunami inundation areas.¹ These maps indicate that the southern end of the project, located generally south of Anaheim Blvd., could be subject to inundation in a tsunami.

However, the existing I-710 freeway is located in these same areas, and implementation of any of the build alternatives would not change the risk of inundation of the facility. In addition, the development of expanded capacity along I-710 would increase the capacity of evacuation routes when a tsunami is forecast. As such, this is a beneficial impact of the project.

Mudflows result when rainstorms inundate mountain areas, particularly after fire events. The proposed project is located over ten miles from the nearest mountain range (San Gabriel Mountains) and would not be subject to mudflows.

4.2.1.7 LAND USE AND PLANNING (CEQA CHECKLIST QUESTION X.C)

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

Reference: Section 3.16

The Study Area is not located within any applicable Habitat Conservation Plan or Natural Community Conservation Plan. Therefore, the build alternatives would not result in impacts related to conflicts with any biological resource habitat plans.

4.2.1.8 MINERAL RESOURCES (CEQA CHECKLIST QUESTIONS XI.A AND XI.B)

The following two questions are addressed together

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

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

Reference: Section 3.1

There are no existing mineral resources operations in the Study Area. Therefore, the project would not have any impacts on mineral resources or mineral resource extraction operations.

¹ http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/LosAngeles/Documents/Tsunami_Inundation_LongBeach_Quad_LosAngeles.pdf.

The project would utilize some mineral resources for project construction (e.g., concrete, asphalt, rock), but would not result in a significant depletion of the base resources.

4.2.1.9 NOISE (CEQA CHECKLIST QUESTIONS XII.E AND XII.F)

The following two questions are addressed together:

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

Reference: Los Angeles County Airport Land Use Plan¹

The I-710 Corridor Project is not located within an airport land use plan or within 2 miles of a public or private airport. Therefore, the build alternatives would not result in the exposure of people to excessive noise related to aircraft or airport operations.

4.2.1.10 RECREATION (CEQA CHECKLIST QUESTION XV.B)

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

Reference: Chapter 2

The I-710 Corridor Project does not include recreation facilities and does not require the expansion or construction of recreation facilities.

4.2.1.11 TRANSPORTATION/TRAFFIC (CEQA CHECKLIST QUESTIONS XVI.C THROUGH XVI.F)

- c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

Reference: Los Angeles County Airport Land Use Plan

¹ http://planning.lacounty.gov/assets/upl/data/pd_alup.pdf.

The I-710 Corridor Project is not located within an airport land use plan or within 2 miles of a public or private airport facility, and the build alternatives (including the freight corridors included under Alternatives 6A/B/C) do not include any features that would be of sufficient height to affect airspace above the Study Area. As a result, the build alternatives would not impact air traffic patterns.

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

References: Chapter 2, *Caltrans Highway Design Manual*; and *Caltrans Standard Construction Specifications*

The build alternatives would improve and modify an existing transportation facility. The build alternatives would not introduce any incompatible uses (e.g., farm equipment).

The build alternatives would be designed and constructed in compliance with Caltrans Standard Construction Specifications and other applicable professional, design, and construction standards. As such, the build alternatives would not include hazardous design features. The build alternatives would improve I-710, which was designed and constructed in the 1950s, and would result in a modernized design compared to the existing transportation facility.

e) Would the project result in inadequate emergency access?

Reference: Section 3.24.3.4

The build alternatives would have a beneficial impact on emergency access and response, as they would improve the operation of the I-710 mainline, and impacts related to emergency access would not occur.

Temporary impacts to emergency services would be addressed through preparation of the Traffic Management Plan (TMP) as required in Measure CON-6, as well as the specific measures required in Measure CON-3. Note that these measures are standard Caltrans measures applicable to such large construction projects.

f) Would the project conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

References: Chapter 2 and Section 3.5.3.1

The project includes changes to arterial interchanges and intersections that may affect sidewalks and bicycle lanes. The I-710 Corridor Project will provide facilities for bicycles and pedestrians in locations where local streets are affected by construction of the build alternatives. These facilities will be designed consistent with the local General Plan Circulation Element and will comply with Americans with Disabilities Act of 1990 (ADA) requirements. The project will improve pedestrian facilities (sidewalks) by replacing the old ones that will be removed as part of the project. Bicycle travel would also be improved by providing wider shoulders and new pavement (which would provide a better riding surface) on the arterial bridges that will be replaced over I-710 and the Los Angeles River. Class I Bikeways within the Study Area will be maintained with the proposed build alternatives. Because bicycle and pedestrian facilities will be maintained or improved, the effect of the I-710 Corridor Project is that travel by walking and bicycling will not substantially change as a result of the implementation of the build alternatives.

Measure CON-6 (Preparation of the TMP) includes measures to minimize construction impacts to bicyclists and pedestrians.

Based on these considerations, the project will not have an adverse effect on bicycle and pedestrian facilities.

4.2.1.12 UTILITIES AND SERVICE SYSTEMS (CEQA CHECKLIST QUESTIONS XVII.A, XVII.D, XVII.E, AND XVII.G)

a) Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Reference: Chapter 2

The build alternatives would not generate demand for wastewater conveyance or treatment facilities. As a result, the build alternatives would not result in adverse impacts related to wastewater treatment facilities or wastewater requirements.

d) Would the Project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Reference: Chapter 2

The build alternatives are not anticipated to generate a substantial demand for water supplies. Some water may be needed during construction of the build alternatives and as landscaping is planted to allow the landscaping to become established. The demand for water during construction and operation of the build alternatives is not anticipated to exceed existing entitlements or require the expansion of existing water supply facilities to serve the project. Therefore, there would be no impact to water supplies.

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

Reference: Chapter 2

The project would not result in the generation of additional wastewater; therefore, it will not result in exceedances of the ability of area wastewater treatment providers to accommodate the project. Therefore, operation of the build alternatives would not result in impacts to wastewater utility systems.

g) Comply with Federal, state, and local statutes and regulations related to solid waste

Construction waste from the build alternatives would be limited to debris such as materials from demolished structures within the project right-of-way. Operational solid waste material would be generated as part of landscape maintenance and picking up of litter along the road. All of the solid waste generated by the build alternatives would be disposed of in accordance with Federal, State, and local regulations related to recycling. Therefore, the build alternatives would not result in impacts related to Federal, State, or local statutes and regulations related to solid waste. Additionally, no solid waste facilities are located within the Study Area; therefore, no such facilities would be directly or indirectly impacted by the build alternatives.

4.2.2 LESS THAN SIGNIFICANT IMPACTS OF THE PROPOSED PROJECT

The following impacts resulting from the build alternatives have been determined to be less than significant.

4.2.2.1 AESTHETICS (CEQA CHECKLIST QUESTIONS I.A AND I.D)

a) Would the project have a substantial adverse effect on a scenic vista?

Reference: Section 3.6.3

For purposes of determining significance under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. In addition, some scenic vistas are officially designated by public agencies, or informally designated by tourist guides. A substantial adverse effect to such a scenic vista is one that degraded the view from such a designated view spot.

The area surrounding the existing I-710 corridor is essentially a flat coastal plain, with background views of local hills and mountains on days when visibility permits. The horizontal view plane is intermittently broken with electrical transmission towers, transportation facilities, and an occasional high rise building.

No governmentally designated scenic vista has been identified within the project area. In addition, no specific scenic view spot has been identified in the project area.

While there are no officially designated scenic vistas in the project area, certain long-range views would change for members of the motoring public and from users of the nearby Los Angeles River Trail. However, since these are not designated scenic vistas, and because the changes would add additional facilities typical in urbanized areas, the impacts are considered less than significant.

As described in Section 3.24.3.6, temporary visual impacts to sensitive receptors would occur under the build alternatives during the construction period and would include views of demolition of existing structures, clearing of existing vegetation, construction of the I-710 mainline widening and structures, construction vehicles, and temporary construction easements (TCEs). Construction impacts under Alternatives 6A/B/C would be greater than under Alternative 5A due to construction of the elevated freight corridor. However, the construction activities would be temporary, and the adverse visual impacts related to construction would cease after completion of the build alternatives. Additionally, the impacts of vegetation clearing would gradually improve over time as landscaping for the I-710 Corridor Project matures. Temporary visual impacts related to construction would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Reference: Section 3.6.3

As described in Section 3.6, Visual/Aesthetics, due to the widening of the I-710 mainline under all of the build alternatives, safety lighting and vehicle lights will be closer to residences. As a result, viewers within the Study Area will experience increased night lighting and glare. Alternatives 6A/B/C would also add safety lighting and vehicle lights associated with the freight corridor, which would not occur under Alternative 5A. However, the impacts of the lighting under all of the build alternatives would be reduced by utilizing light control appliances on the safety lighting fixtures, as described in Section 3.6. Glare impacts would be minimized through construction of sound walls and screen walls and by the distance of the viewers from the lighting source.

Based on the above, permanent light and glare impacts would be less than significant for all the build alternatives.

4.2.2.2 AIR QUALITY (CEQA CHECKLIST QUESTIONS III.A, III.B, III.C, AND III.E)

a) Would the project: conflict with or obstruct implementation of the applicable air quality plan?

Reference: Section 3.13

For purposes of determining significance under CEQA, a potentially significant impact would be failure to conform to the applicable air quality plan, or obstructing implementation of such a plan.

As discussed in Section 3.13, the project area currently exceeds State and/or Federal standards for ozone, PM₁₀, and PM_{2.5}, while meeting State and/or Federal standards for carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂).

The applicable "Air Quality Plan" is the current South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan/State Implementation Plan (AQMP/SIP) that was adopted by the Southern California Air Quality Management District in 2007. Implementation of the SIP will bring the region into conformance with the applicable air quality standards. If a project "conforms" with the SIP, it will not conflict with or obstruct implementation of the applicable air quality plan. Project conformity with the SIP is demonstrated by:

- Inclusion of the project in the current Regional Transportation Plan (RTP)
- Detailed project-level analyses demonstrating that the project will not result in an exceedance of local standards for carbon monoxide (CO) and particulates.

As noted in Section 3.13, the project is consistent with the adopted Air Quality Management Plan (AQMP) and is listed in both the approved 2012 RTP/Sustainable Communities Strategy (SCS) (Project ID No. 1C0401) and the 2011 Federal Transportation Improvement Program (FTIP). Air quality models are used to demonstrate that the project's emissions will not contribute to the deterioration of or impede the progress of air quality goals stated in the AQMP. The air quality models for this project used project-specific data to estimate the quantity of pollutants generated from implementation of the project. The results for the No Project (no build) alternative and the Proposed Project (build alternatives) scenarios in the horizon year are compared to the AQMP's air quality projections. Results indicate that the proposed project will not significantly contribute to or cause deterioration of existing air quality; therefore, mitigation measures are not required for the long-term operation of the project. If a project "conforms" with

the SIP, it will not conflict with or obstruct the implementation of the applicable air quality plan, and potential impacts are less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Reference: Section 3.13

For purposes of determining significance under CEQA, the project would result in a potentially significant impact if it resulted in the exceedance of Federal or State Air Quality standards.

Regional consistency with applicable State and Federal air quality standards is discussed in Section 3.13 and in the response to Checklist Question III-a above. Implementation of the SIP will bring the region into conformance with the applicable air quality standards. The analysis in Section 3.13 indicates that implementation of any of the build alternatives would not create a violation of applicable air quality standards.

The project is included in the recently adopted 2012 RTP/SCS. The analyses in the Air Quality/Health Risk Assessment (AQ/HRA), as summarized in Section 3.13, demonstrate that the project will not cause additional local exceedances for CO and particulates. The project will not result in the violation of any air quality standard or contribute substantially to an existing or projected air quality violation; therefore, impacts are less than significant.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Reference: Section 3.13

For purposes of determining significance under CEQA, the project would result in a potentially significant impact if, at the time of the analysis, the region was in nonattainment under applicable Federal or state ambient air quality standards and the project contributed to such a designation.

According to the AQ/HRA, the project area will be in attainment with applicable air quality standards in design year 2035. In some cases, the project would increase the local emissions of such pollutants, although such an increase would be offset by reductions in congestion on other roadways. The analysis in Section 3.13 demonstrates that the area would remain in attainment for the criteria pollutants. As such, the project would not result in a cumulatively considerable increase in criteria pollutants.

e) Create objectionable odors affecting a substantial number of people?

Reference: Section 3.13

Road widening projects do not typically produce odors that would affect off-site sensitive receptors. Implementation of the SCAQMD and Caltrans standard conditions, along with the measures identified in Section 3.24.4.13 of this EIR/EIS, will address short-term project air quality impacts, including objectionable odors.

4.2.2.3 BIOLOGICAL RESOURCES (CEQA CHECKLIST QUESTION IV.D)

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

Reference: Section 3.16

The I-710 Corridor has restricted wildlife movement and resulted in habitat fragmentation for many years, and the build alternatives are not expected to have an adverse impact on wildlife movement. The build alternatives would not increase habitat fragmentation or impede the movement of wildlife in the area. Habitat within the Los Angeles River channel and movement opportunities therein would not be affected by project implementation because the build alternatives essentially modify an existing transportation facility. Construction of the build alternatives may temporarily impede wildlife movement in construction areas; however, this impact would be localized to the construction area and temporary during construction. Therefore, impacts related to wildlife movement would be less than significant.

4.2.2.4 CULTURAL RESOURCES (CEQA CHECKLIST QUESTIONS V.A THROUGH V.D)

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Reference: Section 3.7

Five resources within the project's Area of Potential Effect (APE) were identified as potentially eligible for listing in the National Register of Historic Places (National Register). Please see Section 3.7 for additional discussion.

One cultural resource, Dale's Donuts in Compton, has been determined eligible for listing in the National Register in the context of architecture. This determination has been made by Caltrans in accordance with stipulation VIII.C.5.a of the Section 106 Programmatic Agreement with the

State Historic Preservation Officer (SHPO). Dale's Donuts would be impacted by acquisition of part of the parking lot, which is not a contributing factor to the historical significance of this property. As such, the project would not adversely affect this resource.

The UP (formerly Southern Pacific) Railroad Segment (Resource No. 19-186110) is eligible for listing in the National Register and will be impacted by the project. The segment of the rail line that will be impacted has already been altered and does not contribute to the significance of the UP Railroad. Therefore, the build alternatives would not cause a significant impact on the historic rail line because the rail line would continue to be eligible for the National Register.

The Boulder Dam-Los Angeles 287.5 kV Transmission Line is eligible for listing in the National Register and will be impacted by the project. The towers on either side of I-710 will be heightened by 55 feet to make room for construction of the freight corridor under Alternatives 6A/B/C. However, the integrity of the Transmission Line would not be reduced to the degree that it would no longer be eligible for the National Register. Therefore, the build alternatives would not cause a significant impact on the historic Transmission Line.

The Civic Center Community Center Building in South Gate has been identified as a Local Landmark, and therefore is a historical resource for the purposes of CEQA. This alternative would not result in any alteration to the resource. Therefore, this alternative would not cause a significant impact to this resource.

In summary, the build alternatives would result in a finding of No Historic Properties Adversely Affected under Section 106 of the National Historic Preservation Act (NHPA). Therefore, under CEQA, the impacts of the I-710 Corridor Project to historic resources would be less than significant.

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

As described in Section 3.7.2, no archaeological resources were identified within or adjacent to the Area of Potential Effects (APE). The archaeological survey area has been extensively disturbed by construction of the existing freeways and roads, railroads, urban development, river channel, and other infrastructure. As a result, the potential for intact archaeological resources to be present within the Study Area appears to be low. However, in the case that cultural materials are discovered during construction of the build alternatives, Measure CR-1 (a standard Caltrans requirement) requires that all earthmoving activity in and around the immediate discovery area be diverted until a qualified archaeologist can assess the nature and significance of the find. With incorporation of this measure, potential impacts would be less than significant.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Reference: Section 3.11.3

No known human remains are present on the project site, and there are no facts or evidence to suggest that Native American or any other human remains are buried in the Study Area. However, in the unlikely event that human remains are encountered during project grading, the Los Angeles County Coroner would be notified, and standard procedures for the respectful handling of human remains during the earthmoving activities would be adhered to as described in Measure CON-9 (Standard Caltrans Procedure). With incorporation of this standard procedure, potential impacts would be less than significant.

4.2.25 GEOLOGY AND SOILS (CEQA CHECKLIST QUESTIONS VI.A I, II, AND IV, VI.B, AND VI.D)

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

ii) Strong seismic ground shaking?

iv) Landslides?

References: Sections 3.10.3 and 3.24.3.10

Based on the discussion in Sections 3.10.3 and 3.24.3.10, the build alternatives would be subject to potential temporary and permanent impacts from faulting/seismicity and landslide soil types. The primary geologic and geotechnical constraints affecting the design and construction of the build alternatives include:

- Moderate to high ground accelerations due to the presence of nearby active faults and fault zones, including the Newport-Inglewood (Cherry Hills segment), Puente Hills, Compton, and Palos Verdes Faults.
- Fault rupture associated with the Cherry Hill segment of the Newport-Inglewood Fault Zone.

- Seismically induced settlement in areas of shallow groundwater and loose alluvial soils. Most of the Study Area is within an area identified as having the potential for liquefaction.
- Earthquake-induced slope instability in areas near slopes such as the Los Angeles River.

These potential impacts would be minimized through implementation of safe construction practices and compliance with Caltrans and California Occupational Safety and Health Administration (Cal-OSHA) requirements. Additionally, preparation of a design-level geotechnical report and quality assurance/quality control plan, as specified in Measures GEO-1 and GEO-2 (Standard Caltrans Requirements) would reduce geologic impacts. Therefore, geologic impacts related to earthquakes, seismic shaking, and landslides would be less than significant.

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

Reference: Section 3.10

As discussed in Section 3.10, during construction of the build alternatives, excavated soil would be exposed that would increase the potential for soil erosion. Additionally, during a storm event, soil erosion could occur at an accelerated rate. The I-710 Corridor Project would be required to adhere to the requirements of the General Construction Permit and implement erosion and sediment control Best Management Practices (BMPs) specifically identified in a project Storm Water Pollution Prevention Plan (SWPPP) in order to keep sediment from moving off site. Impacts related to soil erosion would be less than significant with compliance with these standard requirements.

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

Reference: Section 3.10.2.1

As discussed in Section 3.10.2.1, the on-site soils consist generally of coarse-grained materials that are not highly expansive, but some fine-grained soils susceptible to high degrees of expansion do exist. Required compliance with the Caltrans standard design requirements would result in these impacts being less than significant.

4.2.26 HAZARDS AND HAZARDOUS WASTE (CEQA CHECKLIST QUESTIONS VIII.A THROUGH VIII.C)

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

Reference: Section 3.12.3

As described in Section 3.12.3, Hazards and Hazardous Waste, operation and maintenance of the transportation facilities proposed as part of the build alternatives would not introduce new sources of hazardous materials or waste. Routine maintenance activities would be required to follow applicable regulations with respect to the handling and disposal of potentially hazardous materials.

As further described in Section 3.24.3.12, based on the findings of the records search and the site survey, the following hazardous materials may be encountered during excavation and construction activities for the build alternatives.

- Elevated concentrations of aeriably deposited lead (ADL) may be present along existing roadways that would be modified by the build alternatives. During grading activities, there is the possibility for hazardous concentrations of ADL to be released into the environment and affect construction workers.
- Structures that would be removed or modified as part of the build alternatives may contain asbestos-containing materials, polychlorinated biphenyls (PCBs), and/or lead-based paint, which could be released into the environment if not properly handled and removed for disposal.
- Any transformers that would be removed or relocated during construction of the build alternatives would be considered polychlorinated biphenyl (PCB) containing unless labeled or tested otherwise. Leaking transformers that impact adjacent soils would be a concern during project construction because they could affect construction workers and the environment.
- Yellow traffic striping and pavement-marking materials (paint, thermoplastic material, permanent tape, and temporary tape) that would be removed as part of the project may contain elevated concentrations of metals such as lead.
- Previously unknown contaminants could be encountered at the properties to be acquired as part the build alternatives.

As described in Section 3.12, many listed sites were identified as having the potential to pose an environmental concern within the Study Area. Considering the history and nature of activities conducted at some of the sites identified within the Study Area, contaminated groundwater may be encountered during construction. Dewatering of contaminated groundwater during construction of the build alternatives could impair adjacent surface waters. As a result, site investigations would be performed at all hazardous materials sites within the right-of-way of the build alternatives to determine whether hazardous materials are present on site. Hazardous material spills associated with any acquired property would be removed and remediated prior to construction of the build alternatives. Implementation of Avoidance and Minimization Measures HW-1 through HW-14 listed in Section 3.12.4 and Avoidance and Minimization Measures CON-13 through CON-15, would minimize or avoid impacts related to hazardous materials and hazardous wastes during construction of the build alternatives. Therefore, hazardous wastes and materials impacts associated with the I-710 Corridor project would be less than significant.

By improving the safety of I-710 through the modernized design features discussed in Chapter 2, operation of the build alternatives would not result in a significant permanent adverse impact related to transport or emissions of hazardous waste and materials.

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

Reference: Section 3.12

As discussed in Section 3.12, vehicles utilizing the I-710 Corridor would continue to transport hazardous substances that could spill and impact the roadway and adjacent properties or resources. However, the purpose of the I-710 Corridor Project is to improve traffic safety, which could reduce permanent impacts related to hazardous waste spills. In addition, transport of hazardous materials is subject to strict regulation. Caltrans, the California Highway Patrol, and local police and fire departments are trained in emergency response procedures for safely responding to accidental spills of hazardous substances on public roads, which further reduces impacts. For these reasons, operation of the build alternatives would not result in a significant permanent adverse impact related to transport or upset of hazardous waste and materials.

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

Reference: Section 3.12

As discussed in the response to Checklist Question VIII.b above, the project would continue to transport hazardous substances that could spill and impact the roadway and adjacent properties or resources. However, the purpose of the I-710 Corridor Project is to improve traffic safety, which could reduce permanent impacts related to hazardous waste spills. In addition, transport of hazardous materials is subject to strict regulation. For these reasons, operation of the build alternatives would not result in a significant permanent adverse impact on schools within 0.25 mile of existing schools.

4.2.2.7 HYDROLOGY AND WATER QUALITY (CEQA CHECKLIST QUESTIONS IX.A THROUGH IX.F AND IX.H)

The following three questions are addressed together below.

- a) Will the project violate any water quality standards or waste discharge requirements?**
- e) Will the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**
- f) Will the project Otherwise substantially degrade water quality?**

Reference: Sections 3.9.3 and 3.24.3.9

Soil disturbance and accidental spills during construction of the build alternatives could potentially impact water quality. Construction of the build alternatives would comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002), which includes implementation of Erosion and Sediment Control BMPs.

The build alternatives would add new impervious surfaces, thereby increasing the amount of storm water runoff within the project limits and introducing additional water pollutant loads into the runoff in the area. The typical roadway pollutants are washed off impervious surface areas by storm water flows and then discharged to the local receiving water bodies. Permanent water quality impacts would be addressed in the project design to the extent required under the Caltrans Storm Water Management Plan. Treatment BMPs, such as detention basins and bioswales, would be included in the project design to address long-term water quality impacts. As discussed in Section 3.24.3.9, for temporary construction impacts related to water quality and the additional runoff associated with the added impervious areas, Minimization Measures CON-10 and CON-11 are included to address water quality issues.

The Study Area is located within the Coastal Plain of the Los Angeles Groundwater Basin and is specifically underlain by the West Coast and Central Subbasins. Groundwater has been encountered in many test borings along the project alignment during previous investigations for bridge construction by Caltrans and Los Angeles County. Groundwater was encountered at depths ranging from 2.9 feet below ground surface (bgs) to 113 feet bgs

Water quality impacts during construction of Alternative 5A would occur with the removal and disposal of groundwater that has passively seeped into the channels. Dewatered groundwater may contain high levels of total dissolved solids, salinity, or other contaminants, which could be introduced to surface waters during construction. The construction of support structures would use either the cast-in-drilled-hole (CIDH) or cast-in-steel-shell (CISS) methods. In the CIDH method, a hole is drilled, filled with slurry to prevent cave-ins, and then pumped with concrete (which displaces the slurry and is reused). The hole is expected to passively fill with groundwater, which would be removed prior to filling with slurry and concrete. The removed groundwater would then be disposed of according to the selected method (treatment on site, treatment and disposal off site, or disposal into the local sewer system). Project construction is not expected to affect groundwater movement because the slurry would prevent such movement and there would not be active dewatering aside from emptying the hole prior to filling it with slurry. Because active dewatering is not anticipated during construction, groundwater movement is not expected to be adversely impacted.

With the application of these construction methods, the project would not violate any water quality standard and would not violate any waste discharge requirements. Impacts would be less than significant.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Reference: Section 3.9.3

The project will not affect groundwater supplies since it will not use substantial amounts of water. As discussed in the answer to the previous question, the project will not result in adverse effects to groundwater supplies.

The following three questions are addressed together below.

- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**
- d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?**
- h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?**

Reference: Section 3.8.3

As discussed in Section 3.8, Hydrology and Floodplain, the build alternatives would result in transverse encroachments of the Los Angeles River and Compton Creek 100-year floodplains. With Alternatives 6A/B/C, one transverse encroachment of the Rio Hondo 100-year floodplain would also occur. These improvements include widening of existing bridges, construction of new bridges, and modification of existing levees, which would encroach on the 100-year floodplain. As discussed in Section 3.8.3, construction of the improvements within the 100-year floodplain is not anticipated to substantially increase the base flood elevation. In addition, as discussed in detail in Section 3.8.3, the proposed 100-year floodplain encroachment would not result in any adverse impacts on natural and beneficial floodplain values, would not result in a substantial change in flood risk or damage, and does not have substantial potential to cause interruption or termination of emergency services or emergency routes.

The improvements discussed below that are proposed under Alternatives 6A/B/C would result in transverse encroachments of the Los Angeles River 100-year floodplain. The proposed freight corridor would be located above and adjacent to the improved freeway alignment in order to minimize residential impacts. The improvements encroach into the Department of Water and Power (DWP) transmission corridor situated along the Los Angeles River Corridor. The transmission towers are proposed to be relocated within the Los Angeles River channel between Firestone Blvd. and Slauson Ave. Each affected tower location requires the modification of approximately 1,000 feet of channel to accommodate the new tower supports and transitions. When consecutive DWP towers are relocated, the channel section is modified continuously between the relocated towers. The Hydrologic Engineering Centers River Analysis System (HEC-RAS) model was used to assess the flood level impact of the longitudinal encroachment. The results of the modeling indicated that the base flood elevation can be reduced to existing levels through implementation of localized channel modifications. Therefore, impacts under all of the build alternatives are considered less than significant.

4.2.28 LAND USE AND PLANNING (CEQA CHECKLIST QUESTIONS X.B)

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Reference: Sections 3.1 and 3.3

Based on the analysis in Section 3.1, Land Use, and Section 3.3, Community Impacts, the build alternatives would have a less than significant impact on land use for the following reasons.

With regard to overall General Plan and zoning consistency, the existing land uses in the Study Area are generally compatible with the build alternatives. I-710 has been considered in the General Plans of the County of Los Angeles and the cities in the Study Area since its construction as a freeway in the 1950s.

As discussed in Section 3.1.2, adoption of a build alternative would require several cities to amend their General Plan Land Use and Circulation Elements to reflect modifications to arterials, interchange modifications, and elimination of land uses that may need to be acquired for the I-710 Corridor Project. This EIR/EIS is intended to provide adequate environmental documentation in support of each agency's action to amend their General Plans.

With regard to the Coastal Zone, consistency of the project with the California Coastal Act is assessed in Table 3.1-2 in Section 3.1. The analysis demonstrates that the project is consistent with the California Coastal Act.

The I-710 Corridor Project is generally consistent with the adopted goals and policies of the General Plans because it addresses the main components found in the General Plan policies, including community participation, improved air quality, and reduced traffic congestion. Therefore, the build alternatives would result in a less than significant impact regarding the creation of incompatible land uses or incompatibility with land use regulations.

4.2.29 NOISE (CEQA CHECKLIST QUESTIONS XII.D)

d) Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Reference: Section 3.24.3.14

The permanent increase in ambient noise levels in the project vicinity above levels existing without the project is addressed in response to CEQA Checklist Question XII.c below. Temporary construction noise issues are addressed in the following paragraphs.

As discussed in Section 3.24.3.14, during construction of the project, noise from construction activities may occasionally dominate the noise environment in the immediate project area. Construction noise is regulated by Caltrans Standard Specifications, Section 7-1.01I, "Sound Control Requirements." These requirements state that noise levels generated during construction shall comply with applicable local, State, and Federal regulations.

Figure 3.24-1 in the Construction Impacts section of this EIR/EIS summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 70 to 90 A-weighted decibels (dBA) at a distance of 50 feet. Noise produced by construction equipment would reduce over distance at a rate of approximately 6 dBA per doubling of distance. Normally, construction noise levels should not exceed 86 dBA maximum instantaneous noise level (L_{max}) at a distance of 50 feet. No adverse noise impacts from construction are anticipated because construction will be conducted in accordance with the Caltrans Standard Specifications and would be short term, intermittent, and dominated by local traffic noise. With compliance with the Caltrans Standard Specifications and implementation of minimization measures CON-30 through CON-37, construction noise is considered less than significant.

4.2.2.10 POPULATION AND HOUSING (CEQA CHECKLIST QUESTIONS XIII.A)

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

References: Chapter 2 (Alternatives); Section 3.2; Section 3.3; and Section 3.24.3.2

The project does not propose the direct construction of new homes and businesses.

As described in Section 3.24.3.2, the build alternatives would not result in temporary or permanent impacts to the rate of population, housing, or employment growth. The additional capacity that could be provided under the build alternatives would have a positive impact on goods movement and would help achieve one component of the I-710 Corridor Project's purpose. Therefore, the I-710 Corridor Project would result in beneficial growth-related impacts relative to employment and economic activities associated with goods movement. Given the existing constraints to growth as well as the projected growth trends described in Section 3.2, the I-710 Corridor Project is not expected to result in a substantial change in the location, distribution, or rate of population and housing growth within the Study Area.

As described in Section 3.3, Community Impacts, the I-710 Corridor Project would result in the acquisition of existing residential uses and the relocation of occupants of those residential uses. However, with the exception of residents with special relocation needs (e.g., low-income and minority residents), the residential relocations required under the build alternatives are not anticipated to require construction of replacement housing. Last Resort Housing may be required for relocation of residents with special needs, such as low-income, elderly, and handicapped residents. Additionally, special assistance may be needed to relocate smaller or marginal businesses and minority businesses that need to be located next to a specific customer base. Therefore, displacement and relocation of special needs residents and businesses is addressed under potentially significant impacts. Section 3.3 describes that adequate housing stock currently exists within the Study Area to meet the needs of the relocations, other than special needs residents and businesses.

4.2.2.11 PUBLIC SERVICES (CEQA CHECKLIST QUESTION XIV.A)

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

- **Fire protection?**
- **Police protection?**
- **Schools?**
- **Parks?**
- **Other public facilities?**

References: Sections 3.3 and 3.4

As described in Sections 3.3 and 3.4, there are numerous public service facilities in the Study Area. The build alternatives will provide improved transportation facilities within the Study Area. As a result of improved traffic flow, the build alternatives would have beneficial impacts for emergency service providers. The beneficial impacts would allow fire, law enforcement, and emergency service providers to travel faster to emergency situations and move emergency equipment on the improved transportation network. The emergency service response times would be maintained or potentially improved.

The build alternatives would result in direct impacts to two community service facilities in the Study Area. The build alternatives would require acquisition and relocation of the City of Vernon Fire Station No. 4. While a potential site for relocation of the existing fire station has been not been identified at this time, Caltrans would be required to assist the City of Vernon in identifying a new site for relocation within the general vicinity of the existing station so as to maintain the existing response times and service area. In addition, the existing fire station would remain in use until the new fire station is operational.

Two of the build alternatives would result in direct impacts to the Multi-Service Center in the city of Long Beach. Alternatives 6A/B/C would require acquisition and relocation of this facility due to the construction of freight corridor ramps at the I-710/Anaheim St. interchange. The *Draft Relocation Impact Report* (December 2011) reports that there is an available area within a 5-mile radius of the facility for relocation. Alternative 5A would not directly impact this facility.

Direct impacts to law enforcement, school, or other public facilities would not occur from the build alternatives. Impacts to park facilities within the Study Area are described below under Section 4.2.2.24, Recreation.

Indirect impacts may occur to public facilities in the Study Area. These include potential temporary access, noise, and aesthetic impacts that may occur during construction. Visual and noise construction impacts to the public facilities would be temporary and intermittent and would be less than significant. The impact of temporary construction-related disruptions to freeway access and emergency service providers would be addressed through the Traffic Management Plan (TMP) required by Measure CON-6. With implementation of this measure, potential emergency access constraints during construction would be less than significant.

4.2.2.12 RECREATION (CEQA CHECKLIST QUESTION XV.A)

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

Reference: Section 3.1

As discussed in Section 3.1, there are hundreds of parks and recreation facilities within the Study Area that are both publicly and privately owned. The build alternatives provide enhancements to Cesar E. Chavez Park in the city of Long Beach. The enhancements to this park would improve access to the park as well as provide for a larger contiguous recreation area. Construction impacts related to enhancement of this recreation facility are included in the construction analysis for the overall I-710 Corridor Project, as discussed within this EIR/EIS.

The build alternatives will provide improved transportation facilities within the Study Area, which may contribute to increased use of recreation facilities in the Study Area. However, the contribution of the build alternatives to increased use of recreation facilities is anticipated to be very small compared to the contribution of the projected growth in the Study Area. As a result, the build alternatives would result in a less than significant impact relative to increased use of existing recreation facilities.

4.2.2.13 UTILITIES AND SERVICE SYSTEMS (CEQA CHECKLIST QUESTIONS XVII.B, AND XVII.F)

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Reference: Chapter 2

As a transportation improvement, the project will not require any new water or wastewater treatment facilities or the expansion of existing facilities.

The build alternatives would generate storm water runoff from the increase in impervious surfaces from the expanded transportation facility. The build alternatives include appropriate storm water drainage, collection, control, treatment, and release facilities within the project right-of-way. As a result, impacts related to storm water drainage would be less than significant.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Construction of the build alternatives would generate construction waste material from demolished structures. The waste would include concrete, asphalt, vegetation, soil, rebar, and other similar materials. The construction contractors would be required to divert construction waste material (by reduction, recycling, reuse, and composting) from landfills within Los Angeles County. As a result of these reduction and recycling activities, the total amount of construction waste material anticipated to be disposed of in area landfills under the build alternatives would be limited and is not expected to exceed the permitted capacity of the regional landfills.

During operation of the build alternatives, waste material would be generated as part of landscape maintenance and picking up of litter along the road. Vegetative material generated during landscape maintenance would be disposed of at a composting facility. Trash and other waste material collected along the road would be disposed at area recycling facilities and in landfills. The total amount of litter generated under the build alternatives would not be substantial, and because of the composing and recycling activities, it is not expected to exceed

the permitted capacity of the regional landfills; therefore, impacts to landfills would be less than significant.

4.2.3 SIGNIFICANT IMPACTS OF THE PROPOSED PROJECT THAT CAN BE MITIGATED TO BELOW A LEVEL OF SIGNIFICANCE

The following project impacts have been determined to be significant under CEQA. The majority of these significant impacts can be mitigated to below a level of significance. Where they cannot be mitigated, they have been identified as such, and the specific impacts that remain significant are summarized in Section 4.2.4.

4.2.3.1 AESTHETICS (CEQA CHECKLIST QUESTIONS I.C)

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Reference: Section 3.6.3

Section 3.6 contains an extensive analysis of the project's impacts to visual character at 31 different viewpoints that represent typical views throughout the I-710 Corridor. As shown in that analysis, aesthetic impacts from the build alternatives would be low or very low at many of these viewpoints within the I-710 Corridor. However, aesthetic impacts from some views in the Study Area would be higher due to the location of existing sensitive receptors (residents) in close proximity to the I-710 mainline alignment. Alternatives 6A/B/C would create the most substantial aesthetic impacts in the cities of Long Beach and South Gate because of the close proximity of the elevated freight corridor to the existing residential units. With implementation of Measures VIS-1 through VIS-8 provided in Section 3.6, Visual/Aesthetics of this EIR/EIS, however, permanent visual impacts would be mitigated to less than significant for all the build alternatives.

4.2.3.2 BIOLOGICAL RESOURCES (CEQA CHECKLIST QUESTIONS IV.A, IV.B, AND IV.C)

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

References: Sections 3.16; 3.18; 3.19; 3.20; and 3.24.4.

The only sensitive plant species identified in the Biological Study Area (BSA) was the southern tarplant. Southern tarplant was observed in three locations within the BSA during 2009 botanical surveys conducted during the blooming period for this species (May through November). The

largest population consisted of approximately 9,000 plants just north of the I-710/Rosecrans Ave. interchange on the east side of I-710. Approximately 90 plants were found in sunny areas near the I-710/Atlantic Blvd. interchange, and six plants were found southeast of the I-710/I-405 interchange.

Temporary and permanent impacts to populations of southern tarplant could result from implementation of any of the build alternatives. Placement of columns to support the freight corridor structures in Alternatives 6A/B/C is proposed outside the limits of the southern tarplant populations, so direct permanent impacts are not anticipated. However, as proposed, the elevated structures would span the populations, creating some degree of permanent shade where sunny conditions currently exist. Since the southern tarplant is a sun-loving species, shading is anticipated to result in a negative indirect impact to the portions of the populations lying below the proposed elevated roads.

As discussed in detail in Section 3.18, Plant Species, Alternative 5A would result in extremely minor indirect permanent impacts to southern tarplant from shading of the smallest of the three populations of this species in the Study Area. Alternatives 6A/B/C would result in greater indirect permanent impacts from shading of two of the three populations (including the largest population) of southern tarplant. Indirect permanent effects on southern tarplant cannot be avoided by any of the build alternatives. However, as stated in Section 3.18.3.1, Plant Species, since 49.5 percent of the population of southern tarplant within the BSA will remain, once construction of the I-710 Corridor Project is completed, there will be an ample seed source for continued existence of the overall populations. The collection and scattering of seed in sunny areas adjacent to existing and remaining populations during the appropriate time of year will be conducted pursuant to Mitigation Measure CON-61 to ensure that these populations remain stable in future years.

Impacts to animal species as discussed in Section 3.19 are summarized below:

- There would be no permanent impacts to burrowing owl under any of the build alternatives because the location where burrowing owls were observed is not within the permanent project footprint of the build alternatives. Temporary impacts to burrows that could be used by the owls may result from all build alternatives.
- Permanent impacts to bat species would be greater from implementation of Alternatives 6A/B/C, than from Alternative 5A, given the greater amount of roosting habitat permanently affected by Alternatives 6A/B/C. Temporary impacts could result to roosting bats during construction.

- Permanent impacts to all species would be greater from implementation of Alternatives 6A/B/C than from Alternative 5A, given the greater amount of natural habitat permanently affected by Alternatives 6A/B/C. Temporary impacts to nonlisted special-status species could occur during construction from temporary indirect disturbance (noise, vibration, dust, night lighting, and human encroachment).
- New bridge structures could result in occasional bird strikes. However, direct mortality is not expected with implementation of the proposed avoidance and minimization measures.
- All build alternatives would include construction or expansion of 28 piers on four bridges over the lower Los Angeles River that could affect California sea lions. The percussive forces generated during any pile-driving activities may result in injury to California sea lions within and adjacent to the BSA, where estuarine habitat exists.
- Construction and expansion of the bridges over the Los Angeles River would not alter long-term movement of fish through the channel. Fish moving through the river may be directly affected by bridge construction, particularly during the pile-driving activities.
- No permanent effects would occur to essential fish habitat (EFH) except for a minimal permanent loss of channel bottom where the piles would be placed. Construction will have a temporary effect on fish that inhabit the river during pile-driving operations.

The Habitat Mitigation Monitoring Plan (HMMP) described in Section 3.16.4; Mitigation Measure AS-1 described in Section 3.19; and Mitigation Measures CON-40 through CON-57, and Mitigation Measures CON-61 through CON-71 described in Section 3.24.4 will reduce the above-described impacts to a level below significance by imposing enforceable measures that would be incorporated into the project design as well as the construction plans and specifications.

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

Reference: Sections 3.16 and 3.17

For purposes of determining significance under CEQA, the project would have a substantial adverse effect if it caused the removal of greater than 0.1 acre of such riparian habitat or other sensitive habitats.

As described in Section 3.16, two general natural community groups of concern were identified within the Study Area. These include estuarine habitat associated with the tidal waters of the lower 3 miles of the Los Angeles River and riparian/riverine habitats. The sensitive habitats are located primarily in the southern portion of the Study Area, where the Los Angeles River and associated wetlands have retained a natural state.

As described in Section 3.16, under the worst-case impact scenario, the build alternatives are expected to potentially result in indirect permanent impacts to 2.18 acres of estuarine habitat and 14.03 acres of riparian/riverine natural communities. The build alternatives would result in indirect permanent impacts through the potential degradation of estuarine and riparian/riverine habitats. Indirect permanent impacts could result from permanent shading associated with bridges or elevated roadways. In addition, construction may indirectly affect estuarine and riparian/riverine habitats permanently through enhancing the germination and proliferation of nonnative invasive plant species.

The majority of the existing estuarine communities within Los Angeles County fall under the regulatory jurisdiction of the USACE pursuant to Section 10 of the Rivers and Harbors Act of 1899 (RHA) and Section 404 of the Clean Water Act (CWA). Most of the impacts to USACE jurisdictional waters as a result of the I-710 Corridor Project would occur to estuarine wetlands above the high tide line. Therefore, the impacts are anticipated to be primarily to waters under the jurisdiction of Section 404, and mitigation would occur under the Section 404 program. The Minimization, Avoidance, and Mitigation Measures described in Section 3.16.4 will reduce project impacts below a level of significance by providing for restoration and replacement of riparian habitats and sensitive natural communities.

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

References: Sections 3.16 and 3.17

For purposes of determining significance under CEQA, the project would have a substantial adverse effect if it caused the removal of greater than 0.1 acre of such wetlands or other sensitive habitats.

As discussed in Section 3.17, Wetlands and Other Waters, the build alternatives would result in direct and indirect impacts to USACE and California Department of Fish and Game (CDFG) jurisdictional waters. Alternative 5A would result in 0.68 acre of direct impacts and 13.97 acres of indirect impacts to USACE jurisdictional waters. Alternatives 6A/B/C would result in 0.83 acres of direct impacts and 17.48 acres of indirect impacts to USACE jurisdictional waters. Alternative 5A would result in 0.87 acres of direct impacts and 19.43 acres of indirect impacts to CDFG jurisdictional waters. Alternatives 6A/B/C would result in 5.64 acres of direct impacts and 24.96 acres of indirect impacts to CDFG jurisdictional waters.

Compensatory mitigation for jurisdictional waters, as specified in Section 3.16.4, Natural Communities, Avoidance, Minimization, and/or Mitigation Measures, including estuarine communities and riparian/riverine communities, would be required for USACE Section 404 and CDFG Section 1600 permitting. Typically, riparian/riverine and estuarine habitat subject to USACE and CDFG jurisdiction is mitigated at a minimum mitigation-to-effect ratio of 2:1 for permanent effects and 1:1 for temporary effects, which is consistent with the USACE and CDFG policies for no net loss of riparian/riverine and estuarine habitat (e.g., wetlands). Compensatory mitigation may be in the form of habitat restoration and/or enhancement in on- or off-site areas where similar riparian/riverine and estuarine habitat exists, or a monetary contribution toward an in-lieu fee program, as acceptable by the regulatory agencies. Impacts to USACE and CDFG jurisdictional waters would be reduced to a less than significant level with the compensatory mitigation specified in Section 3.16.4.

4.2.3.3 CULTURAL RESOURCES (CEQA CHECKLIST QUESTION V.C)

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

Reference: Section 3.11.3

Based on the discussion in Section 3.11.3, the Study Area crosses two deposits of Early to Late Pleistocene sediments, which are soils that have a high potential to include fossiliferous content. Therefore, it is possible that unknown paleontological resources may be disturbed during construction of the build alternatives. Measure PAL-1, which requires the preparation of a Paleontological Mitigation Program, including monitoring and resource recovery, is included in the project to address this potential. With incorporation of this measure, potential impacts would be reduced to less than significant.

4.2.3.4 GEOLOGY AND SOILS (CEQA CHECKLIST QUESTIONS VI.A.III AND VI.C)

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

iii) Seismic-related ground failure, including liquefaction?

Reference: Section 3.10

Based on the discussion in Sections 3.10.3 and 3.24.3.10, the build alternatives would be subject to potential temporary and permanent impacts from landslides, liquefaction, and unstable soil types. The primary geologic and geotechnical constraints affecting the design and construction of the build alternatives include:

- Liquefaction and seismically induced settlement in areas of shallow groundwater and loose alluvial soils. Most of the Study Area is within an area identified as having the potential for liquefaction.
- Earthquake-induced slope instability associated with liquefaction in areas of moderate to high liquefaction potential and near slopes such as the Los Angeles River.

These potential impacts would be minimized through implementation of safe construction practices and compliance with Caltrans and Cal-OSHA requirements. Additionally, preparation of a design-level geotechnical report and quality assurance/quality control plan, as specified in Measures GEO-1 and GEO-2, would reduce geologic impacts. Therefore, geologic impacts related to earthquakes, seismic shaking, liquefaction, landslides, and unstable soils would be less than significant with implementation of Measures GEO-1 and GEO-2.

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

Reference: Section 3.10

Most of the project area could be subject to subsidence and liquefaction. The measures cited in Section 3.10.4 will require the project to be developed to Caltrans' most current seismic criteria and will reduce impacts to a less than significant level.

4.2.3.5 HAZARDS AND HAZARDOUS WASTE (CEQA CHECKLIST QUESTION VIII.D).

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

References: Sections 3.12 and 3.24

As described in Section 3.24.3.12, based on the findings of the records search and the site survey, the following hazardous materials may be encountered during excavation and construction activities for the build alternatives.

- Elevated concentrations of ADL may be present along existing roadways that would be modified by the build alternatives. During grading activities, there is the possibility for hazardous concentrations of ADL to be released into the environment and affect construction workers.
- Structures that would be removed or modified as part of the build alternatives may contain asbestos-containing materials, PCBs, and/or lead-based paint, which could be released into the environment if not properly handled and removed for disposal.
- Any transformers that would be removed or relocated during construction of the build alternatives would be considered PCB-containing unless labeled or tested otherwise. Leaking transformers that impact adjacent soils would be a concern during project construction because they could affect construction workers and the environment.
- Yellow traffic striping and pavement-marking materials (paint, thermoplastic material, permanent tape, and temporary tape) that would be removed as part of the project may contain elevated concentrations of metals such as lead.
- Previously unknown contaminants could be encountered at the properties to be acquired as part the build alternatives.

As described in Section 3.12, many listed sites were identified as having the potential to pose an environmental concern within the Study Area, including hazardous materials sites compiled pursuant to Government Code Section 65962.5. Considering the history and nature of activities conducted at some of the sites identified within the Study Area, contaminated groundwater may be encountered during construction. Dewatering of contaminated groundwater during construction of the build alternatives could impair adjacent surface waters. As a result, site investigations would be performed at all hazardous materials sites within the right-of-way of the build alternatives to determine whether hazardous materials are present on site. Hazardous

material spills associated with any acquired property would be removed and remediated prior to construction of the build alternatives. With implementation of Measures HW-1 through HW-14 listed in Section 3.12.4 and Measures CON-13 through CON-15 listed in Section 3.24.4.12, impacts related to hazardous materials and hazardous wastes during construction of the build alternatives and for the post- project condition would be less than significant.

4.2.3.6 NOISE (CEQA CHECKLIST QUESTIONS XII.B)

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Reference: Section 3.14

For purposes of determining significance under CEQA, the Caltrans Transportation- and Construction-Induced Vibration Guidance Manual (Department, June 2004) shows that the vibration damage threshold for continuous/frequent intermittent sources is 0.25 peak particle velocity (PPV) inches per second (in/sec) for historic and old buildings, 0.3 PPV in/sec for old residential structures, and 0.5 PPV in/sec for new residential structures. The same manual shows the vibration annoyance potential criteria to be barely perceptible at 0.01 PPV in/sec, distinctly perceptible at 0.04 PPV in/sec, strongly perceptible at 0.1 PPV in/sec, and severe at 0.4 PPV in/sec. Both of these criteria for damage and annoyance were used to evaluate short-term, construction-related groundborne vibration.

Because the rubber tires and suspension systems of trucks and other on-road vehicles provide vibration isolation, it is unusual for on-road vehicles to cause groundborne noise or vibration problems. When on-road vehicles cause effects such as rattling of windows, the source is almost always airborne noise. Groundborne vibrations are mostly associated with passenger vehicles and trucks traveling on roadways with poor conditions such as potholes, bumps, expansion joints, or other discontinuities in the road surface. Smoothing the bump or filling the pothole will usually solve the problem. As the proposed project will use new asphalt pavement followed with proper maintenance, there will be no potholes, bumps, expansion joints, or other discontinuities in the road surface that would generate groundborne vibration or direct or indirect noise impacts from vehicular traffic traveling on I-710.

Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels

that would result in damage to nearby structures. However, old and fragile structures would require special consideration to avoid damage.

The proposed project may require the use of pile drivers and other heavy-tracked construction equipment during construction. The Federal Transit Administration (FTA), in its Transit Noise and Vibration Assessment (FTA, May 2006), shows that a typical-impact pile driver would generate approximately 0.644 PPV in/sec when measured at 25 feet. It also shows that typical heavy-tracked construction equipment would generate approximately 0.003 to 0.089 PPV in/sec when measured at 25 feet.

Potential pile-driving activities would be located within existing channel or tidal waters and approximately 50 feet from the closest residence. The closest residence would be subject to a vibration level of 0.3 PPV in/sec. This vibration level is considered to be strongly perceptible and would have the potential to damage residential structures that are considered old, such as many of the structures that could be exposed to these vibration levels during construction activities. Other construction equipment and activities would generate vibration levels much lower than those of pile driving and heavy-tracked construction equipment and would therefore result in lower vibration levels at adjacent receiver locations. With implementation of Mitigation Measures CON-38 and CON-39 that require preconstruction and postconstruction surveys and alternatives to pile driving, respectively, for residential structures that are located 50 feet or closer from pile-driving activities, groundborne vibration levels generated by the proposed project would be less than significant.

4.2.3.7 UTILITIES AND SERVICE SYSTEMS (CEQA CHECKLIST QUESTION XVII.C)

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Reference: Sections 3.4 and 3.8

There are two existing retention basins located under the I-710/I-105 interchange that retain storm flows from the Los Angeles River during peak flow events. The retention system consists of a primary basin located between I-710 and the Los Angeles River and a secondary basin located west of I-710 that is connected together by a series of underground pipes. The freight corridor in Alternatives 6A/B/C bisects the primary basin. The capacity and functionality of the primary retention basin is impacted by the freight corridor alignment, and the basin will need to be reconfigured or relocated elsewhere in the interchange area to remain functional. Based on the existing underground piping configuration, one possible location for a new basin would be in the northwest quadrant of the I-105/I-710 interchange.

The Dominguez Basin Spreading Grounds contain three basins that are used for groundwater recharge. The two westerly basins are located north of I-405, west of the Los Angeles River, and south of the Metro Blue Line. The smaller of the two westerly basins is operated by the City of Long Beach and also serves as a storm water treatment facility. The larger west basin is operated by the Los Angeles Department of Public Works. The 37-acre East Basin is located north of the Metro Blue Line and I-405, east of the Los Angeles River, and south of Del Amo Blvd.

The easterly Dominguez Gap basin is not impacted by any of the build alternatives. In Alternatives 6A/B/C, the west basins are impacted by construction of the freight corridor. There are several possible alternative basin locations nearby that could be used to mitigate for the loss in recharge areas.

Mitigation Measures FP-2 and WQ-2 in Section 3.8, Hydrology and Floodplain, and Section 3.9, Water Quality and Stormwater Runoff, respectively, require that prior to the completion of final design of Alternatives 6A/B/C, Caltrans shall coordinate with the Los Angeles County Department of Public Works and the City of Long Beach to identify suitable locations for replacement of the I-105 freeway retention basin and the Dominguez Gap west basins that will provide equal or greater capacity than the basins impacted by the freight corridor. Therefore, with implementation of Mitigation Measures FP-2 and WQ-2, impacts associated with the construction of new basins for retention and groundwater recharge are reduced to less than significant.

4.2.38 MANDATORY FINDINGS OF SIGNIFICANCE (CEQA CHECKLIST QUESTIONS XVIII.A)

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

The build alternatives have the potential to degrade the environment as a result of impacts to natural communities, plant communities, and wetlands and other waters. Measures provided for these resources in Section 4.4, Mitigation Measures for Significant Impacts under CEQA, would substantially reduce those impacts to below a level of significance.

4.2.4 UNAVOIDABLE SIGNIFICANT IMPACTS OF THE PROPOSED PROJECT

4.2.4.1 AIR QUALITY (CEQA CHECKLIST QUESTION III.D)

d) Expose sensitive receptors to substantial pollutant concentrations?

Reference: Section 3.13

For purposes of determining significance under CEQA, any increase in Mobile Source Air Toxics (MSAT) concentrations at a sensitive receptor is considered significant.

The MSAT analysis provided in Section 3.13 indicates there would be similar or lower MSAT emissions in the Study Area under the build alternatives relative to the Alternative 1 in 2035 and the existing baseline conditions due to the improvement in traffic LOS and the reduction of delay at the project intersections, as well as improvements resulting from stricter engine and fuel regulations issued by the United States Environmental Protection Agency (EPA). Alternatives 6B and 6C include a separated freight corridor that is restricted to use by zero-emission trucks only, rather than conventionally powered trucks.

While the MSAT analysis showed that there would be an overall reduction of MSAT emissions in the South Coast Air Basin (SCAB) and the I-710 area of interest (AOI), the build alternatives would result in near-roadway incremental emissions concentrations in a few areas very near I-710. Therefore, the project's long-term impacts are potentially significant and unavoidable at these near-roadway locations.

These localized increases in emissions are the result of increased total traffic volumes on the facility. Further mitigation of these emissions is not feasible, since Caltrans does not control the emission characteristics of vehicles using the freeway. The forecast emissions take into account the planned reductions in MSAT emissions as promulgated by regulatory agencies with jurisdiction over MSAT emissions. Further reductions would require additional regulatory controls beyond the authority of Caltrans. Therefore, further mitigation by Caltrans is not technically feasible.

The project will substantially reduce the number of residents in the SCAB, AOI, and near the I-710 freeway who are exposed to MSAT emissions.

Compliance with SCAQMD rules and regulations during construction would reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions. In addition, the measures listed in Section 3.24.4.13 address temporary air quality impacts.

While not adopting them, Caltrans has considered the SCAQMD CEQA significance thresholds in this analysis. While the measures listed in Section 3.24.4.13 reduce temporary air quality impacts, the short-term construction emissions would continue to exceed the SCAQMD's CEQA thresholds. The SCAQMD thresholds seek to limit daily emissions of pollutants from project sites. The only feasible additional mitigation measure that would further reduce emissions to levels below the SCAQMD thresholds would be to severely limit the total daily construction activity. However, such mitigation would have two additional adverse impacts:

- The construction period would be extended, thereby extending the period of local disruption from construction activities.
- The project costs could increase due to the loss of economies of scale during construction.

Therefore, this additional mitigation was rejected since it would (1) create additional environmental impacts, and (2) substantially increase project costs. Therefore, the project's short-term impact would be potentially significant and unavoidable.

Caltrans is committed to working with SCAQMD, ARB, and EPA to continue to develop data in the I-710 Corridor that will contribute to improved air quality planning and project design in the future. As part of that commitment, the I-710 Corridor Project will provide funding for four new air quality monitoring stations within the I-710 Corridor, per Measure AQ-1. This measure would apply to any of the build alternatives.

4.2.4.2 LAND USE AND PLANNING (CEQA CHECKLIST QUESTIONS X.A)

a) Physically divide an established community?

Reference: Section 3.3

The analysis in Section 3.3 indicates three significant adverse effects to Land Use that cannot be mitigated (dependent on the alternative) to a level below significance, as described below.

- Within the city of Commerce, Alternatives 6A/B/C would result in adverse impacts to community character and cohesion as a result of relocations in the Ayers neighborhood under Design Options 1 and 2. Construction of the loop off-ramp under Alternatives 6A/B/C, Design Option 1, would displace the entire Ayers neighborhood, and Design Option 2 would displace about one-third of the Ayers neighborhood. Therefore, under Alternatives 6A/B/C, Design Options 1 and 2, adverse impacts to community character and cohesion and impacts associated with physically dividing an established community

in the city of Commerce would be potentially significant and unavoidable. Design Option 3 would avoid this impact.

- Division of an established community would also occur in Compton under all build alternatives as a result of the relocation of the recently constructed “Seasons Senior Apartments” located at 15810 Frailey Ave. This property would be a full acquisition under all build alternatives. Seasons Senior Apartments consist of 84 residential units intended to meet the needs of senior citizens with developmental disabilities. Because of this unique demographic, it is expected that there is a high degree of cohesion within this apartment community. While the relocations of the apartment residents would be conducted pursuant to the requirements of the Uniform Act, it is unlikely that all of the residents could be relocated together to a similar apartment complex; therefore, this impact is considered significant and unavoidable under all build alternatives.
- In Bell Gardens, three mobile home parks located on Shull St. would require relocation under Alternatives 6A/B/C. Each of these parks is partially impacted by the proposed right-of-way and will require the permanent relocation of several mobile homes. Mobile home communities are typically very cohesive neighborhoods; thus, Alternatives 6A/B/C would have an impact to community cohesion for these mobile home communities in Bell Gardens. There are limited relocation opportunities within Bell Gardens for mobile homes; therefore, this impact is considered significant and unavoidable under Alternatives 6A/B/C.

4.2.4.3 NOISE (CEQA CHECKLIST QUESTIONS XII.A AND XII.C)

The following two questions are addressed together.

- a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**
- c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

Reference: Section 3.14

As shown in Table 3.14-2 in Section 3.14, many of the residences along the project corridor would either experience a substantial noise increase of 12 dBA or more over existing noise levels or would be exposed to traffic noise levels approaching or exceeding the Noise Abatement Criteria (NAC) under Activity Categories B, C, D, and E land uses within the project area. Also, traffic noise levels would exceed noise standards in the General Plan for the Cities

of Bell, Bell Gardens, Carson, Commerce, Compton, Cudahy, Downey, Huntington Park, Lakewood, Long Beach, Lynwood, Maywood, Paramount, Signal Hill, South Gate, and Vernon, as well as unincorporated areas of Los Angeles County, including the communities of East Los Angeles, Boyle Heights, Wilmington, and San Pedro.

Potential additional mitigation to reduce this effect would include the provision of additional and/or higher sound walls. These locations were assessed to determine feasible measures to reduce noise impacts to below the FHWA Noise Abatement Criteria, but none were identified.

The provision of nine linear miles of new soundwalls under Alternative 5A and 19 linear miles of new soundwalls under Alternatives 6A/B/C will mitigate project-related noise impacts along much of the I-710 freeway to a level below significance under CEQA. However, as shown in the tables in Section 3.14, there will be some locations where the post-project noise levels will not meet the FHWA noise abatement criteria; therefore, under CEQA, these locations would experience a significant and unavoidable adverse noise impact.

4.2.4.4 POPULATION AND HOUSING (CEQA CHECKLIST QUESTIONS XIII.B AND XIII.C)

The following two questions are addressed together.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Reference: Section 3.3

As described in Section 3.3, Community Impacts, the build alternatives would result in the acquisition of existing residential uses and the relocation of occupants of those residential uses. Last Resort Housing may be required for relocation of residents with special needs, such as low-income, elderly, and handicapped residents. Additionally, special assistance may be needed to relocate smaller or marginal businesses and minority businesses that need to be located next to a specific customer base. Section 3.3 describes that adequate housing stock currently exists within the Study Area to meet the needs of the relocations, other than special needs residents and businesses and that the build alternatives would not require construction of replacement housing.

Alternatives 6A/B/C, Option 1, would result in 261 residential displacements. Some of these displaced residences are in areas where there is insufficient replacement housing available, such as the Ayers neighborhood in the city of Commerce. Therefore, it will not be possible to relocate all displaced residents within their community or within an area within reasonable proximity to their community. For this reason, construction of replacement housing in the city of Commerce areas may be necessary. Therefore, Alternatives 6A/B/C Option 1 impacts related to the displacement of existing housing and people necessitating the construction of replacement housing are potentially significant and unavoidable.

4.2.4.5 TRANSPORTATION AND TRAFFIC (CEQA CHECKLIST QUESTIONS XVI.A AND XVI.B)

The following two questions are addressed together.

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**
- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?**

Reference: Section 3.5

For the purposes of the CEQA traffic analysis, LOS E and LOS F that result from the build alternatives are considered not acceptable, and mitigation should be considered for cases where traffic conditions are LOS E and F in the postproject condition.

The build alternatives will provide additional capacity to address projected traffic volumes, will improve traffic safety by removing existing design deficiencies, and will provide infrastructure to address the projected growth in population, employment, and activities related to goods movement in the Study Area.

As described in Section 3.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, existing traffic count data for the traffic study area were collected in spring and fall of 2008 as well as collected from available sources. Traffic conditions for Baseline/Existing (2008) and Design Year 2035 were analyzed to determine LOS without the I-710 Corridor Project.

In the case of the I-710 Corridor Project, the proposed improvements constitute a significant increase in capacity over the existing 2008 baseline condition.

Figures 4.2-1 through 4.2-10 provide a summary comparison of the existing conditions to the Year 2035 conditions with the project alternatives, including the No Build.

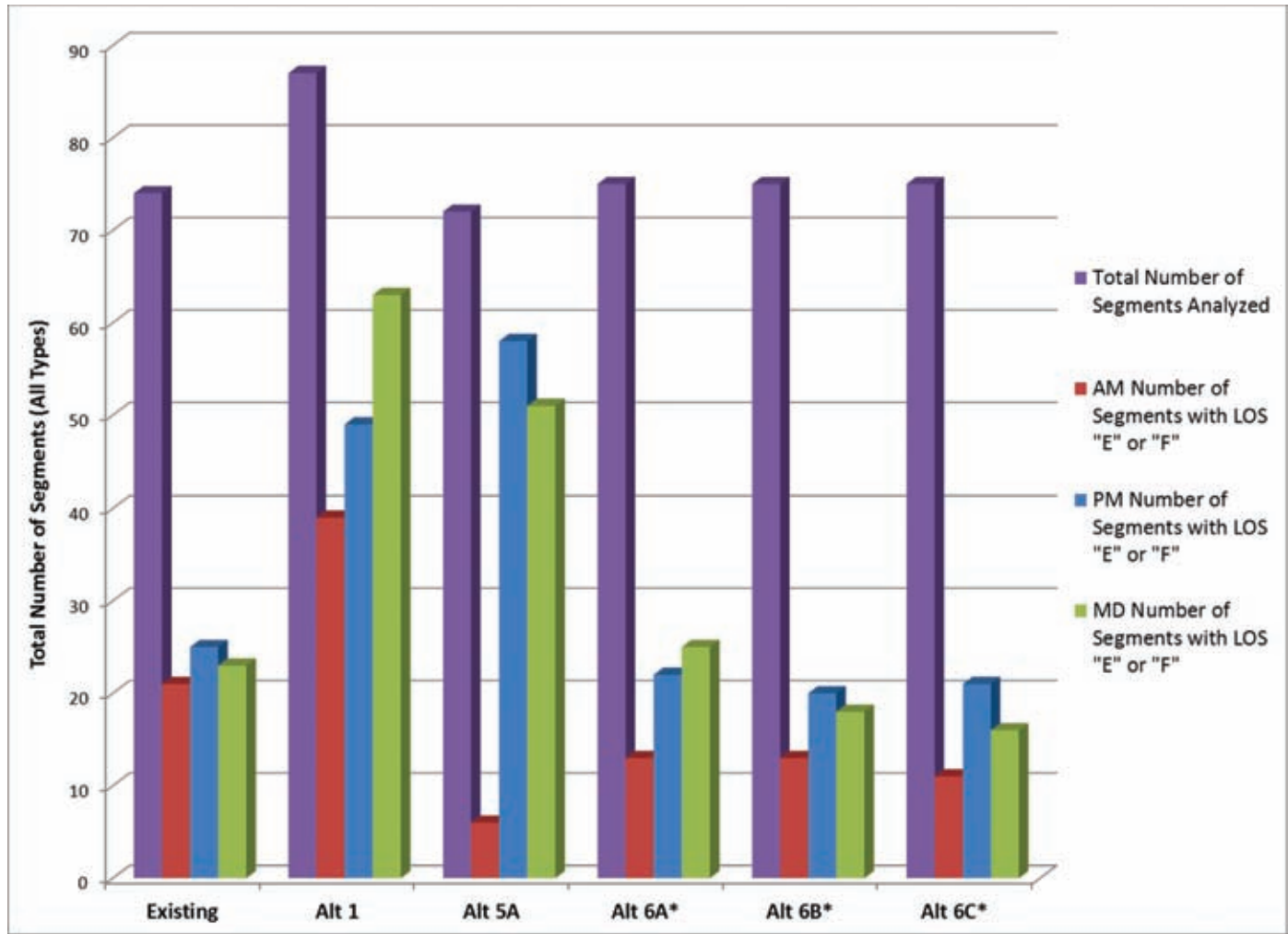
As shown in the *Traffic Operations Analysis Report* (November 2011), in the existing condition:

- **Northbound Direction:** 16 basic, 7 weaving segments, and 14 merge or diverge segments currently operate at unsatisfactory LOS E or F in the existing condition.
- **Southbound Direction:** 14 basic, 9 weaving segments, and 17 merge or diverge segments currently operate at unsatisfactory LOS E or F in the existing condition.

There are several deficient segments on the mainline during existing conditions. The I-710 Corridor project will increase capacity under all alternatives, which will improve LOS on the freeway (basic, weave, and merge/diverge segments) under existing plus project conditions. As such, the project would not have adverse impacts to traffic based upon a comparison of existing conditions to existing plus project conditions.

The roadway segment analysis is provided in the *Intersection Traffic Impact Analysis Report* (2012). The following is a summary of the roadway segments that experience volume-to-capacity (v/c) ratios approaching or exceeding the available capacity and operating at LOS E or F with the project build alternatives. With the No Build condition under Alternative 1, 74 of the Study Area roadway segments are forecast to operate at LOS E or F. Under Alternative 5A, 72 roadway segments would operate at LOS E or F. Under Alternatives 6A/B/C, 57 roadway segments would operate at LOS E or F. As a result, all of the I-710 build alternatives would improve roadway operations within the Study Area. These improvements result in part from not as much I-710 traffic diverting onto local arterials under the I-710 build alternatives as compared to Alternative 1.

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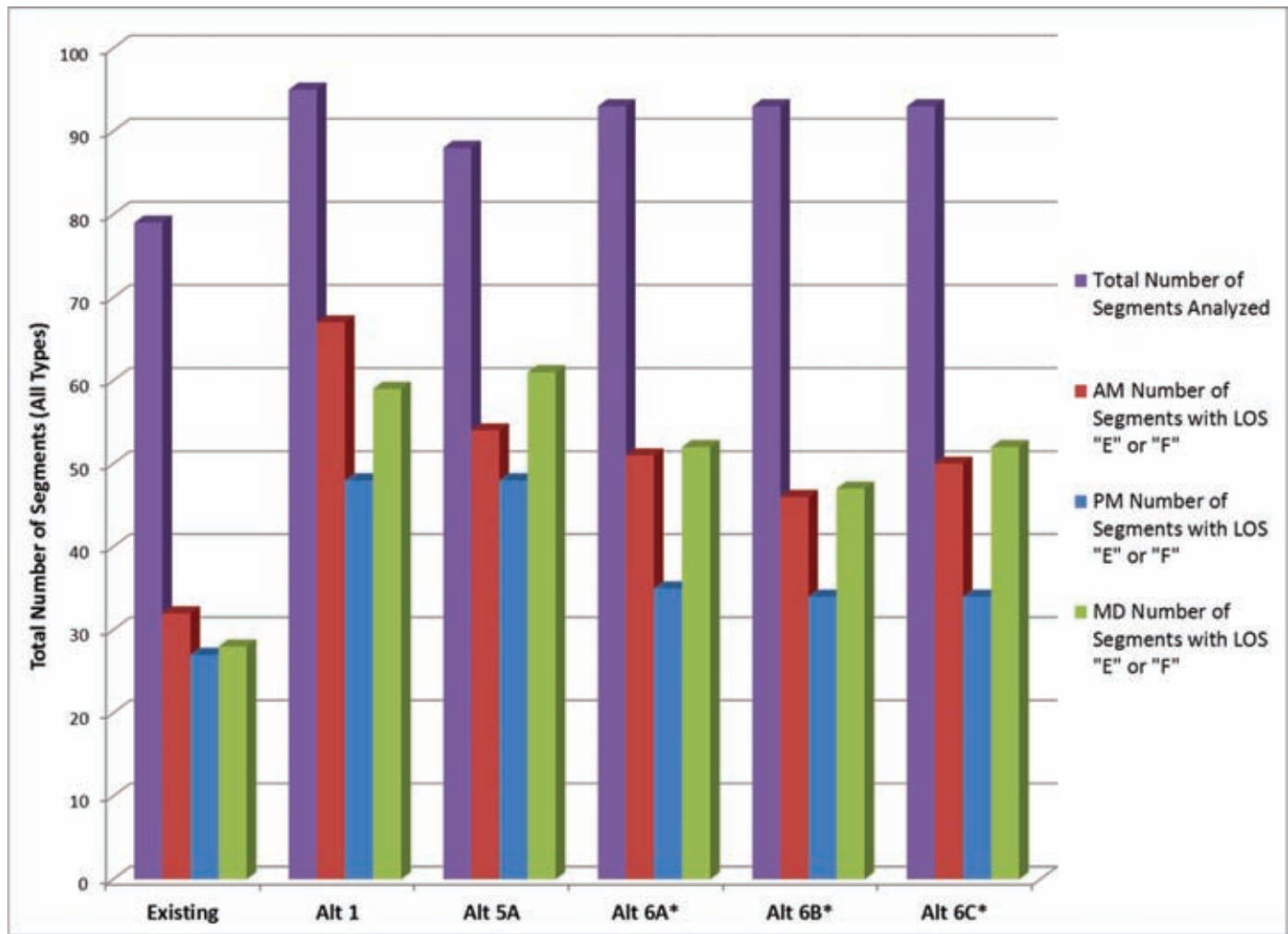


*Summary results include Northern Termini segments under Design Option 1 & 2 conditions.

FIGURE 4.2-1
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-710 Northbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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*Summary results include Northern Termini segments under Design Option 1 & 2 conditions.

FIGURE 4.2-2

PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-710 Southbound Peak Hour
Level of Service Comparison

07-LA-710-PM 4.9/24.9
EA 249900

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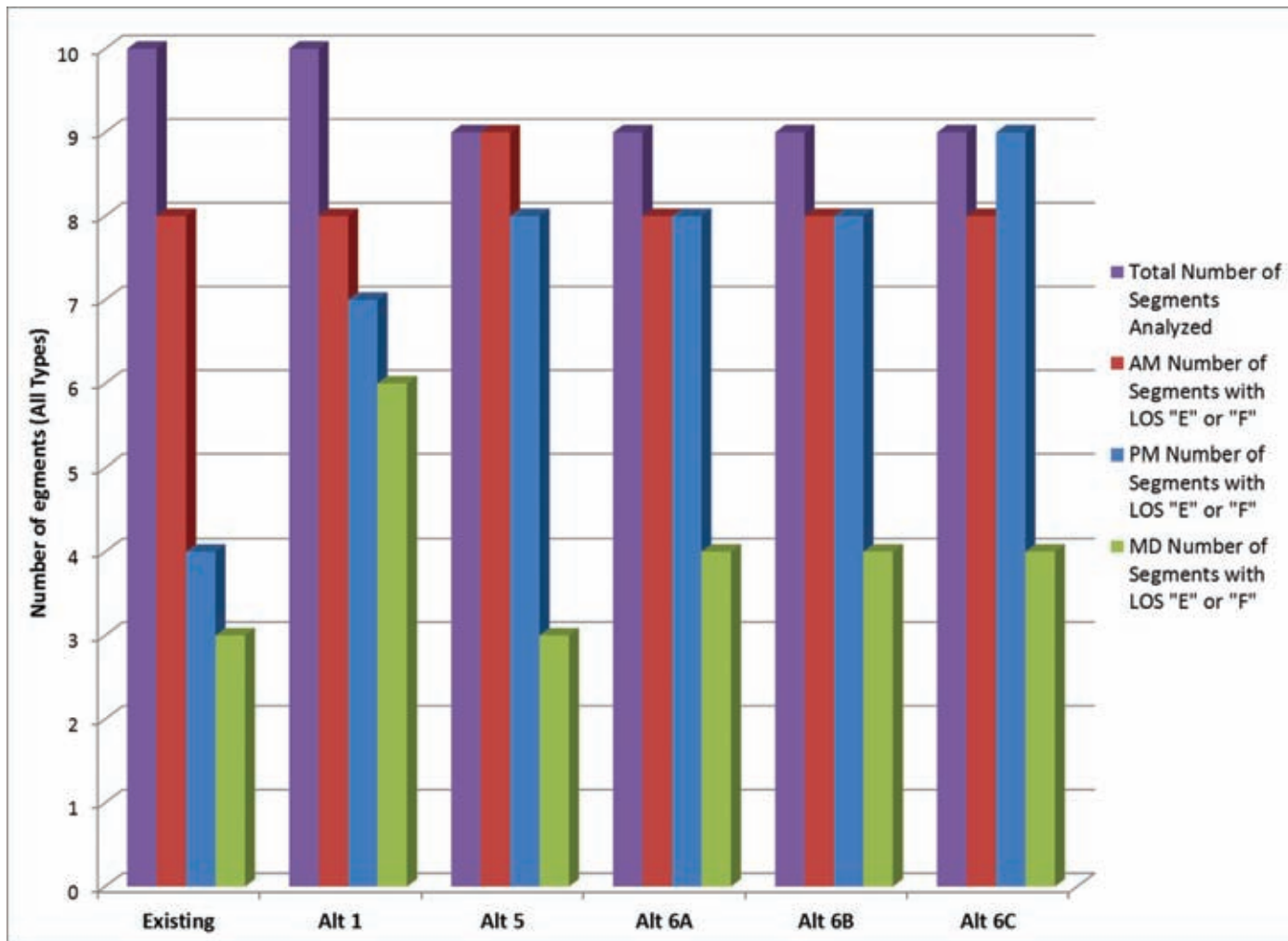


FIGURE 4.2-3
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-405 Northbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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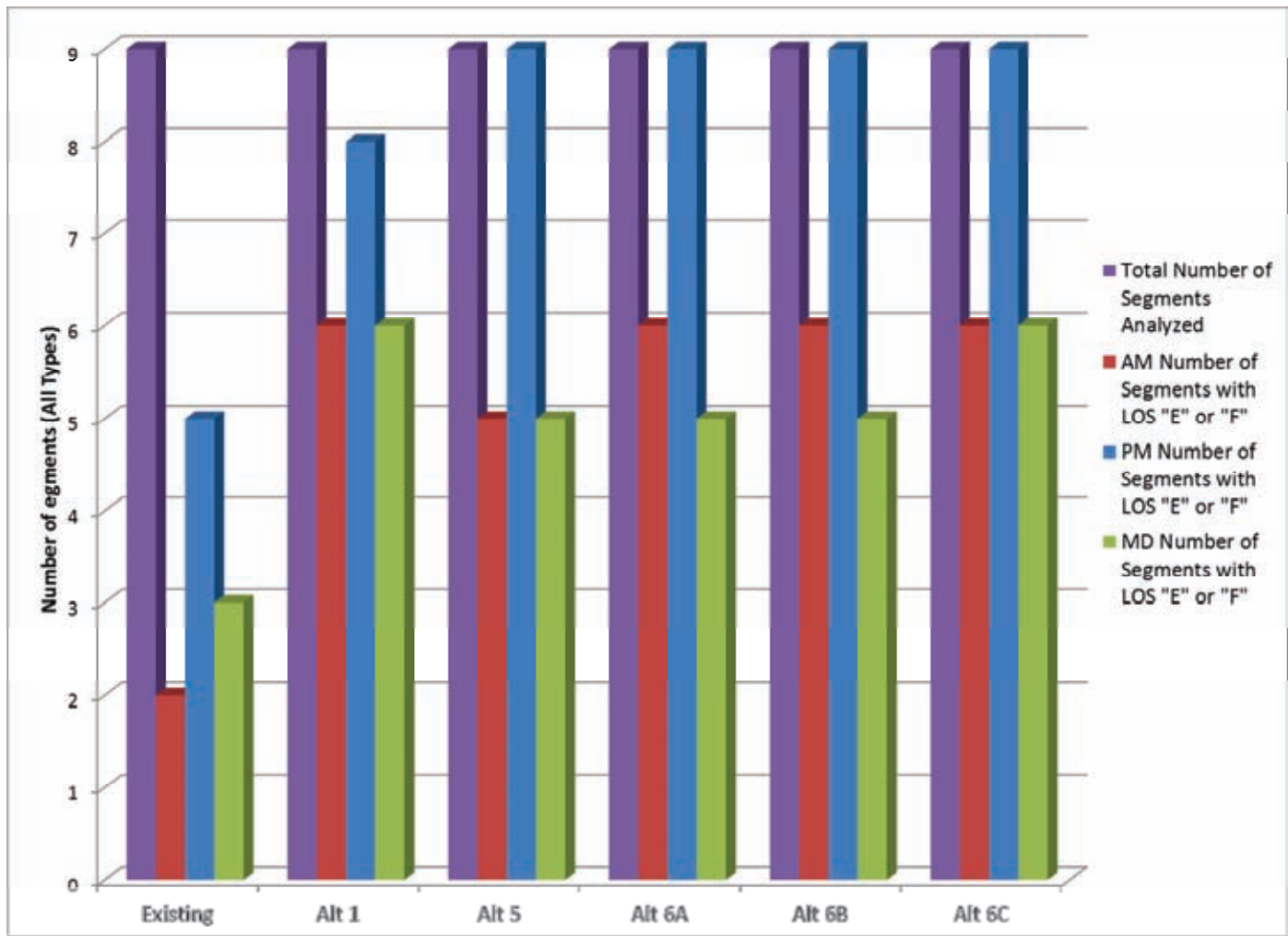


FIGURE 4.2-4
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-405 Southbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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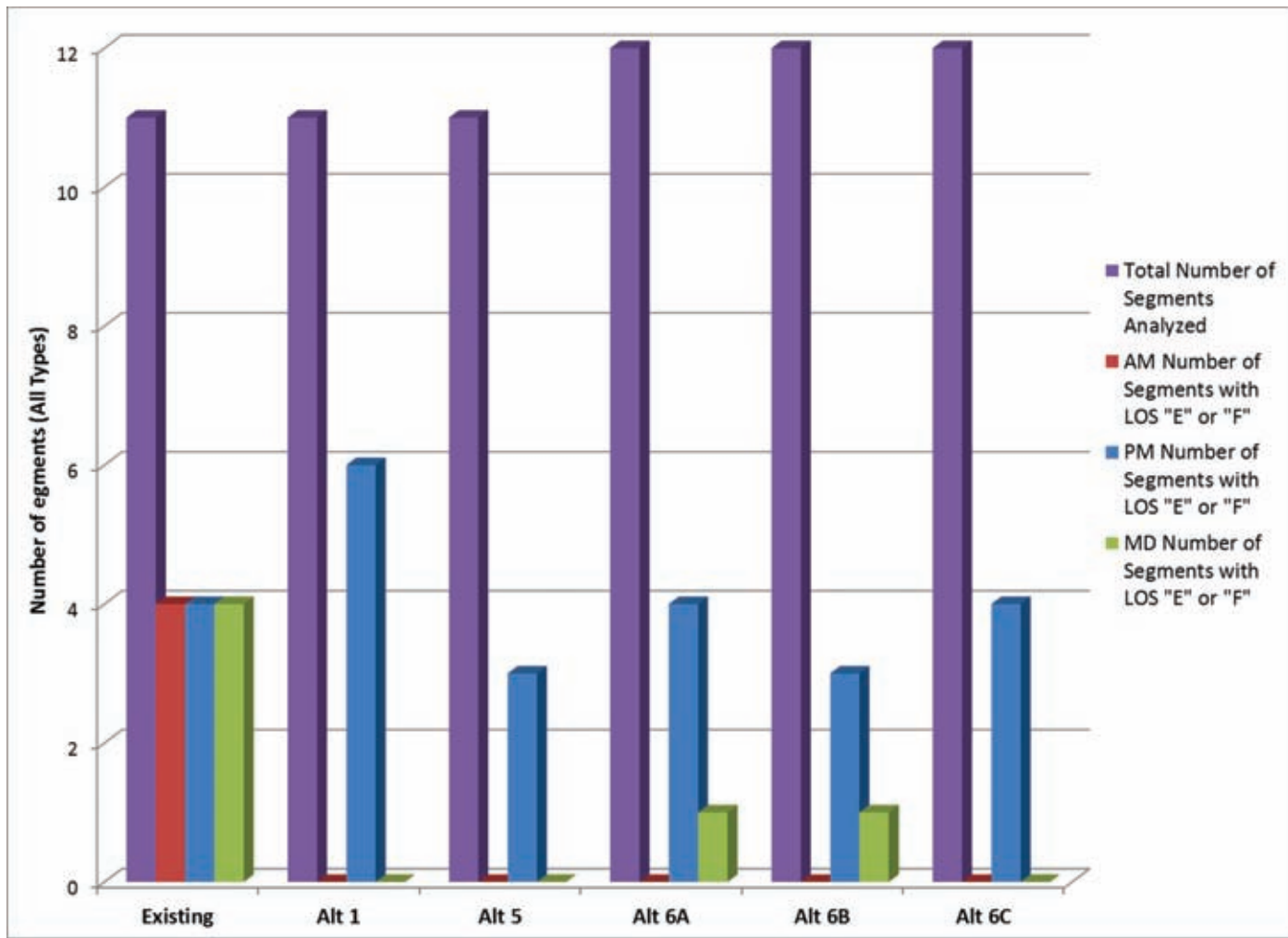


FIGURE 4.2-5
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
SR-91 Eastbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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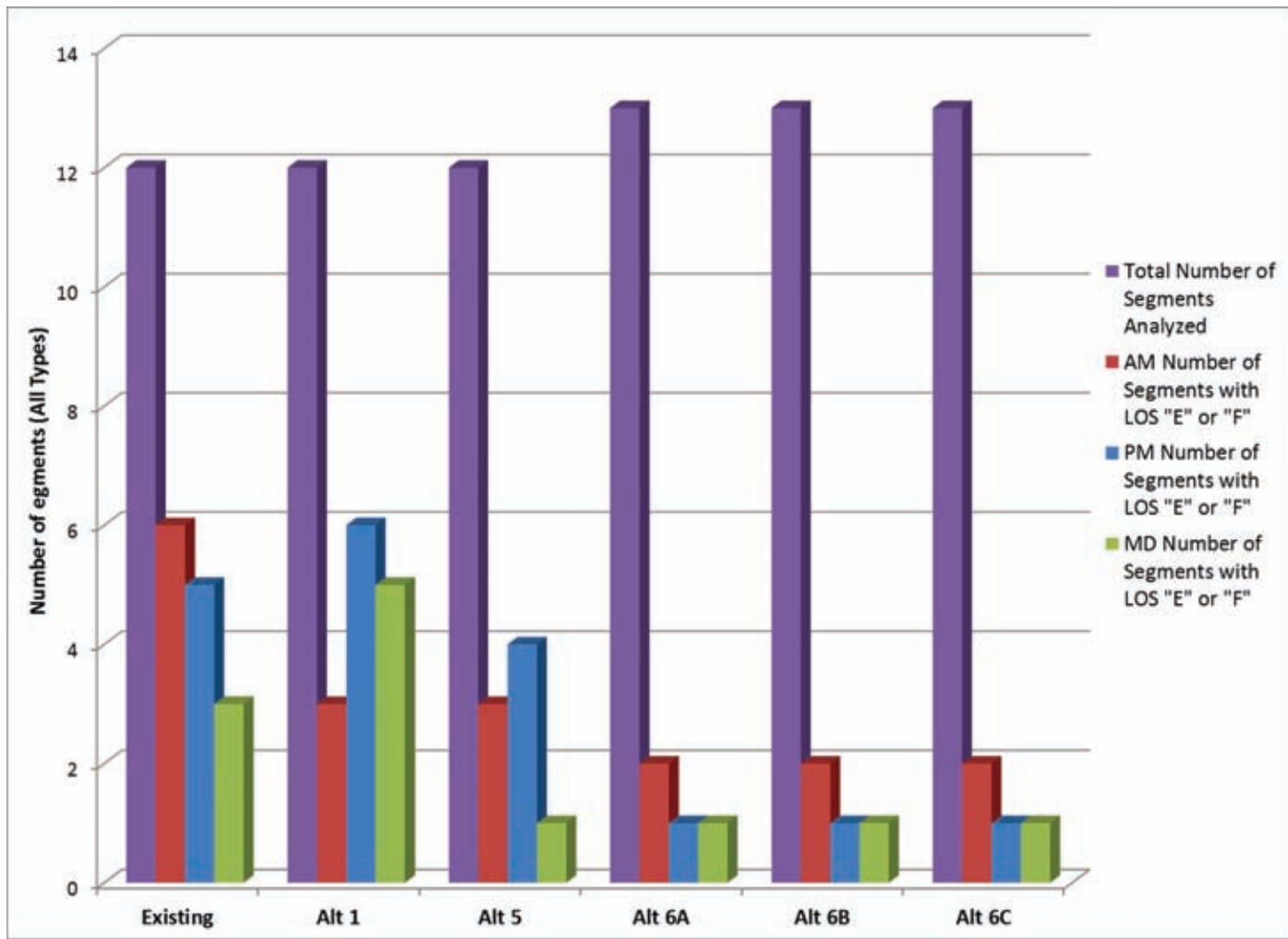


FIGURE 4.2-6
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
SR-91 Westbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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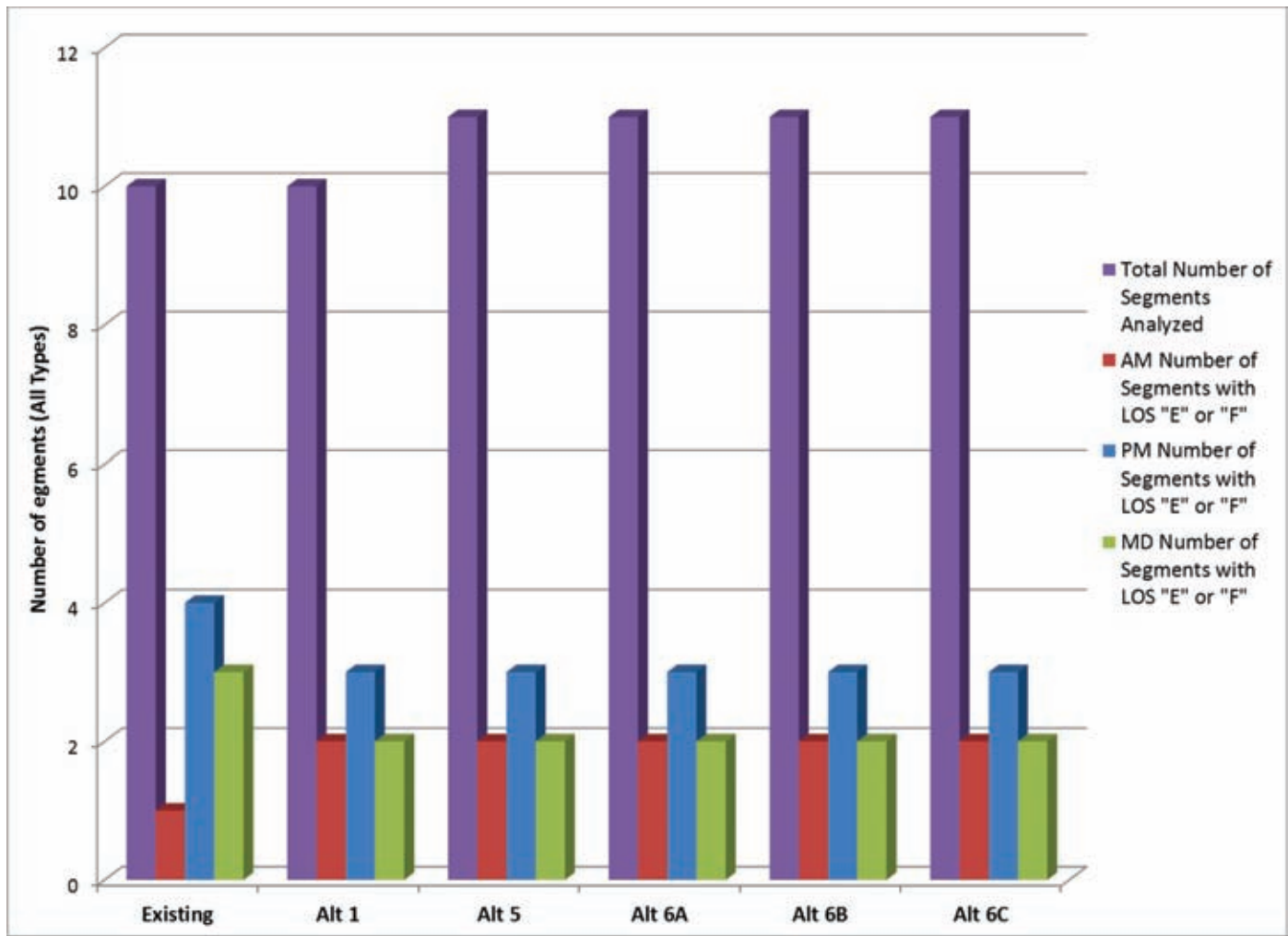


FIGURE 4.2-7
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-105 Eastbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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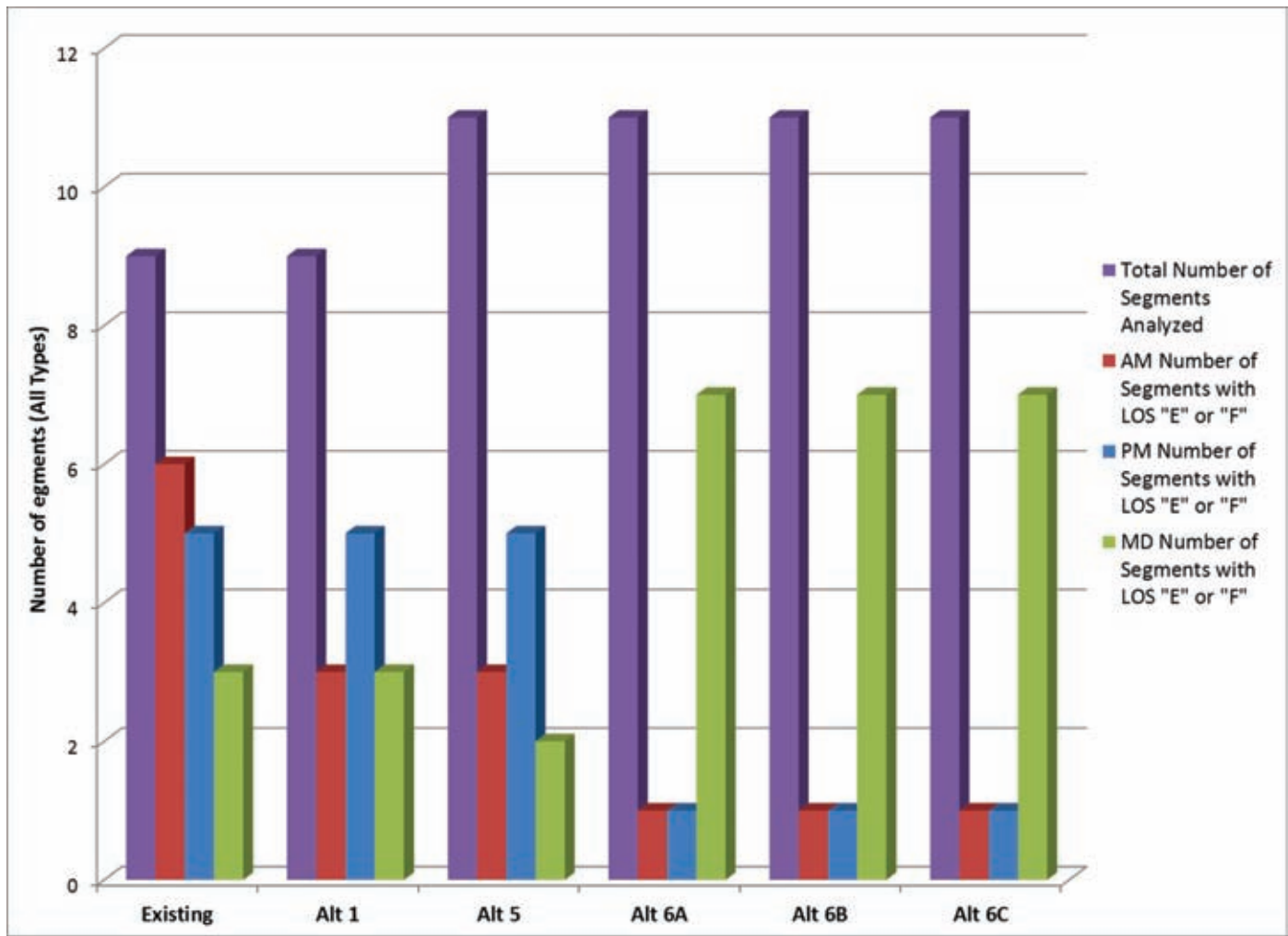


FIGURE 4.2-8
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-105 Westbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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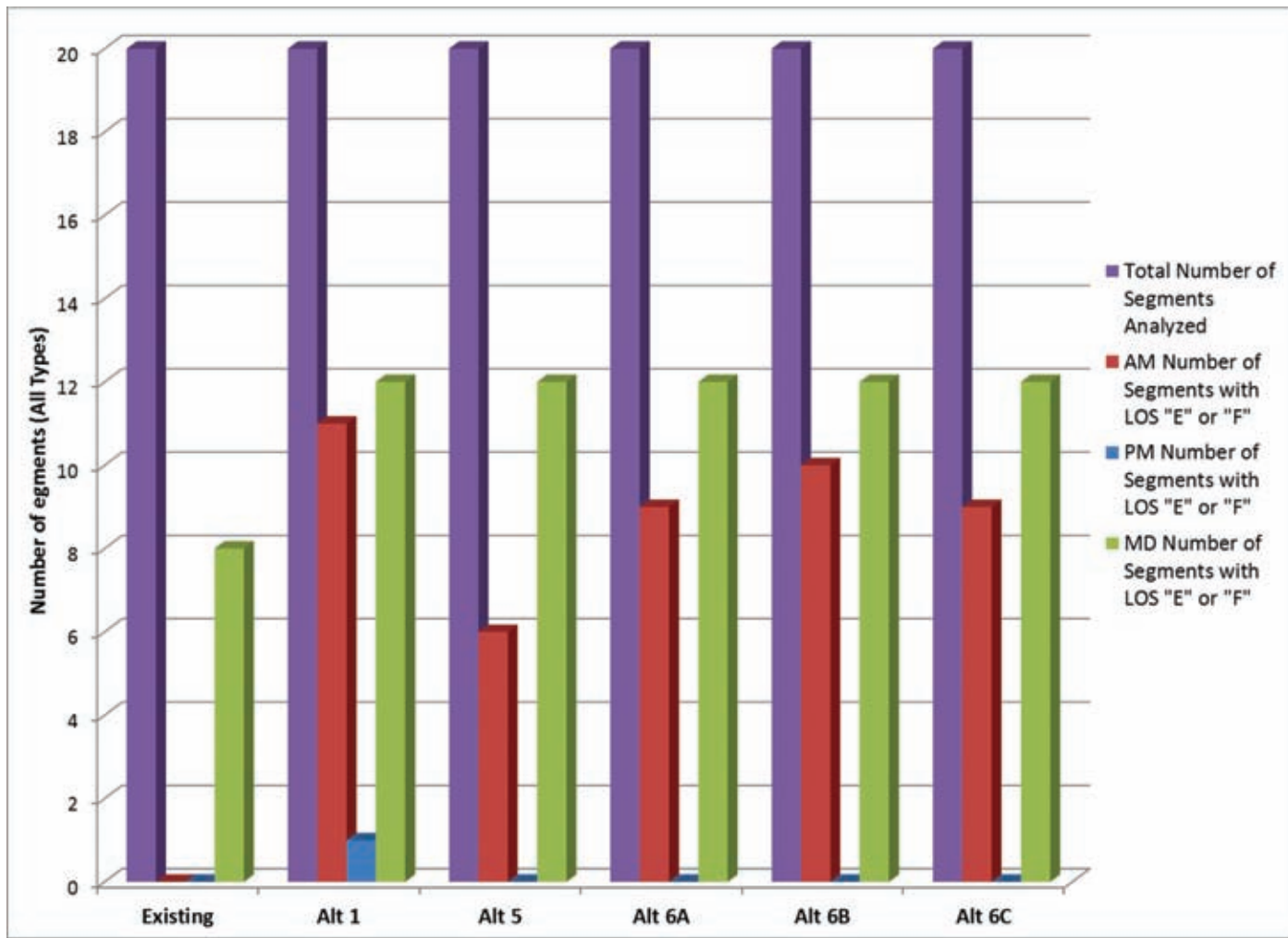


FIGURE 4.2-9
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-5 Northbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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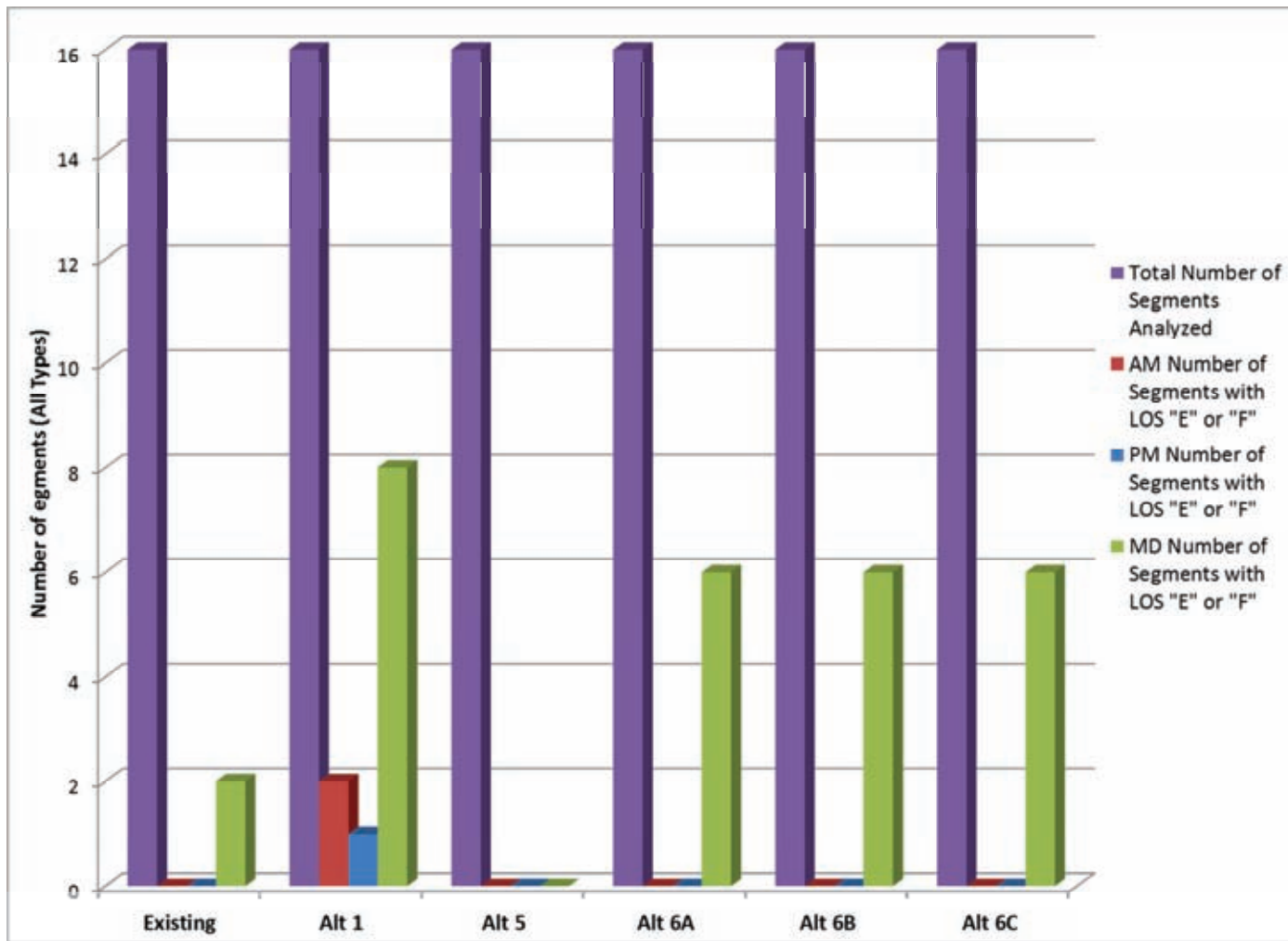


FIGURE 4.2-10
PRE-DELIBERATIVE DRAFT

I-710 Corridor Project
I-5 Southbound Peak Hour
Level of Service Comparison
07-LA-710-PM 4.9/24.9
EA 249900

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As indicated in the traffic analysis, deficiencies were present in the existing (2008) condition at ramps and existing interchanges at four ramp interchanges during the p.m. peak hour. However, it should be noted that several ramp interchanges along the corridor were not analyzed under the existing (2008) conditions since they are operating on low-speed cloverleaf designs that do not have an intersection to be analyzed. Under project alternative conditions, all interchanges and ramps are being improved along the I-710 corridor between Ocean Blvd./ Harbor Scenic Dr. and Washington Blvd. The build alternatives will add capacity and operational efficiency to existing conditions, which will lead to improved LOS and operations under existing plus project conditions and improve safety. Additionally, the project includes a new interchange connection at Slauson Ave., which is located between existing interchanges at Florence Ave. and Bandini Blvd. Under Alternatives 6A/B/C, a new connection to and from the south is also provided at Patata St. that accesses the freight corridor. Transportation Systems Management (TSM) improvements include the provision of future ramp metering at all on-ramp locations and the addition of improved arterial signage for access to and from I-710 that will also help improve traffic conditions over the existing (2008) conditions.

An analysis of the Study Area intersections is provided in the Intersection *Traffic Impact Analysis Report* (November 2011). The following summary describes the existing intersection operations for the a.m., midday, and p.m. peak hours. It should be noted that fewer intersections were evaluated in the midday peak hour due to the lack of available midday peak-hour traffic volumes at many intersections. The total number of intersections with poor LOS E or F under existing conditions are shown below:

- **Morning Peak Hour:** 9 of 141 (13 percent) under existing conditions
- **Midday Peak Hour:** 2 of 127 (2 percent) under existing conditions
- **Evening Peak Hour:** 34 of 141 (24 percent) under existing conditions

Under existing plus project conditions, I-710 will be improved with higher-capacity facilities under all alternatives, thus increasing the mainline's capability to handle additional traffic. When the various build alternative improvements are applied to existing (2008) conditions, travel times on the I-710 general purpose lanes are expected to be greatly reduced while travel speeds in the I-710 general purpose lanes are expected to be improved significantly.

As shown in the *Traffic Operations Analysis Report* (November 2011), when Alternatives 5A and 6A/B/C are compared to existing (2008) conditions, traffic congestion on I-710 is expected to be relieved. Based on the project benefits derived from comparing the build alternatives to the no build conditions, most of the deficient segments on I-710 would be improved to operate at acceptable LOS under existing (2008) plus project conditions.

As shown in the *Traffic Impact Analysis Report* (2011), the interchange intersection LOS under the Alternatives 5/A and 6A/B/C will generally improve when compared to no build conditions. However, the LOS at arterial intersections may not improve with the project unless the additional capacity of the freeway reduces volumes on the arterials. However, as described in Section 3.5, implementation of the project would result in a significant project impact at 21 intersections in the Study Area. These impacted intersections are projected to operate at LOS E or F, and the intersection delay is projected to increase under the build alternatives compared to the Alternative 1. To mitigate the impact of the project on these intersections, Measure TR-1, as identified in Section 3.24.4.5, would be implemented. Implementation of this measure would reduce impacts to the 21 impacted intersections to a less than significant level at all but four intersections.

The LOS and/or intersection delay on the Study Area intersections would generally be maintained or improved during the peak hours in 2035 under the build alternatives compared to the Alternative 1. However, there would be degradation in LOS with the project build alternatives at some locations.

The criteria for determining which intersections are adversely impacted when comparing any of the I-710 build alternatives to the No Build condition under Alternative 1 include:

- Degraded LOS E or F in the build alternatives (with I-710 project); and
- Increase in intersection delay over Alternative 1 conditions.

Several intersections that are projected to experience poor LOS and heavy intersection delay under Alternative 1 conditions are not identified as adversely impacted intersections since they do not have an increase in delay in the build alternative. These locations did not require project mitigation measures because there is no impact from the I-710 Corridor Project.

Based on the arterial intersection LOS analysis, along with the impact criteria listed above, 21 Study Area intersections have been identified as being adversely impacted by the project under the proposed build alternatives. Intersections impacted by each of the build alternatives are summarized in Section 3.5, Traffic, in Table 3.5-31. As this table shows, 13 intersections are projected to be impacted under Alternative 5A, 18 impacted under Alternative 6A, and 19 intersections are projected to be impacted under both Alternatives 6B and 6C. Twelve of these intersections will be impacted by all four build alternatives. Mitigation measures to improve these impacted locations are described in Section 3.5, Traffic.

Four intersections within the Study Area are projected to operate at unacceptable LOS (E or F) as a result of the project; however, mitigation measures have not been recommended at these

intersections because mitigation is infeasible due to right-of-way constraints and other limitations identified during coordination meetings with the staff of the affected cities. These intersections include the following:

ID	Intersection Name	Identified Reasons/Constraints/Limitations
10	Pico Ave./9th St.	Other ongoing project(s) in this area.
22	PCH/Atlantic Ave.	Right-of-way constraints. (Note that some improvements have been identified to minimize project impact at this intersection.)
112	1-710 NB Ramps/Long Beach Blvd.	This intersection has been redesigned as part of 1-710 Freeway improvement. Right-of-way constraint limits further improvements to this ramp intersection.
155	Wilmington Ave./223rd St.	Right-of-way constraints.

As discussed in Section 3.25 of this EIR/EIS, the intersection of Pico Ave. and 9th St. is currently undergoing additional review by the Port of Long Beach, and its design may change in the future. Therefore, is it not prudent to develop mitigation at this time.

With respect to the other three intersections, consultations with the affected local agencies indicated that existing right-of-way constraints precluded additional improvements and that the local agency would not support additional right-of-way takes or displacements at these locations. As such, additional mitigation is considered infeasible.

The four intersections listed above will be adversely impacted by the build alternatives and will not meet the LOS standard of LOS D or better. Therefore, the I-710 Corridor project would have a potentially significant unavoidable impact on traffic at these four intersections.

4.2.4.6 MANDATORY FINDINGS OF SIGNIFICANCE (CEQA CHECKLIST QUESTION XVIII.B AND C)

The build alternatives, when combined with other cumulative projects, would contribute to cumulative impacts related to air quality, land use and planning, noise, population and housing, and transportation and traffic. The build alternatives would not contribute to cumulative adverse impacts related to aesthetics, agricultural resources, biological resources, geology and soils, hazards and hazardous waste, hydrology and water quality, mineral resources, public services, recreation, or utilities and service systems.

The proposed build alternatives would result in unavoidable significant impacts related to air quality, land use and planning, noise, population and housing, and transportation and traffic. Based on the analysis of potential mitigation for these impacts provided in Chapter 3, there is no

feasible mitigation to avoid or reduce these impacts while still achieving the project goals and objectives. Therefore, the project would have direct and indirect adverse impacts on human beings that cannot be mitigated to a level below significance.

4.2.5 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 3.22 (Relationship between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity) and Section 3.23 (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 residential, nonresidential, historical resource, or other uses. Other permanent environmental changes associated with the build alternatives include increased noise levels, increased nighttime lighting, altered viewsheds, consumption of construction materials and energy, permanent impacts to wetlands and other natural communities, removal of residential and nonresidential uses, and the loss of a park (Parque Dos Rios) as a result of Alternatives 6A/B/C.

4.3 CLIMATE CHANGE

4.3.1 REGULATORY SETTING

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 GHGs, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, 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 related to human activity that include CO₂, methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s,s,s,2 –tetrafluoroethane), and HFC-152a (difluoroethane).

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to the effort of planning for and

adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).¹

Transportation sources (passenger cars, light-duty trucks, other trucks, buses, and motorcycles) in the State of California make up the largest source (second to electricity generation) of GHG-emitting sources. Conversely, the main source of GHG emissions in the United States is electricity generation, followed by transportation. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are four primary strategies for reducing GHG emissions from transportation sources: (1) improve system and operation efficiencies, (2) reduce growth of vehicle miles traveled (VMT), (3) transition to lower GHG fuels, and (4) improve vehicle technologies. To be most effective, all four strategies should be pursued collectively. The following regulatory setting section outlines State and Federal efforts to comprehensively reduce GHG emissions from transportation sources.

4.3.1.1 STATE

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

- **Assembly Bill 1493, Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002:** Requires the California Air Resources Board (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. In June 2009, the EPA Administrator granted a Clean Air Act (CAA) waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies will be working with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017–2025.
- **Executive Order S-3-05** (signed on June 1, 2005, by Governor Arnold Schwarzenegger): The goal of this Executive Order is to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below the 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32.

¹ http://climatechange.transportation.org/ghg_mitigation/.

- **Assembly Bill 32, 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 plan, which includes market mechanisms, and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” EO S-20-06 further directs State agencies to begin implementing AB 32, including the recommendations made by the State’s Climate Action Team.
- **Executive Order S-01-07:** Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by 2020.
- **Senate Bill 97 (Chapter 185, 2007):** Required the Governor’s Office of Planning and Research to develop recommended amendments to the State CEQA Guidelines for addressing GHG emissions. The Amendments became effective on March 18, 2010.

4.3.1.2 FEDERAL

Although climate change and GHG reduction is a concern at the Federal level, currently there are no regulations or legislation that have been enacted specifically addressing GHG emission reductions and climate change at the project level. 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 is focused on reducing GHGs internally in Federal agency missions, programs, and operations, but also on directing Federal agencies to participate in the interagency Climate Change Adaptation Task Force, which is engaged in developing a United States strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the CAA and that the EPA has the authority to regulate GHGs. The Court held that the EPA Administrator must determine (1) whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or (2) whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO₂, CH₄, N₂O, hydrofluorocarbons

[HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF₆]) in the atmosphere threaten the public health and welfare of current and future generations.

- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009.¹ On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

The EPA and the National Highway Traffic Safety Administration (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. These steps were outlined by President Obama in a memorandum on May 21, 2010.²

The final combined EPA and NHTSA standards that make 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 require these vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO₂ level solely through fuel economy improvements. Together, these standards will cut 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 January 24, 2011, the EPA, along with the United States Department of Transportation and the State of California, announced a single timeframe for proposing fuel economy and GHG standards for model year 2017–2025 cars and light trucks. Proposing the new standards in the same timeframe (September 1, 2011) signals continued collaboration that could lead to an extension of the current National Clean Car Program.

¹ <http://www.epa.gov/climatechange/endangerment.html>.

² <http://epa.gov/otaq/climate/regulations.htm>.

4.3.2 SHORT-TERM CONSTRUCTION-RELATED IMPACTS

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. Calculations included in Appendix B of the AQ/HRA Analysis (February 2012) estimate that construction of Alternative 5A would generate up to 164 metric tons of CO₂ per day, while construction of Alternatives 6A/B/C would generate up to 166 metric tons of CO₂ per day. Table 4.3-1 lists the GHG emissions that would be generated in each of the construction years along with the total GHG emissions that would be generated by each of the build alternatives. Measures SC-5 and SC-12 listed in Section 3.13.4.1, would reduce the GHG emissions generated by on-site construction equipment. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Table 4.3-1 Yearly Mass Emissions of CO₂ (Tonnes) for Construction of Alternatives 5A and 6A/B/C

Year	Alternative 5A	Alternatives 6A/B/C
2020	26,700	27,700
2021	39,600	40,100
2022	37,600	42,300
2023	38,000	42,000
2024	25,100	38,000
2025	7,700	35,200
2026	2,900	18,200
2027	0	2,300
Total	177,500	245,900
Total/30	5,900	8,200

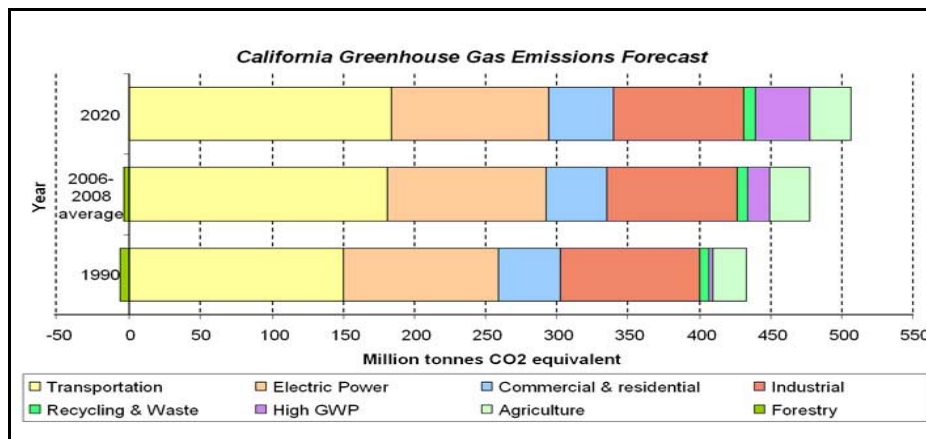
Source: I-710 Air Quality and Health Risk Assessment Technical Studies, February 2012.
CO₂ = carbon dioxide

4.3.3 LONG-TERM IMPACTS

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 participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.¹ In assessing cumulative impacts, it must be determined whether a project’s incremental effect is “cumulatively considerable.” See 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 in order to make this determination is a difficult if not impossible task.

The Assembly Bill 32 Scoping Plan contains the main strategies California will use to reduce GHGs. As part of its supporting documentation for the Draft Scoping Plan, the California ARB released the GHG inventory for California.² 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 2006, 2007, and 2008. The California GHG forecast is shown on Figure 4.3-1.



Source: California Department of Transportation Environmental Impact Report/Environmental Impact Statement Annotated Outline, July 2011.

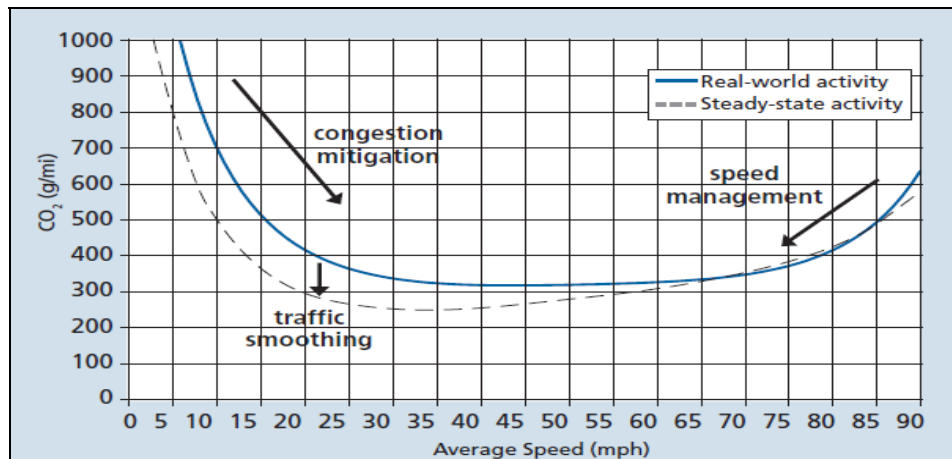
Figure 4.3-1 California Greenhouse Gas Inventory

¹ 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 SCAQMD (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

² Forecast last updated on October 28, 2010.

Caltrans and its parent agency, the Business, Transportation, and Housing 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 humanmade GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (see Climate Action Program at Caltrans, December 2006).¹

One of the main strategies in Caltrans's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO₂ from mobile sources, such as automobiles, occur at stop-and-go speeds (0–25 miles per hour [mph]) and speeds over 55 mph; the most severe emissions occur from 0–25 mph (see Figure 4.3-2).



Source: California Department of Transportation Environmental Impact Report/ Environmental Impact Statement Annotated Outline, July 2011.

Figure 4.3-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO₂ Emission²

4.3.4 PROJECT ANALYSIS

The purpose of the I-710 Corridor Project is to improve air quality and public health, improve traffic safety, address existing design deficiencies, accommodate projected traffic volumes, and

¹ 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.

² Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010) <http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>.

address increased traffic volumes resulting from the projected growth in population, employment, and economic activities related to goods movement. An analysis of VMT and vehicle hours of delay (VHD) within the Study Area was prepared by Cambridge Systematics. Table 4.3-2 compares the VMT and VHD for the Alternative 1 and the build alternatives.

Table 4.3-2 Vehicle Miles Traveled and Vehicle Hours of Delay

	Alternative 1	Alternative 5A	Alternatives 6A/B/C
Vehicle Miles Traveled	89,076,414	89,331,258	89,749,344
Vehicle Hours of Delay	1,530,400	1,522,700	1,480,100

Source: Cambridge Systematics, 2011.

As shown in Table 4.3-2, with the project build alternatives, VMT would increase throughout the Study Area, most likely due to the increase in capacity associated with the I-710 Corridor improvements. As capacity is added, additional drivers may choose to use the I-710 Corridor. It should be noted that although the VMT would increase, VHD is forecast to decrease throughout the Study Area, which is also likely due to the capacity improvements proposed as part of Alternatives 5A and 6A/B/C.

As discussed previously in Chapter 2.0, alternative travel modes were considered during the early planning studies. A separate TSM/Transportation Demand Management (TDM) alternative (Alternative 2) was considered but withdrawn from consideration because TSM/TDM measures alone could not satisfy the purpose of and need for the I-710 Corridor Project. While Alternative 2 comprised transit, policy, Intelligent Transportation Systems (ITS) application, and operational improvements that would have a beneficial effect on mobility in the project area, the screening analysis demonstrated that these transportation improvements did not go far enough in resolving the worst of the congestion problems, air quality issues, design deficiencies, and safety concerns that affect motorists and residents within the overall I-710 Corridor area. Instead, TSM/TDM measures were incorporated into the Reduced Set of Alternatives for the I-710 Corridor Project, as discussed in detail in Section 2.4.1.9.

4.3.4.1 QUANTITATIVE ANALYSIS

A combination of the methodologies provided in the California Climate Action Registry’s General Reporting Protocol (CCAR GRP), Version 3.0 (CCAR 2008), and fuel consumption/efficiency data obtained from EMFAC 2007 and OFFROAD 2007 models was used to calculate the GHG emissions associated with the project. It should be noted that the GHG emissions were quantified only for the SCAB region given the global effect of GHG emissions and the limits of the applicable traffic modeling results.

The total GHG emissions from the project were reported in CO₂e. CO₂e is the universal unit of measurement to indicate the global warming potential (GWP) of each of the six GHGs, expressed in terms of the GWP of one unit of CO₂. It is used to evaluate the impact of different GHGs on a common basis. Emissions of each GHG were converted to CO₂e by multiplying the methane (CH₄) and N₂O emissions with the respective GWP. Additional details on the methodology and detailed emission calculation tables can be found in Appendix F of the Air Quality and Health Risk Assessments Technical Study (Environ, February 2012). To focus on the impact of the project build alternatives, Tables 4.3-3a and 4.3-3b summarize the results of the traffic-related GHG emissions compared to the 2008 baseline and the 2035 baseline, respectively. The CO₂ emissions for Alternatives 6B and 6C in Tables 4.3-3a and 4.3-3b include the emissions that would be generated from the electricity required to power the zero-emission corridor. All of the alternatives, when compared to the 2008 baseline, including the No Build Alternative, would increase the regional GHG emissions by approximately 20,000,000 tonnes per year. When compared to the no build conditions, the regional GHG emissions would remain the same for Alternative 5A while decreasing for Alternatives 6A/B/C.

Table 4.3-3a Incremental GHG Emissions using the I-710 Traffic Model Data as Compared to 2008 Baseline for SCAB

GHG	2008 Baseline (tonnes/year)	Alt. 1 – 2008 (tonnes/year)	Alt. 5A – 2008 (tonnes/year)	Alt. 6A – 2008 (tonnes/year)	Alt. 6B – 2008 (tonnes/year)	Alt. 6C – 2008 (tonnes/year)
CH ₄	3,950	-3,930	-3,930	-3,930	-3,930	-3,930
N ₂ O	3,860	-2,270	-2,270	-2,270	-2,270	-2,270
CO ₂	63,400,000	21,200,000	21,200,000	21,100,000	20,700,000	20,800,000
Total (CO₂e)	64,700,000	20,400,000	20,400,000	20,300,000	19,900,000	20,000,000

Source: I-710 Air Quality and Health Risk Assessment Technical Studies, February 2012.

Alt. = Alternative

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

GHG = greenhouse gas

N₂O = nitrous oxide

SCAB = South Coast Air Basin

Table 4.3-3b Incremental GHG Emissions using the I-710 Traffic Model Data as Compared to 2035 No Build for SCAB

GHG	2035 Baseline (Alt. 1) (tonnes/year)	Alt. 5A – Alt. 1 (tonnes/year)	Alt. 6A – Alt. 1 (tonnes/year)	Alt. 6B – Alt. 1 (tonnes/year)	Alt. 6C – Alt. 1 (tonnes/year)
CH4	23.3	0.016	0.028	0.026	0.028
N2O	1,590	1.1	1.9	1.8	1.9
CO2	84,600,000	300	-130,000	-487,000	-393,000
Total (CO2e)	85,100,000	670	-130,000	-487,000	-393,000

Source: I-710 Air Quality and Health Risk Assessment Technical Studies, February 2012.

Alt. = Alternative

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

GHG = greenhouse gas

N₂O = nitrous oxide

SCAB = South Coast Air Basin

ZEE DESIGN OPTION. Methane (CH₄) and nitrous oxide (N₂O) do not change appreciably in the ZEE Design Option (compared to the original Alternatives 6B and 6C evaluated in the original AQ/HRA Technical Study) because trucks are an insignificant source of these emissions.¹ The total GHG emissions decrease by 46,000 tons CO₂e (tons of CO₂ equivalents) and 36,000 tons CO₂e for Alternatives 6B and 6C, respectively, in the ZEE Design Option as compared to the original Alternatives 6B and 6C evaluated in the original AQ/HRA Technical Study. This change is negligible (<0.5 percent change in emissions with the ZEE Design Option).

4.3.4.2 LIMITATIONS AND UNCERTAINTIES WITH MODELING

EMFAC. Although EMFAC can calculate CO₂ emissions from mobile sources, the model does have limitations when it comes to accurately reflecting CO₂ emissions. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008), studies have revealed that brief but rapid accelerations can contribute significantly to a vehicle's CO and hydrocarbon 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 idle) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model's results when compared to the estimated emissions of the various alternatives with baseline in an

¹ Tables F.1-1F and F.1-1G Appendix F – Traffic Greenhouse Gas Emissions. Air Quality and Health Risk Assessments (AQ/HRA) Technical Study for the I-710 Corridor Environmental Impact Report/Environmental Impact Statement, prepared by ENVIRON International Corporation, February 2012.

attempt to determine impacts. Although work by the 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. In addition, EMFAC does not include speed corrections for most vehicle classes for CO₂ (most vehicle class emission factors are held constant, which means EMFAC is not sensitive to the decreased emissions associated with improved traffic flows for most vehicle classes). Therefore, unless a project involves a large number of heavy-duty vehicles, the difference in modeled CO₂ emissions due to speed change will be slight.

The ARB is currently not using EMFAC to create its inventory of GHG emissions. It is unclear why the ARB has made this decision. ARB's website only states:

REVISION: Both the EMFAC and OFFROAD Models develop CO₂ and CH₄ emission estimates; however, they are not currently used as the basis for [ARB's] official [greenhouse gas] inventory which is based on fuel usage information. However, ARB is working towards reconciling the emission estimates from the fuel usage approach and the models.

OTHER VARIABLES. With the current science, project-level analysis of GHG emissions is limited. 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 CO₂ emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008,"¹ 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 the highest since 1993. Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52 percent in 2004 with projections at 48 percent in 2008. Table 4.3-4 shows the alternatives for vehicle fuel economy increases studied by the National Highway Traffic Safety Administration in its Final EIS for New Corporate Average Fuel Economy (CAFE) Standards (October 2008).

¹ <http://www.epa.gov/oms/fetrends.htm>.

Table 4.3-4 Model Year 2015 Required Miles Per Gallon (mpg) by Alternative

	No Action	25% Below Optimized	Optimized (Preferred)	25% Above Optimized	50% Above Optimized	Total Costs Equal Total Benefits	Technology Exhaustion
Cars	27.5	33.9	35.7	37.5	39.5	43.3	52.6
Trucks	23.5	27.5	28.6	29.8	30.9	33.1	34.7

Source: New Corporate Average Fuel Economy (CAFE) Standards, National Highway Traffic Safety Administration, October 2008.

Second, near-zero carbon vehicles will come into the market during the design life of this project. According to a March 2008 report released by University of California Davis (UC Davis), Institute of Transportation Studies:

“Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California – several in the hands of the general public – with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.

A number of the U.S. DOE 2010 milestones for FCV development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a Federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles.”¹

Third and as previously stated, California adopted a low-carbon fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became

¹ Cunningham, Joshua, Sig Cronich, Michael A. Nicholas. March 2008. Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy, UC Davis, Institute of Transportation Studies, pp. 9-10.

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.

Fourth, driver behavior has been changing as the United States' economy and oil prices have changed. In its January 2008 report, "Effects of Gasoline Prices on Driving Behavior and Vehicle Market,"¹ the Congressional Budget Office found the following results based on data collected from California: (1) freeway motorists have adjusted 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 have declined over the past 5 years as average prices for the most fuel efficient automobiles have risen, showing an increase in demand for vehicles that are more fuel-efficient.

4.3.4.3 LIMITATIONS AND UNCERTAINTIES WITH IMPACT ASSESSMENT

Taken from p. 3-70 of the National Highway Traffic Safety Administration Final EIS for New CAFE Standards (October 2008), Figure 4.3-3 illustrates how the range of uncertainties in assessing GHG impacts grows with each step of the analysis:

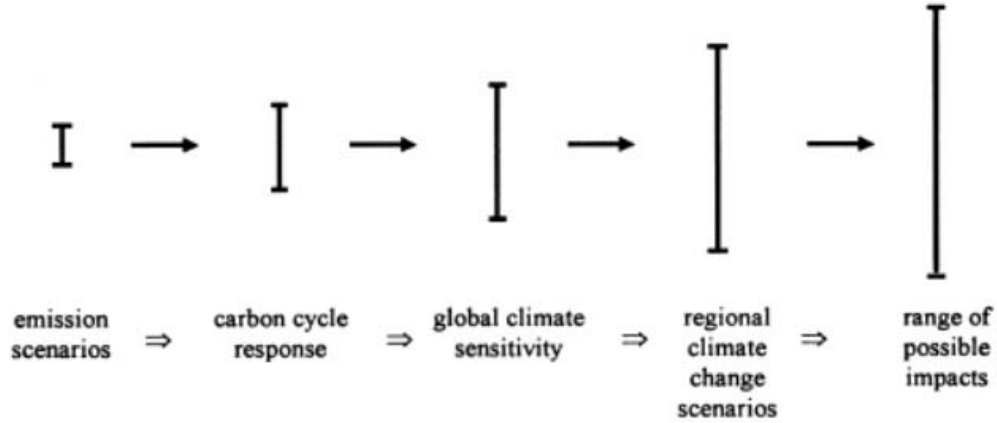


Figure 4.3-3 Cascade of Uncertainties

“Cascade of uncertainties typical in impact assessments showing the ‘uncertainty explosion’ as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses.”

¹ <http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf>.

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 CO₂ emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO₂e. 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 GHG emissions by 9.7 up to 36.7 billion metric tons CO₂ from 2000 to 2030, which represents an increase of between 25 and 90 percent.¹

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 CO₂ 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.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the recently released Final EIS completed by the National Highway Traffic Safety Administration CAFE standards, October 2008. As the text quoted below shows, even when dealing with GHG emission scenarios on a national scale for the entire passenger car and light truck fleet, the numerical differences among alternatives is very small and well within the error sensitivity of the model.

"In analyzing across the CAFE 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action Alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the model year 2011–2015 CAFE alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the

¹ 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>.

climate problem. Emissions of CO₂, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gases in the year 2000 (EPA, 2008; CAIT, 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of CO₂ emissions from the United States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies (which are due in part to growth in global transportation sector emissions).” [NHTSA Draft EIS for New CAFE Standards, June 2008, pp. 3-77 to 3-78].

4.3.5 CEQA CONCLUSION

As discussed above, the proposed project would result in a small decrease (less than 1 percent) in CO₂e emissions within the region in 2035 when compared to the 2035 without project conditions. In addition, as discussed above, there are also limitations with EMFAC and with assessing what a given CO₂e 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.

4.3.6 GREENHOUSE GAS REDUCTION STRATEGIES

4.3.6.1 ASSEMBLY BILL 32 COMPLIANCE

Caltrans continues to be actively involved on the Governor’s Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger’s Strategic Growth Plan calls for a \$222 billion infrastructure improvement program to fortify the State’s transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today’s level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that, combined, are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 4.3-4, the Mobility Pyramid.



Source: California Department of Transportation Environmental Impact Report/Environmental Impact Statement Annotated Outline, July 2011.

Figure 4.3-4 Mobility Pyramid

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, and developing transit-oriented communities and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting 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, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of fuel economy standards is held by the EPA and ARB. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at UC Davis.

Table 4.3-5 summarizes Caltrans and statewide efforts being implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 4.3-5 Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (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 & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.007	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	0.0045	0.0065 0.45 .0225

Table 4.3-5 Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix	1.2	4.2
				25% fly ash cement mix > 50% fly ash/slag mix	.36	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

ARB = California Air Resources Board
 BT&H = California Business, Transportation, and Housing Agency
 Cal/EPA = California Environmental Policy Act
 Caltrans = California Department of Transportation
 CEC = California Environmental Council
 CO₂ = carbon dioxide
 GHG = greenhouse gas
 MMT = million metric tons
 MPOs = Metropolitan Planning Organization

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures will also be included in the project to reduce GHG emissions and potential climate change impacts from the project:

- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- In addition, the Metro provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity.
- Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. Landscaping would be provided where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting for the I-710 Corridor Project. The landscape planting would help offset any potential CO₂ emissions increase.

The project would incorporate the use of energy-efficient lighting, such as light-emitting diode (LED) traffic signals. LED bulbs—or balls, in the stoplight vernacular—cost \$60 to \$70 apiece but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED balls themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO₂ emissions.¹

- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction. In addition, the contractor must comply with Title 13, California Code of Regulations §2449(d)(3), adopted by ARB on June 15, 2008. This regulation restricts idling of construction vehicles to no longer than 5 consecutive minutes. Compliance with this regulation reduces harmful emissions from diesel-powered construction vehicles.

4.3.7 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

¹ *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/>.

temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by 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 White House Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanographic and Atmospheric Administration, released its interagency report on October 14, 2010, outlining recommendations to President Obama regarding how Federal agency policies and programs can better prepare the United States to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the Federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaption must also involve the natural environment as well. 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 help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, Governor Schwarzenegger signed EO S-13-08, which directed a number of 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.

The California Natural 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),¹ 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 California Natural 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 California Climate Adaptation Strategy

¹ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>.

document, including Environmental Protection; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continue to be developed and collected, the State's adaptation strategy will be updated to reflect current findings.

The California Natural Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010¹ to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, 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;
- A synthesis of existing information on projected sea level rise impacts to State infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and
- A discussion of future research needs regarding sea level rise for California.

Prior to the release of the final Sea Level Rise Assessment Report, all State agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for 2050 and 2100 in order 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 regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge, and storm wave data.

Until the final report from the National Academy of Sciences is released, interim guidance has been released by The Coastal and Ocean Resources Working Group for the Climate Action Team, 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.

¹ The Sea Level Rise Assessment report is currently due to be completed in 2012 and will include information for Oregon and Washington as well as California.

All projects that have filed a NOP, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects as of the date of EO S-13-08 may, but are not required to, consider these planning guidelines.

An NOP was posted at the State Clearinghouse (SCH No. 2008081042) and circulated to public agencies and other interested parties in compliance with Section 15082 of the CEQA Guidelines on August 15, 2008. The NOP notified the public of the EIR/EIS being prepared along with the scoping meeting locations and how to provide comments on the project. Since an NOP has been filed for the I-710 Corridor Project, no further analysis is mandated.

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

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 impacts, 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 warranted in order 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 report on Sea Level Rise Assessment, which is due to be released in 2012.

4.4 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS UNDER CEQA

As discussed above, mitigation measures were developed to address the significant adverse impacts of the build alternatives. Those measures are listed below by environmental topic.

- **Aesthetics:** See Section 3.6.4.
- **Biological Resources:** See Sections 3.16.4, 3.19.4, and 3.21.4.
- **Geology and Soils:** See Section 3.10.4.

- **Hazards and Hazardous Materials:** See Section 3.12.4.
- **Land Use and Planning:** See Section 3.3.2.4.
- **Air Quality:** See Section 3.13.4
- **Noise:** See Section 3.14.5.
- **Population and Housing:** See Section 3.3.2.4.
- **Transportation/Traffic:** See Section 3.5.4.
- **Utilities and Service Systems:** See Section 3.4.3.
- **Construction (all topics):** See Section 3.24.4.