State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

M e m o r a n d u m

To: CHAIR AND COMMISSIONERS
CALIFORNIA TRANSPORTATION COMMISSION

CTC Meeting: August 22, 2012

Reference No.: 2.2b.(1)
Action Item

From: NORMA ORTEGA
Chief Financial Officer

Prepared by: Jay Norvell
Division Chief
Environmental Analysis

Subject: **DRAFT ENVIRONMENTAL IMPACT REPORT, INTERSTATE 710 (I-710) IN LOS ANGELES COUNTY – ROADWAY IMPROVEMENTS NEAR LONG BEACH**

RECOMMENDATION:

The Department of Transportation (Caltrans) recommends that the California Transportation Commission (Commission) review and comment at the August 2012 Commission meeting on the following Draft Environmental Impact Report (DEIR):

- 07-LA-710, PM 4.9/24.9, I-710 Corridor Project. Roadway improvements near Long Beach in Los Angeles County.

PROGRAMMING:

This project in Los Angeles County will construct improvements to the I-710 corridor that modernize geometrics and improve arterial systems between Ocean Boulevard and State Route 60 (SR-60). The project is not fully funded. The project is programmed in the 2012 State Transportation Improvement Program for Project Approval/Environmental Document. The project includes federal and local dollars and is identified in the Los Angeles County Measure R Expenditure Plan. The total estimated cost is $5.56 billion. Construction is estimated to begin in Fiscal Year (FY) 2020-21.

ALTERNATIVES BEING CONSIDERED:

Alternatives considered for the proposed project include:

- Alternative 1 – No Build
- Alternative 5A – I-710 Widening up to 10 Lanes and Modernization
- Alternative 6A – I-710 Widening up to 10 Lanes plus Freight Corridor (Trucks)
- Alternative 6B – I-710 Widening up to 10 Lanes plus Freight Corridor (Zero-Emission Trucks)
- Alternative 6C – I-710 Widening up to 10 Lanes plus Tolled Freight Corridor (Zero-Emission Trucks)

POTENTIAL SIGNIFICANT ENVIRONMENTAL EFFECTS:

The analysis for the DEIR supports the conclusion that the project would not have unavoidable significant environmental impacts. An Environmental Impact Report was prepared rather than a Negative Declaration or a Mitigated Negative Declaration due to the impacts resulting from the proposed project's build alternatives as well as the public controversy related to this project. Impacts include:

- Aesthetics
- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Land Use and Planning
- Air Quality
- Noise
- Population and Housing
- Transportation/Traffic
- Utilities and Service Systems
- Construction (all topics)

PROPOSED MEASURES TO MINIMIZE HARM:

- Incorporate design characteristics and aesthetic treatments to minimize visual impacts.
- Compensatory mitigation in the form of habitat restoration and/or enhancement in on- or off-site areas where similar riparian habitat exists, or a monetary contribution toward an in-lieu fee program, acceptable by the regulatory agencies.
- Employ Best Management Practices (BMPs) for erosion control.
- Implementation of a Hazardous Materials compliance plan.
- Relocations and Real Property Acquisition.
- Improved accessibility and increased acreage of parks and recreation facilities.
- Optimize corridor efficiency through design and truck corridors and/or zero emission trucks.
- Control visible emissions from off-road diesel powered equipment.
- Employ noise-attenuation features in the design and employ noise-reducing construction practices.
- Implement a Specific Utility Relocation Plan.
- Employ traffic management plans during construction.
- Employ a Construction Contingency plan to address unknown hazards or contaminants.

Attachments

LEGEND

I-710 Study Area

FIGURE 1.1-2

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Miles

SOURCE: TBM (2007)

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I-710 Corridor Project EIR/EIS

I-710 Project Study Area

07-LA-710- PM 4.9/24.9

EA 249900

Mobility. Environment. Community. Economy. Technology.

I-710 CORRIDOR PROJECT

LOS ANGELES COUNTY, CALIFORNIA
District 07-LA-710-PM 4.9/24.9
EA 249900

Draft Environmental Impact Report/ Environmental Impact Statement and Section 4(f) Evaluation

EXECUTIVE SUMMARY

June 2012

Prepared by:
State of California Department of Transportation &
Los Angeles County Metropolitan Transportation Authority

Caltrans

Metro

GATEWAY CITIES

Port of LONG BEACH
The Green Port

THE PORT OF LOS ANGELES

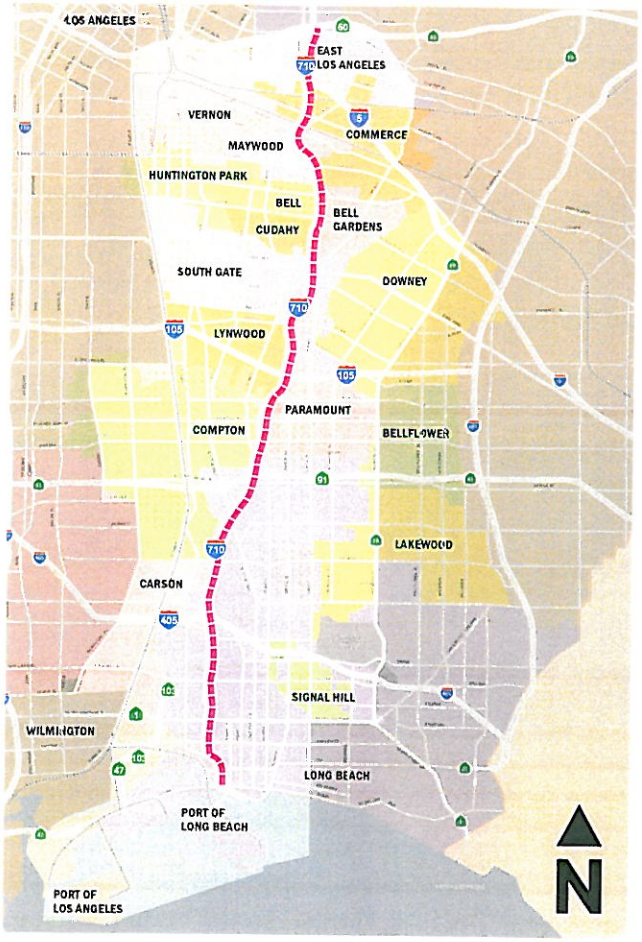
SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

EXECUTIVE SUMMARY

S.1 OVERVIEW OF THE PROJECT AREA

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), the Gateway Cities Council of Governments (GCCOG), the Southern California Association of Governments (SCAG), the Ports of Los Angeles (POLA) and Long Beach (POLB) (collectively known as the Ports), and the Interstate 5 Joint Powers Authority (I-5 JPA) (collectively referred to as the I-710 Funding Partners), proposes to improve Interstate 710 (I-710, also known as the Long Beach Freeway) in Los Angeles County between Ocean Blvd. and State Route 60 (SR-60). The proposed project is referred to as the I-710 Corridor Project. I -710 is a major north-south interstate freeway connecting the city of Long Beach to central Los Angeles. Within the I-710 Corridor Project Study Area (Study Area), the I-710 serves as the principal transportation connection for goods movement between POLA and POLB, located at the southern terminus of I-710 and the Burlington Northern Santa Fe (BNSF)/Union Pacific (UP) Railroad rail yards in the cities of Commerce and Vernon.

The existing I-710 Corridor has elevated levels of health risks related to high levels of diesel particulate emissions, traffic congestion, high truck volumes, high accident rates, and many design features in need of modernization (the original freeway was built in the 1950s and 1960s). The I-710 Major Corridor Study (MCS; March 2005), undertaken to address the I-710 Corridor's mobility and safety needs and to explore possible solutions for transportation improvements, was completed in March 2005 and identified a community-based Locally Preferred Strategy consisting of ten general purpose lanes next to four separated freight-movement lanes.



The Study Area for the 1-710 corridor.

The Study Area includes the portion of the I-710 Corridor from Ocean Blvd. in Long Beach to SR-60, a distance of approximately 18 miles. At the freeway-to-freeway interchanges, the Study Area extends one mile east and west of the I-710 mainline for the Interstate 405 (I-405), State Route 91 (SR-91), Interstate 105 (I-105), and I-5 interchanges. This is the general Study Area for the I-710 Corridor Project. Specific study areas have been established for individual environmental analyses (e.g., health risk assessment area of interest, water quality areas, etc.).

S.2 PURPOSE AND NEED

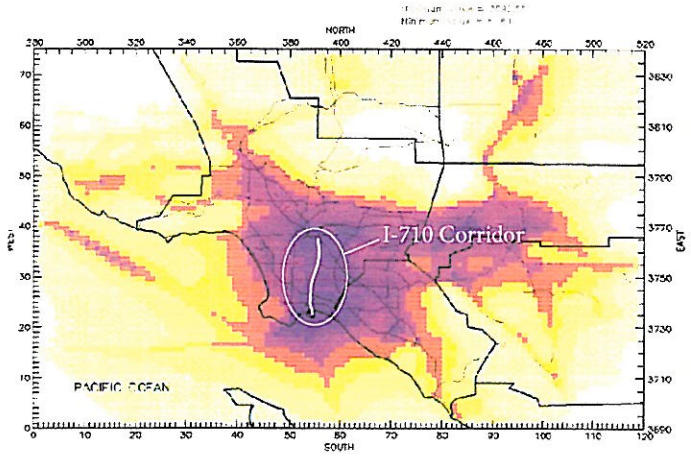
S.2.1 PROJECT NEED

The I-710 Corridor is a vital transportation artery, linking the communities along it and the POLA and POLB to southern California and beyond. An essential component of the regional, statewide, and national transportation system, it serves both passenger and goods movement vehicles. As a result of population growth, employment growth, increased demand for goods movement, increasing traffic volumes, and aging infrastructure, the I-710 Corridor experiences serious congestion and safety issues.

The I-710 is a major goods carrying corridor.

S 2.1.1 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has designated the South Coast Air Basin (Basin), which includes the Study Area, as an extreme ozone non-attainment area and a non-attainment area for small airborne particulate matter less than 10 and 2.5 microns (PM_{10} and $PM_{2.5}$). Exposure to ozone, PM_{10}, and $PM_{2.5}$ levels above the Federal health standards is associated with many adverse health effects—including decreased lung function, aggravated asthma, increased lung and heart disease symptoms, and chronic bronchitis. Studies such as the South Coast Air Quality Management District (SCAQMD) Multiple Air Toxic Exposure Studies (MATES) have shown that elevated levels of nitrogen dioxide (NO_2) and ultrafine particulates (UFPs) occur very near roadways; these elevated levels are also associated with adverse health effects. The highest levels of estimated cancer risk (approximately 1,200 to 2,000 in a million) in 2005 (the study analysis year), occur in the Study Area, particularly near the Ports, rail yards, and along the I-710 freeway.



South Coast Air Quality Management District data shows high levels of air toxins along I-710 that can be harmful to human health.

These studies show that diesel particulate matter (DPM) is the greatest contributor to air-quality-related cancer risk in the Basin and that approximately half of the DPM is emitted by diesel trucks using the freeway and roadway systems.

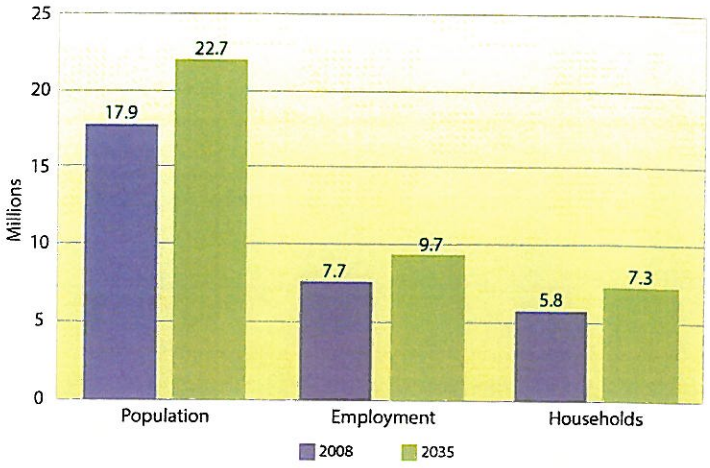
S.2.1.2 CAPACITY, TRANSPORTATION DEMAND, AND SAFETY

CAPACITY. Many segments of the I-710 mainline currently operate at level of service (LOS) E or F throughout the day, creating chokepoints and causing congestion on other segments of the mainline, as well as on parallel arterial highways. A unique factor affecting the capacity of the I-710 Corridor is the large numbers of heavy-duty trucks that use the I-710 Corridor to travel between POLB, POLA, and the rail freight intermodal yards located near I-5, and to warehousing and distribution

points scattered throughout the southern California urban area.

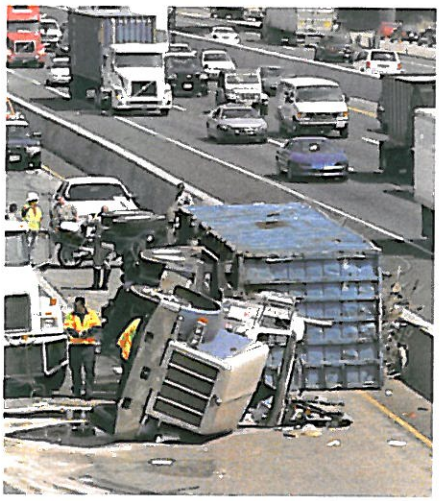
TRANSPORTATION DEMAND. Combined port activity in the Study Area is expected to increase from the handling of 14 million annual twenty-foot equivalent units (TEUs) in 2008 to approximately 43 million annual TEUs in 2035. After considering different port cargo growth scenarios, the projected 43 million annual TEUs was the port cargo growth scenario adopted by the I-710 Corridor Project Committee in April 2009 to provide a conservative basis for the I-710 Corridor Project travel demand forecasting. This forecast is consistent with SCAG's recently adopted 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The I-710 Corridor is, and is expected to remain, a primary route for trucks carrying containers to and from the ports. This indicates that the existing transportation problems on the I-710 mainline and other Study Area roadways will get worse, which in turn, have the potential to adversely affect the competitive position of the Los Angeles region in the global economy.

By 2035, regional population is forecast to grow by 27 percent, and Study Area population is forecast to grow by 11 percent. Employment will follow a similar pattern, with regional growth of 27 percent and Study Area employment growth of only 7 percent. Growth will be lower in the Study Area because it is almost completely developed. Increases in population, employment, and goods movement between now and 2035 will lead to more traffic on the I-710 freeway and on the streets and roadways within the Study Area as a whole.



SCAG's regional forecast data shows continued population and employment growth within Southern California over the next 25 Years.

SAFETY. I-710 experiences elevated accident rates, exceeding the State average for similar facilities in many locations.



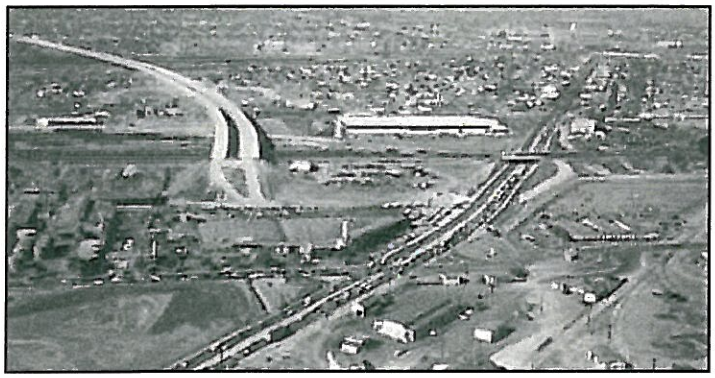
I-710 experiences high accident rates.

High traffic volumes, existing freeway design, freeway congestion, and the interaction between cars and the high volume of trucks in the traffic stream on the I-710 mainline may be contributing factors to these existing accident rates. In the Study Area, according to the Caltrans Traffic Accident Surveillance and Analysis System (TASAS), truck-related accidents range from 29 to

36 percent of the total number of accidents within the I-710 mainline study segments which is higher than the State average.

S.2.1.3 ROADWAY DESIGN

The I-710 freeway was designed in the 1950s and 1960s, before the dramatic increase in imports from Asia and the containerization of oceangoing freight increased the cargo traffic at POLA and POLB and before extensive population growth in Southern California since 1960. In general, the I-710 freeway has remained relatively unchanged from when it was originally constructed. Due to growth in overall traffic volumes and the high level of truck traffic that has occurred in recent years, many aspects of the freeway design do not operate efficiently due to the heavy truck traffic and the size and relative lack of maneuverability of those trucks.



When State Route 7 (I-710) was built in the 1950's, there was still a great deal of agriculture and open space in the surrounding area.

Design features that are most directly associated with the current operational problems in the I-710 Corridor include outdated local interchange designs, spacing between many of the I-710 mainline interchanges with local streets and nonstandard geometric features of freeway-to-freeway interchanges. On the I-710 mainline, nonstandard weaving distances, narrow or nonexistent shoulders, narrow lane widths, varying number of through lanes, nonuniform ramp metering, outdated median barriers (currently being replaced as part of Caltrans' Long Life Pavement Rehabilitation project), and nonstandard pavement all contribute to current operational problems.

The "cloverleaf" interchanges built in the 1950s are not able to handle today's volume of traffic.

S.2.1.4 SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT

Growth projections adopted by SCAG (SCAG 2012 RTP/SCS Growth Forecast) indicate continuing growth in the Study Area. The population in Los Angeles County as a whole is expected to increase from 10.5 million in 2008 to 12.3 million in 2035, an increase of 18 percent. This regional growth will continue to place demand on the I-710 Corridor.

With regard to economic development, the Gateway Cities Subregion experiences high levels of unemployment and poverty. In October 2011, unemployment rates in the Study Area were 8-23 percent of the workforce within the affected communities, which is higher than Los Angeles County (12.6 percent) and State (12.1 percent) unemployment rates.

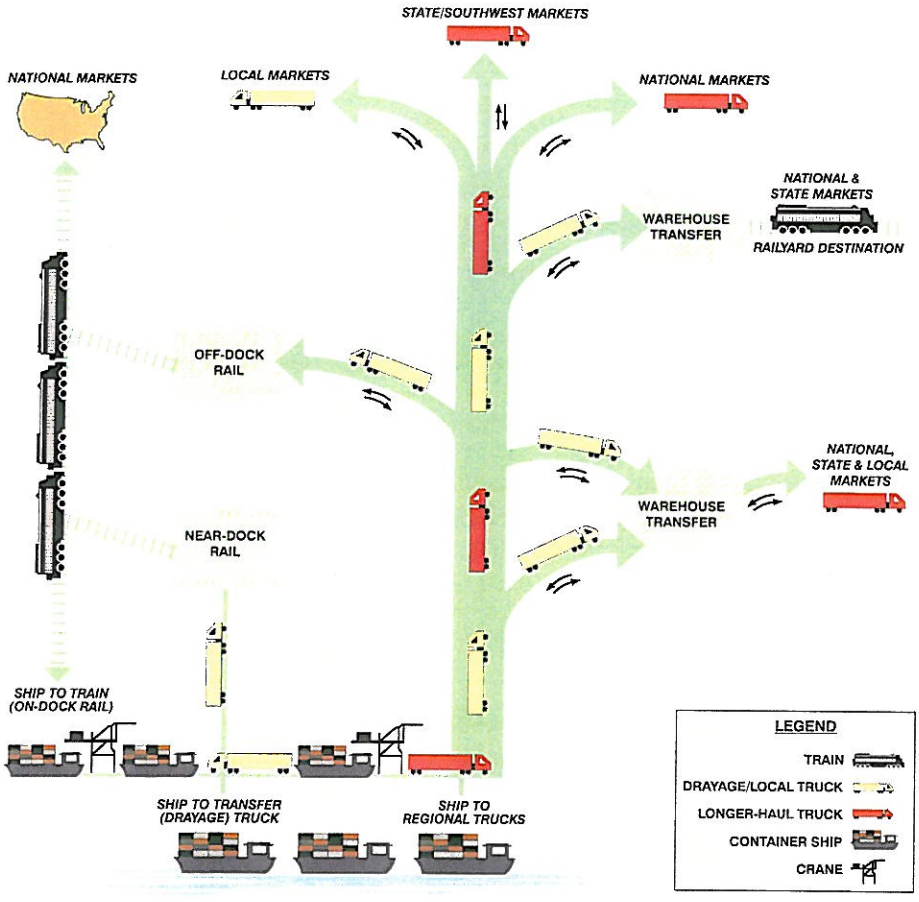
Highway congestion causes delays affecting personal mobility and goods movement and results in increased economic costs. Los Angeles County's goods movement system serves as

a gateway for both international and domestic commerce, especially within the Study Area, where POLA, POLB, and the BNSF/UP Railroad intermodal rail yards are located.

S 2 1.5 MODAL INTERRELATIONSHIPS AND SYSTEM LINKAGES

The I-710 Corridor serves regional, statewide, and national needs for both the general traveling public and the goods movement industry. The I-710 Corridor is the principal transportation connection between POLB/POLA and the BNSF/UP Railroad intermodal rail yards located in the cities of Vernon and Commerce. BNSF and UP Railroads provide freight movement to destinations throughout the United States.

I-710 provides a critical linkage for interstate commerce between the San Pedro Bay ports, the BNSF and UP rail yards, and the rest of the nation.



Goods are moved to and from the ports by both trains and trucks.

Together, POLB/POLA is one of the largest container ports in the world, and port activity is projected to triple in volume by 2035. The I-710 Corridor also provides key interstate commerce connections to east-west freeways (I-405, SR-91, I-105, I-5, SR-60, and Interstate 10 [I-10]) and I-5. From a system linkage standpoint, no improvements are planned to these facilities except for possible improvements to I-5 (from Interstate 605 [I-605] through the I-710 interchange). Additionally, the proposed Gerald Desmond Bridge Project, which is directly connected to the I-710 Corridor Project, would replace the existing bridge.

With the existing rail network and intermodal facilities approaching capacity, demand for transport of goods by truck on the I-710 Corridor is expected to increase.

S.2.2 PROJECT PURPOSE

The purpose of the I-710 Corridor Project is as follows:

1. Improve Air Quality & Public Health
2. Improve Traffic Safety
3. Modernize the Freeway Design
4. Address Projected Traffic Volumes
5. Address projected Growth in Population, Employment and Activites Related to Goods Movement (based on SCAG population projections and projected container volume increases at the two ports)

The I-710 Corridor Project termini are logical, extending from the southern terminus of the I-710 Corridor to its connection to SR-60. This 18-mile Study Area is of sufficient length to address environmental matters on a broad scope. The I-710 Corridor Project would result in improvements to the current traffic conditions within the I-710 Corridor even if no additional transportation improvements are made in the area. As such, the I-710 Corridor Project has independent utility, as it does not rely on other projects to address the identified need in the Study Area. Furthermore, the I-710 Corridor Project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

S.3 PROPOSED PROJECT

S.3.1 COSTS AND SCHEDULE

Estimated costs for right-of-way and utility relocation and for construction are included in Table S 1. Construction of the project is anticipated to begin in 2020. (see Table S-1 below)

S.3.2 ALTERNATIVES

This section describes the alternatives based on the MCS that were developed by a multidisciplinary technical team to achieve the I-710 Corridor Project purpose and subsequently were reviewed and concurred upon by the various committees involved in the I-710 Corridor Project community participation framework. Alternatives 2 (Transportation Systems Management/ Transportation Demand Management [TSM/TDM]), Transit, Intelligent Transportation Systems [ITS] and

Table S-1 Estimated Costs[1] (In Billion $)

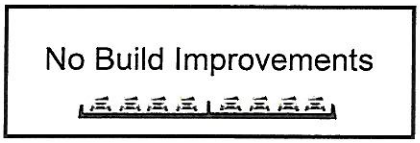
Alternative	Right-of-Way/Utilities	Construction	Total
5A	0.35	2.24	2.59
6A	0.94 to 0.95	4.11 to 4.14	5.05 to 5.09
6B	0.94 to 0.95	4.26 to 4.29	5.20 to 5.24
6C	0.94 to 0.95	4.32 to 4.36	5.27 to 5.31

1 Estimates are in 2010 dollars and do not include support costs.

Enhanced Goods Movement), 3 (Maximum Goods Movement By Rail/Alternative Technology), and 4 (Arterial Highway and I-710 Congestion Relief Improvements) were considered but withdrawn from further environmental study as stand-alone alternatives, yet elements of these alternatives have been included in Alternatives 5A and 6A/B/C. The alternatives are Alternative 1 (No Build Alternative), Alternative 5A (I-710 Widening and Modernization), Alternative 6A (I-710 Widening and Modernization plus a Freight Corridor [Trucks]), Alternative 6B (I-710 Widening and Modernization plus Freight Corridor [Zero-Emission Vehicles]), and Alternative 6C (I-710 Widening and Modernization plus Tolled Freight Corridor).

S.3.2.1 ALTERNATIVE 1: NO BUILD

Alternative 1

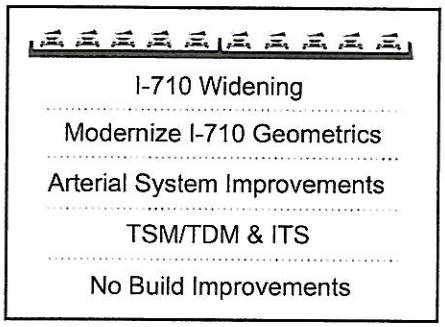


Alternative 1 would maintain the current configuration of the existing I-710 Corridor. There would be no capacity-increasing improvements to the I-710 mainline; only approved and planned projects included in SCAG's 2008 RTP and 2011 Federal Transportation Improvement Program (FTIP) are considered part of Alternative 1. Alternative 1 provides the basis for comparison of 2035 no build conditions with the 2035 build alternatives.

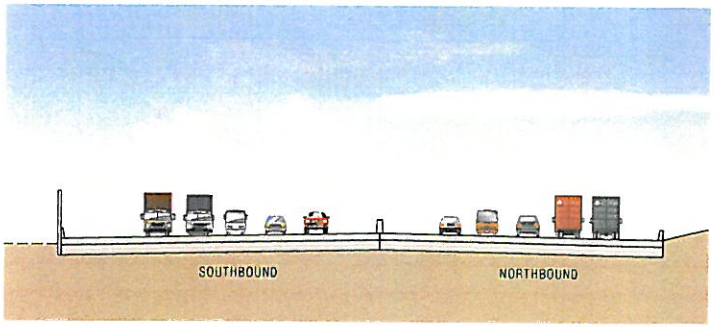
S.3.2.2 ALTERNATIVE 5A: I-710 WIDENING AND MODERNIZATION

Alternative 5A proposes to widen the I-710 mainline toeight general purpose lanes south of I-405 and up to ten general purpose lanes north of I-405 (on I-710 northbound and on I-710 southbound).

Alternative 5A



This alternative will modernize the design at the I-405 and SR-91 interchanges, modernize and reconfigure most local arterial interchanges throughout the I-710 corridor, modify freeway access at various locations, and shift the I-710 centerline at various locations to reduce right-of-way impacts.



An illustration of Alternative 5A widening and modernization.

In addition to improvements to the I-710 mainline and the interchanges, Alternative 5A also includes:

- TSM/TDM, Transit, and ITS improvements including but not limited to:

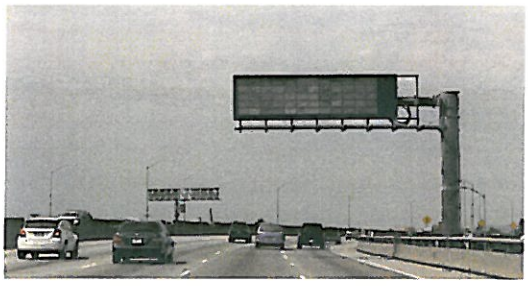
  - Provision of or future provision of ramp metering at all locations and improved arterial signage for access to I-710.

  - Parking restrictions during peak periods (7:00 a.m.–9:00 a.m. and 4:00 p.m.–7:00 p.m.) on four arterial roadways: Atlantic Blvd. between

Pacific Coast Hwy. and SR-60; Cherry Ave./ Garfield Ave. between Pacific Coast Hwy. and SR-60; Eastern Ave. between Cherry Ave. and Atlantic Blvd.; and Long Beach Blvd. between San Antonio Dr. and Firestone Blvd.

- Transit improvements including increased service on all Metro Rapid routes and local bus routes in the Study Area.

- ITS improvements including updated fiber-optic communications to interconnect traffic signals along major arterial streets to provide for continuous, real-time adjustment of signal timing to improve traffic flow as well as other technology improvements.



Additional changeable message signs would be added to provide critical information to motorists.

Alternative 5A also includes improvements to 42 local arterial intersections within the Study Area. These improvements generally consist of lane restriping or minimal widening to provide additional intersection turn lanes that will reduce traffic delay and improve intersection operations for those intersections with projected LOS F.

The Firestone/Garfield intersection experiences high levels of congestion and is one of 42 intersections slated for improvement as part of the I-710 Corridor Project.

In addition to the transportation system improvements described above, Alternative 5A also includes:

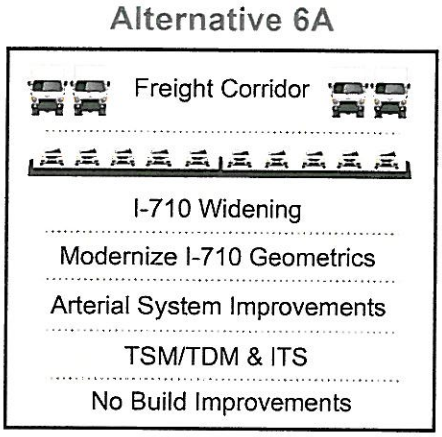
- **Visual/Aesthetic Features:** Texture treatments (for structures, median barriers, etc.), planting, irrigation, opportunities for community identification, and concepts from the I-710 Corridor Urban Design and Aesthetics Toolbox Report (July 2011) will be incorporated into the project design to mitigate the visual and community impacts of the increased scale of the project improvements.

The I-710 Corridor Project includes a robust landscaping enhancement plan.

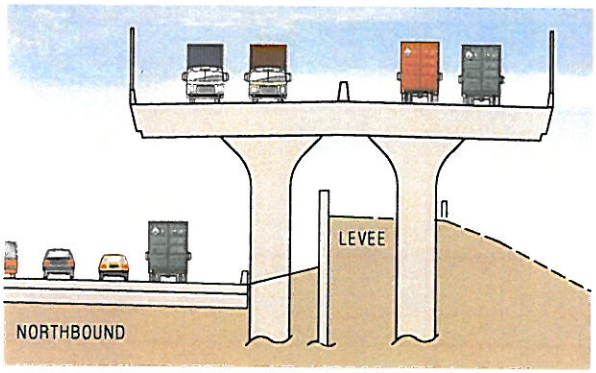
- **Drainage/Water Quality Features:** Alternative 5A includes modifications to the Los Angeles River levee; new, extended, replacement, and additional bents and pier walls in the Los Angeles River; additional and extended bents and pier walls in the Compton Channel; modifications to existing pump stations or provision of additional pump stations; and detention basins and bioswales that will provide for treatment of surface water runoff prior to discharge into the storm drain system. Detention basins and bioswales will be integrated elements of the landscape planting. Grading of basins will minimize their visual impact by being designed to blend with the surrounding landscape.

S.3.2.3 ALTERNATIVE 6A: I-710 WIDENING AND MODERNIZATION PLUS FREIGHT CORRIDOR (TRUCKS)

Alternative 6A includes all the components of Alternatives 1 and 5A described above. (The alignment of the general purpose lanes in Alternative 6A will be slightly different than Alternative 5A in a few locations.) In addition, this alternative includes a separated four-lane freight corridor from Ocean Blvd. northerly to its terminus near the UP and BNSF Railroad rail yards in the city of Commerce. The freight corridor would be built to Caltrans highway design standards and would be restricted to the exclusive use of heavy-duty trucks (5+ axles). In Alternative 6A, these trucks are assumed to be "conventional" trucks (conventional trucks are defined to be newer [post-2007] diesel/fossil-fueled trucks [new or retrofitted engines required per new regulations and standards]).



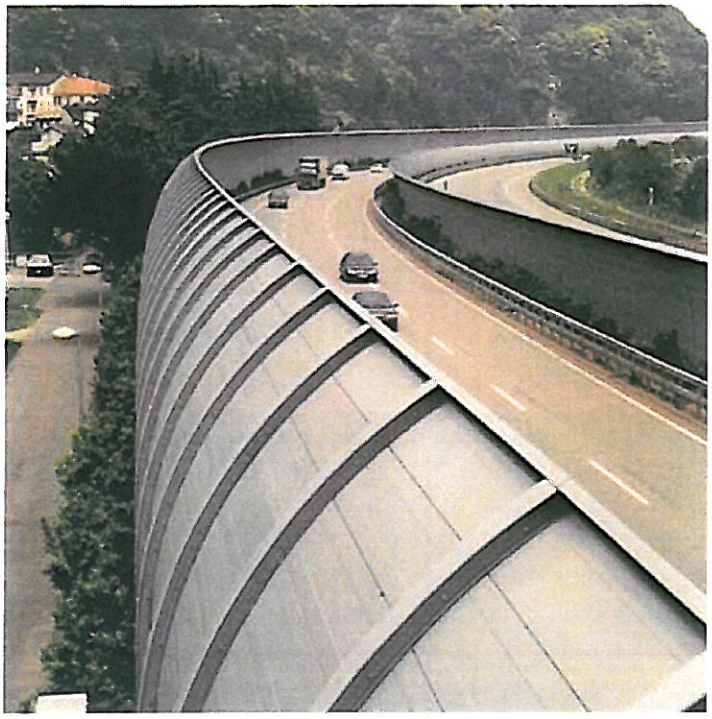
The freight corridor would be both at-grade and on elevated structure with two lanes in each direction. There are exclusive, truck only ingress and egress ramps to and/or from the freight corridor.



An illustration of Alternative 6A widening & modernization plus freight corridor.

As with Alternative 5A, Alternative 6A will include additional aesthetic enhancements, and drainage/water quality features as follows:

- **Visual/Aesthetic Features:** In addition to the visual/aesthetic features described above for Alternative 5A, specific aesthetic treatments will be developed for the freight corridor, including use of screen walls and masonry treatments on the freight corridor structures (including sound walls).



The proposed freight corridor in Alternatives 6A, 6B, and 6C could include sound walls and visual screen walls similar to these walls in Bellinzona Switzerland.

- **Drainage/Water Quality Features:** Alternative 6A includes features to capture and treat the additional surface water runoff from the freight corridor, as well as some modifications to the Los Angeles River levees in order to accommodate electrical transmission line relocations.

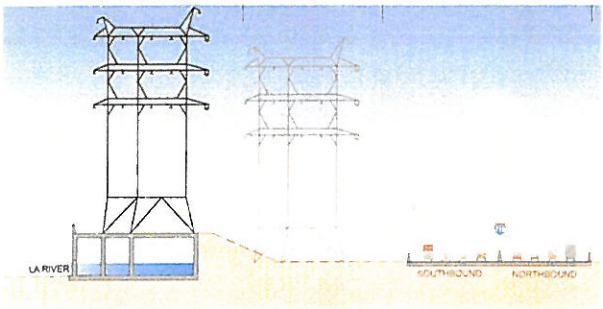
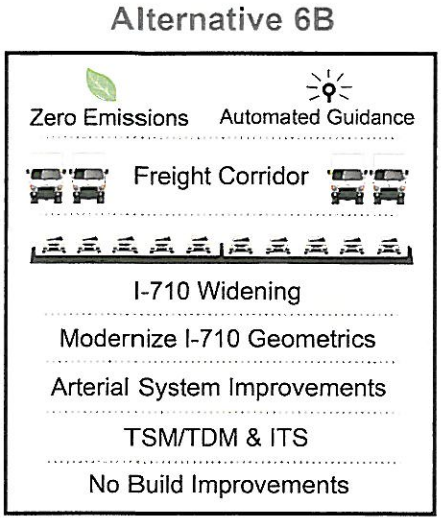


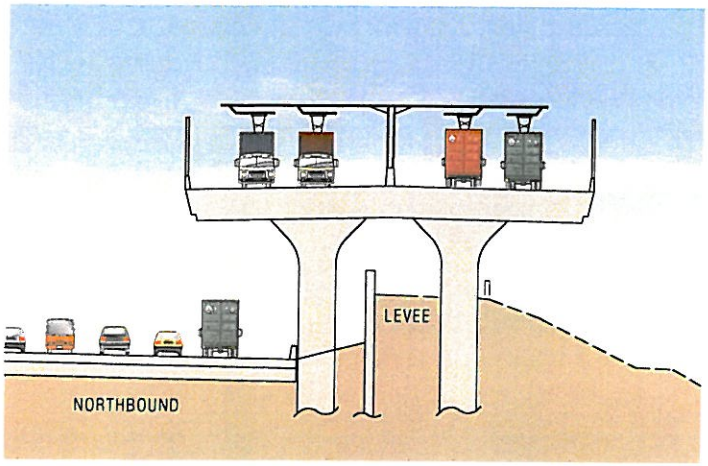
Illustration of the proposed electrical transmission line relocations along the Los Angeles River under Alternatives 6A, 6B, and 6C.

S 3 2 4 ALTERNATIVE 6B: I-710 WIDENING AND MODERNIZATION PLUS A ZERO-EMISSION FOUR-LANE FREIGHT CORRIDOR (ZERO-EMISSION VEHICLES)



Alternative 6B includes all the components of Alternative 6A as described above, but would restrict the use of the freight corridor to zero-emission trucks rather than conventional trucks. This proposed zero-emission truck technology is assumed to consist of trucks powered by electric motors in lieu of internal combustion engines and producing zero tailpipe emissions while traveling on the freight corridor. The specific type of electric motor is not defined, but feasible options include linear induction motors, linear synchronous motors, or battery technology.

For purposes of the I-710 environmental studies, the zero-emission electric trucks are assumed to receive electric power while traveling along the freight corridor via an overhead catenary electric power distribution system (road-connected power).

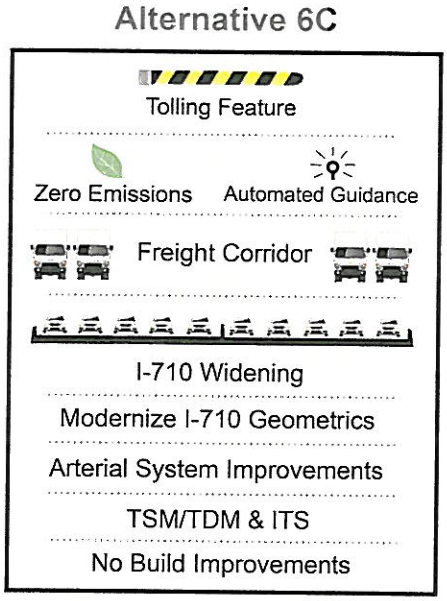


A schematic cross section of the zero emission freight corridor proposed under Alternatives 6B and 6C.

Alternative 6B also includes the assumption that all trucks using the freight corridor will have an automated control system that will steer, brake, and accelerate the trucks under computer control while traveling on the freight corridor. This will safely allow for trucks to travel in "platoons" (e.g., groups of 6–8 trucks) and increase the capacity of the freight corridor.

The design of the freight corridor will also allow for possible future conversion, or be initially constructed, as feasible (which may require additional environmental analysis and approval), of a fixed-track guideway family of alternative freight transport technologies (e.g., Maglev). However, this fixed-track family of technologies has been screened out of this analysis for now, as they have been determined to be inferior to electric trucks in terms of cost and ability to readily serve the multitude of freight origins and destinations served by trucks using the I-710 corridor.

S 3.2.5 ALTERNATIVE 6C: I-710 WIDENING AND MODERNIZATION PLUS TOLLED FREIGHT CORRIDOR



Alternative 6C includes all the components of Alternative 6B as described above, but would toll trucks using the freight corridor. Although tolling trucks in the freight corridor could be done under either Alternative 6A or 6B, for analytical purposes, tolling has only been evaluated for Alternative 6B, as this alternative provides for higher freight corridor capacity than Alternative 6A due to the automated guidance feature of Alternative 6B.

Per Federal statute, unless otherwise excepted, all Interstate highways must be toll-free. However, current exceptions relating to tolling of Interstate highways include Value Pricing Pilot Program; Express Lanes Demonstration

Project; the Interstate System Reconstruction and Rehabilitation Pilot Program; and the Interstate System Construction Toll Pilot Program. Should Alternative 6C be selected as the preferred alternative, tolling would be implemented pursuant to one of these exceptions. Tolls would be collected using electronic transponders, which would require overhead sign bridges and transponder readers like the SR-91 toll lanes currently operating in Orange County, where no cash toll lanes are provided. The toll pricing structure would provide for collection of higher tolls during peak travel periods.

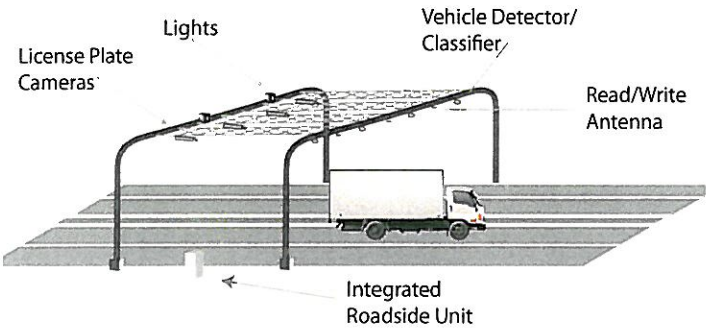


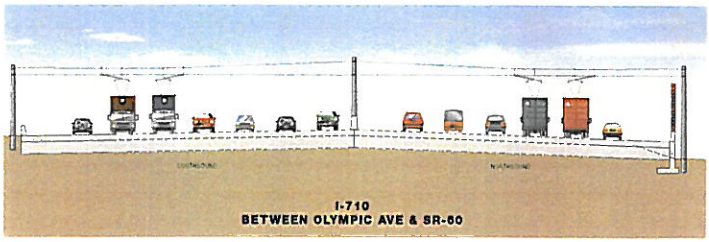
Illustration of a possible electronic toll collection system proposed under Alternative 6C.

S.3.2.6 ALTERNATIVES 6A/B/C: DESIGN OPTIONS

For Alternatives 6A/B/C, three design options for the portion of I-710 from the I-710/Slauson Ave. interchange to just south of the I-710/I-5 interchange are under consideration. These configurations will be fully analyzed so that they can be considered in the future selection of a Preferred Alternative for the project. These options are as follows:

- **Design Option 1** applies to Alternatives 6A/B/C and provides access to Washington Blvd. using three ramp intersections at Washington Blvd.
- **Design Option 2** applies to Alternatives 6A/B/C and provides access to Washington Blvd. using two ramp intersections at Washington Blvd.
- **Design Option 3** applies only to Alternative 6B and removes access to Washington Blvd. at its current location. The ramps at the I-710/ Washington Blvd. interchange would be removed to accommodate the proposed freight corridor ramps in and out of the rail yards. The southbound off-ramp and northbound-on-ramp access would be accommodated by Alternative 6B in the vicinity of the existing interchange by the proposed new southbound off-ramp and northbound on-ramp at Oak St. and Indiana St.

The Zero-Emission Truck Extension Design Option applies only to Alternatives 6B and 6C. This option will provide the ability for zero-emission trucks to operate in zero-emission mode via an extension of the overhead catenary electric power distribution system on I-710 in both the northbound and southbound directions between the northern terminus of the freight corridor connector ramps to/from the I-710 general purpose lanes, located south of the Bandini Blvd./I-710 interchange and the SR-60 mainline over crossing of the I-710.



The Zero Emission Extension (ZEE) option under Alternatives 6B and 6C would extend zero emission technology all the way to SR-60.

S.4 JOINT CALIFORNIA ENVIRONMENTAL QUALITY ACT/NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENT

The I-710 Corridor Project is subject to Federal as well as State environmental review requirements because the project is on a Federal Interstate Highway, and Caltrans and Metro propose the use of Federal funds from the Federal Highway Administration (FHWA). Project documentation, therefore, has been prepared in compliance with

both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the Lead Agency under CEQA. Under NEPA, the FHWA responsibility for environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being carried out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327.

During the 60-day public review period for the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), there will be opportunity for public review and comment. After comments are received from the public and reviewing agencies on this Draft EIR/EIS, Caltrans may undertake additional environmental and/or engineering refinements. A Final EIR/EIS will be made available to the public. The Final EIR/EIS will include responses to comments received on the Draft EIR/EIS and will identify the Preferred Alternative. Following completion of the Final EIR/EIS, if the decision is made to approve the I-710 Corridor Project, a Notice of Determination will be filed with the State Clearinghouse for compliance with CEQA and a Record of Decision will be published in the Federal Register for compliance with NEPA. Following certification of the Final EIR/EIS and approval of a Record of Decision, Caltrans intends to adopt the EIR/EIS for purposes of independent CEQA/NEPA compliance responsibilities related to the discretionary State and Federal actions.

S.5 ENVIRONMENTAL CONSEQUENCES

The following sections summarize the impacts documented in the environmental analysis provided in Chapter 3.0 of this EIR/EIS. The environmental commitments and measures to minimize harm are listed in each topical section of Chapter 3 and the Environmental Commitments Record in Appendix F.

The environmental impacts described below for the build alternatives would not occur under Alternative 1 (No Build Alternative). Project benefits such as improved air quality, mobility, and safety would also not occur under Alternative 1.

S.5.1 LAND USE

S.5.1.1 EXISTING AND FUTURE LAND USE

BUILD ALTERNATIVES. The build alternatives would impact existing agricultural, commercial and service, industrial, open space and recreation, residential, transportation and utilities, and vacant land uses. Alternative 5A would convert approximately 1,352 acres of existing land uses to transportation land uses, and Alternatives 6A/B/C would convert approximately 1,652 to 1,657 acres (depending on the design option) of existing land uses to transportation land uses. Therefore, Alternatives 6A/B/C would result in a greater impact to existing land uses compared to Alternative 5A.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect land use, please see Section 3.1 of the Draft EIR/EIS.

S.5.1.2 CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS

BUILD ALTERNATIVES. While adoption of the build alternatives would require SCAG, the County of Los Angeles, and several other regional and local agencies to amend their plans to reflect modifications to the I-710 mainline, interchanges,

and arterial highways, as well as the elimination of any land uses that may need to be acquired for the project, the proposed build alternatives are generally consistent with these plans. Caltrans will need to amend its existing freeway agreements with cities where the build alternatives would add or remove connections to I-710 or I-405. FHWA approval is required for any new connections to an Interstate highway. Additionally, the build alternatives are consistent with the five primary goals of the California Coastal Act.

S.5.1.3 PARKS AND RECREATION FACILITIES

BUILD ALTERNATIVES. The build alternatives would result in permanent direct impacts to parks and recreation facilities, including directly impacting Rancho Rio Verde Riding Club (relocation of one stable), the Golf Learning Center (impacts to parking) and Parque Dos Rios (permanent use of 5.67 acres under Alternative 5A and full acquisition under Alternatives 6A/B/C). Additionally, the build alternatives would result in permanent indirect impacts to the Compton Par 3 Golf Course (low visual impact), Coolidge Park (low visual impact), and Bandini Park (permanent aerial easement required). The build alternatives will impact Cesar E. Chavez Park in the city of Long Beach due to the realignment of Shoreline Dr., but after construction, there will be a net benefit to the public due to improved accessibility of the park through the consolidation of existing park parcels and because the project would result in a net increase of park acreage through the addition of the vacated existing highway right-of-way into the park boundary.

The build alternatives would not result in permanent adverse impacts to regional or local bikeways. Access to the Los Angeles River Trail would be enhanced as a result of modifications to trail entrances at the arterial highways that cross the trail.

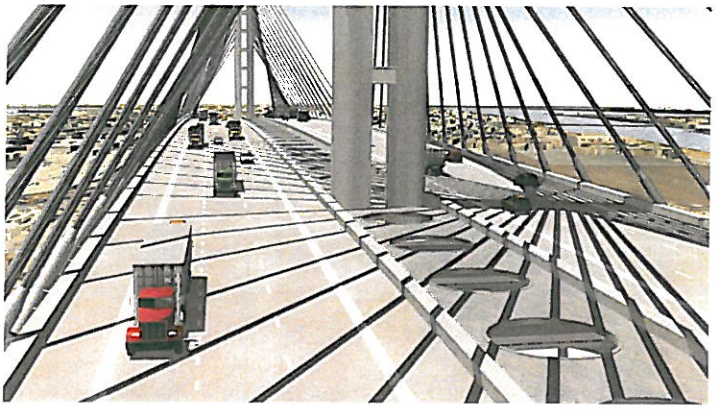
Cesar E. Chavez Park.

S.5.2 GROWTH

BUILD ALTERNATIVES. The improved mobility expected to be achieved as a result of build alternatives could have a slight influence on demand for residential and nonresidential uses in the Study Area and nearby cities; however, it would not be expected to be sufficient to result in the need to modify adopted General Plans to allow for greater levels of development (residential and nonresidential). Further, due to lack of vacant or less developed land within the I-710 Corridor, the build alternatives would not facilitate new development by opening up access to previously undeveloped or less developed areas.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect growth, please see Section 3.2 of the Draft EIR/EIS.

The I-710 build alternatives are expected to accommodate existing, approved, and planned growth in the area, but are not expected to influence the amount, timing, or location of growth in the area.



One purpose of the I-710 Corridor Project is to accommodate growth related to goods movement. Projects such as the new Gerald Desmond Bridge are examples of other projects in the I-710 Study Area planned to accomodate growth related to goods movement.

A key element of the project purpose of the I-710 Corridor Project is to address projected growth in population, employment, and economic activities related to goods movement. The increase in capacity on I-710 under the build alternatives is not expected to influence demand for growth at the Ports nor would growth of port cargo handling capacity at the Ports substantially increase travel demand on I-710. This is because an analysis of the port cargo growth and container movements by truck scenarios showed that the low-growth scenario results in only 11 percent fewer daily port truck trips as compared to the high-growth scenarios, even though the low-growth scenario has 33 percent less containerized cargo throughput compared to the high-growth scenarios. However, by adding highway system capacity to the goods movement infrastructure in Southern California, all of the build alternatives will have a beneficial effect in accommodating the forecasted growth in the movement of cargo containers via truck within the I-710 Corridor. Alternatives 6A/B/C would have a greater beneficial effect than Alternative 5A by providing dedicated lanes for freight movement within the I-710 Corridor.

A worker at the Port of Long Beach.

S.5.3 COMMUNITY IMPACTS

S.5.3.1 COMMUNITY CHARACTER AND COHESION

BUILD ALTERNATIVES. While temporary disruption of community character and cohesion would occur as a result of construction of the build alternatives, the mobility improvements provided by the I-710 Corridor Project would also benefit most of the affected communities by providing an improved connection to other parts of the Study Area and the Gateway Cities Subregion as a whole. However, community cohesion impacts do occur at a localized level within Commerce, Bell Gardens, and Compton due to relocations of existing cohesive communities. Mitigation for relocations within these communities is provided through implementation of Mitigation Measure

C-1 described in Section 3.3.2.4. Community services within the Study Area, such as fire, police protection, and other emergency responders would be more readily available with the build alternatives since mobility within the Study Area would improve over existing conditions.

The build alternatives have been developed through an extensive community outreach process that involves input from multiple public agencies and stakeholders in order to avoid impacts to human-made and natural environments, including existing and future communities. Community concerns and comments have been expressed throughout the design process and the build alternatives have been refined as much as possible to address the community's concerns and to maintain community character and cohesion. Therefore, with the exception of a few locations where access to the highway system would be changed and relocations would occur, the community character and cohesion of most communities would remain intact with implementation of the build alternatives.

S.5.3.2 RELOCATIONS AND REAL PROPERTY ACQUISITION

BUILD ALTERNATIVES. The build alternatives would result in the relocation of residential and nonresidential properties. In summary, within the Study Area, Alternative 5A would result in a total of 115 residential and 88 nonresidential relocations. Alternatives 6A/B/C would result in a total of between 183 and 261 residential and between 177 and 198 nonresidential displacements, depending on the design option. Alternative 5A would relocate 416 residents and Alternatives 6A/B/C would relocate between 662 and 945 residents, depending on the design option. For the majority of the Study Area, residential displacements, given the present market conditions, do not indicate a need for the construction of replacement housing. Last Resort Housing is not required. However, there are residential property impacts for some design options of Alternatives 6A/B/C in the cities of Commerce, Compton, and Bell Gardens where Housing of Last Resort may have to be considered for relocating the affected residential properties. Alternative 5A could result in a total of 440 employee relocations, and Alternatives 6A/B/C could result in a total of between 1,263 and 1,349 employee relocations (depending on the design option) in the Study Area.

Fire Station No. 4 in the City of Vernon would require relocation under all I-710 build alternatives.

As a result of property acquisitions and relocations, the build alternatives could also result in a loss of sales tax and property tax revenue to the affected cities within the Study Area and also to Metro and the State. It is Caltrans' and Metro's goal that all relocations will occur within the affected communities which would help retain potentially lost tax revenues within those communities.

S.5.3.3 ENVIRONMENTAL JUSTICE

BUILD ALTERNATIVES. As a result of the build alternatives, some disproportionate adverse impacts to minority and low-income populations were identified related to near roadway noise and air quality impacts, while in other areas, no disproportionate adverse effects are found. In general, adverse effects identified have the potential to be mitigated. Areas where mitigation measures may be needed, include economic

Relocations by Build Alternatives				
	Alternative 5A	Alternatives 6A/B/C		
		Option 1	Option 2	Option 3
Residential	115	261	189	183
Nonresidential	88	198	195	177
Total Relocations	**203**	**459**	**384**	**360**
Total Residents Relocated	**416**	**945**	**684**	**662**

Source: Community Impact Assessment, March 2012

impacts related to tolling (under Alternative 6C) and relocations (i.e., most relocations occur within areas with minority and/or low income populations).

The reconfiguration of Cesar E. Chavez Park would improve access to the park, as well as provide for a larger contiguous recreation area. This beneficial impact would apply primarily to the moderate- to low-income communities within approximately 0.5 mile of the park. The Park itself is located in a zone where between 50 and 75 percent of the household incomes are below two times the Federal poverty threshold. This is one of the lowest-income communities in the entire Study Area.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect community impacts, please see Section 3.3 of the Draft EIR/EIS.

S.5.4 UTILITIES AND EMERGENCY SERVICES

S.5.4.1 BUILD ALTERNATIVES

The build alternatives would not result in increased population or demand for public services in the Study Area because they would not construct new housing or businesses. However, the build alternatives would have both beneficial and adverse effects on fire protection and law enforcement protection service providers within the Study Area. The build alternatives would result in the relocation of City of Vernon Fire Station No. 4. Beneficial effects include improved emergency response times, as the ability to move fire protection, law enforcement, and emergency service resources from one area to another would be enhanced by the improved transportation network.

Under Alternatives 6A, 6B, and 6C, electrical transmission lines will be relocated to provide room for expanding I-710 to help reduce the amount of property that would otherwise need to be acquired.

Alternative 5A would impact cable television, gas, oil, power, sewer, telephone, and water utility lines. These include both distribution and transmission lines that would require either relocation or protection in place. In addition to the utilities relocated under Alternative 5A, Alternatives 6A/B/C would require extensive relocation of electric transmission facilities owned and operated by Southern California Edison (SCE) and the Los Angeles Department of Water and

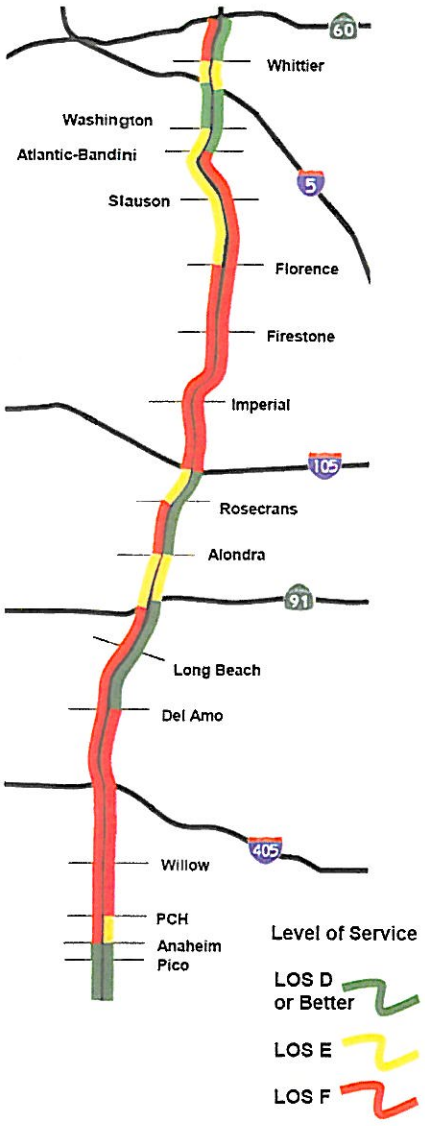
Power (DWP). Several relocation strategies are being considered for utilities impacted as a result of the build alternatives. To address the extensive amount of utility relocations, Metro has initiated detailed relocation studies to help shorten the lead time necessary to implement these relocations, assuming a build alternative is selected for implementation.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect utilities and emergency services, please see Section 3.4 of the Draft EIR/EIS.

S.5.5 TRAFFIC CIRCULATION, PEDESTRIANS, AND BICYCLISTS

BUILD ALTERNATIVES. On the I-710 mainline, the traffic LOS is generally maintained or improved in the morning, midday, and evening peak periods in both directions of I-710 when comparing the 2035 build alternative conditions (Alternatives 5A, 6A, 6B and 6C) to the 2035 No Build (Alternative 1) conditions. Although LOS improves compared to the no build conditions, some segments of the I-710 mainline would continue to experience poor LOS in 2035 under all the build alternatives and Alternative 1 in the morning, midday, and evening peak periods in both the northbound and southbound directions due to increased traffic volumes caused by regional growth in traffic.

Implementation of the I-710 Corridor Project is projected to result in adverse impacts to 21 intersections in the project Study Area. Feasible mitigation measures were identified for all but four of these intersections. These four intersections will remain adversely impacted by the proposed project. The LOS and average intersection delay for 17 of the impacted study intersections will improve intersection operations back to the projected Alternative 1 (2035 No Build) operating conditions or better with implementation of the recommended mitigation measures.



2035 No Build Level of Service - Morning Peak Hour

If you are interested in reading more about how the I-710 Corridor Project alternatives affect traffic circulation, please see Section 3.5 of the Draft EIR/EIS.

The I-710 Corridor Project includes changes to arterial interchanges 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 the construction of the 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.

S.5.6 VISUAL/AESTHETICS

BUILD ALTERNATIVES. There will be long-term adverse impacts with the construction of all build alternatives. Alternatives 6A/B/C will create the most substantial impacts, where portions of the I-710 Corridor Project in the cities of Long Beach and South Gate have the most substantial adverse visual impacts due to the close proximity of the freeway-to-freeway interchanges, sound walls, and elevated freight corridor to residential housing units. These moderately high impacts will require mitigation measures that will need more than five years to take effect. Other areas exhibit lesser levels of negative impacts ranging from moderate to neutral/low and some areas experience a positive visual effect. Aesthetic enhancement of the I-710 Corridor is desired by the affected communities; this will be achieved through implementation of a Corridor Master Plan that will define aesthetic and landscaping treatment measures that will be incorporated into the final design of the I-710 Corridor Project.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect the visual environment, see Section 3.6 of the Draft EIR/EIS.

The Corridor Master Plan shall be developed based on the I-710 Urban Design and Aesthetic Toolbox Report (February 2012) in a context-sensitive design process in consultation with the affected local agencies and shall include involvement of local community members as determined by the local agencies. Texture treatments (for structures, median barriers, etc.), planting, irrigation, opportunities for community identification, and concepts from the I-710 Corridor Urban Design and Aesthetics Toolbox Report (February 2012) will be incorporated into the project design to mitigate the visual and community impacts of the increased scale of the project improvements.

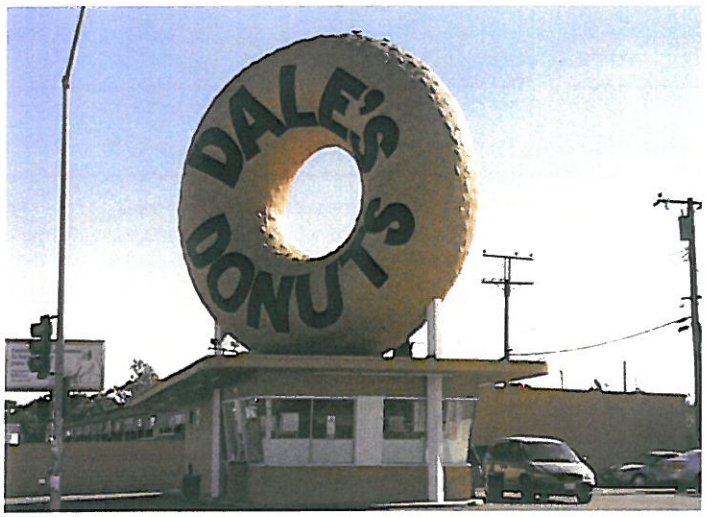
Soundwalls help reduce freeway noise, but they can create visual impacts when they obstruct views or become a target for graffiti. To mitigate these impacts, a master landscape plan will be prepared to provide for aesthetically pleasing landscape and hardscape treatments.

In addition to the structural or physical changes that the I-710 Corridor Project will create, viewers within the Study Area will experience increased night lighting from the addition of traffic lighting on the elevated freight corridor (under Alternatives 6A/B/C). Glare from all lanes is expected to be minimized by the construction of screen walls and sound walls and by distance

of the viewer from traffic lighting and vehicular lights.

S.5.7 CULTURAL RESOURCES

BUILD ALTERNATIVES. The build alternatives would impact four historic resources; a UP Railroad segment, Dale's Donuts, the Boulder Dam-Los Angeles 287.5-kilovolt (kV) Transmission Line, and the South Gate Civic Center Community Center Building. The UP Railroad segment has already been altered and therefore does not contribute to the significance of the UP Railroad. The build alternatives would impacts a small section of the parking area and sidewalk at Dale's Donuts. The impact to the Boulder Dam-Los Angeles 287.5 kV Transmission Line will not lessen the integrity of the line to render it ineligible for the National Register of Historic Places (National Register). Therefore, based on the above discussion, the build alternatives will result in a finding of No Adverse Effect per 36 CFR 800.5 for these cultural resources.



A comprehensive survey of the study area was conducted to identify historic properties in the I-710 Corridor.

The South Gate Civic Center Community Center Building is not a historic property for the purposes of Section 106 but is identified as a Local Landmark. The build alternatives will not directly alter this resource.

The build alternatives would not result in an adverse effect on historic properties. Therefore, no avoidance, minimization, and/or mitigation measures are proposed. Please see Section 3.24.4.7 for measures to reduce impacts to cultural resources and address human remains discovered during project construction.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect our cultural resources, please see Section 3.7 of the Draft EIR/EIS.

S.5.8 HYDROLOGY AND FLOODPLAINS

BUILD ALTERNATIVES. All build alternatives will result in transverse (i.e., perpendicular to the direction of flow) encroachments at 22 Los Angeles River locations, one Compton Creek, and one Rio Hondo Channel location. The build alternatives would not change the capacity of the Los Angeles River, Compton Creek, and/or Rio Hondo Channel to carry water and would not result in a measurable impact to the 100-year floodplain elevation. The proposed encroachments would not result in any adverse impacts on the natural and beneficial floodplain values, would not result in a substantial change in flood risk or damage, and do not have substantial potential to cause interruption or termination of emergency services or emergency routes. Therefore, the build alternatives do not constitute a significant floodplain encroachment as defined in 23 Code of Federal Regulations (CFR) 650.105(q).

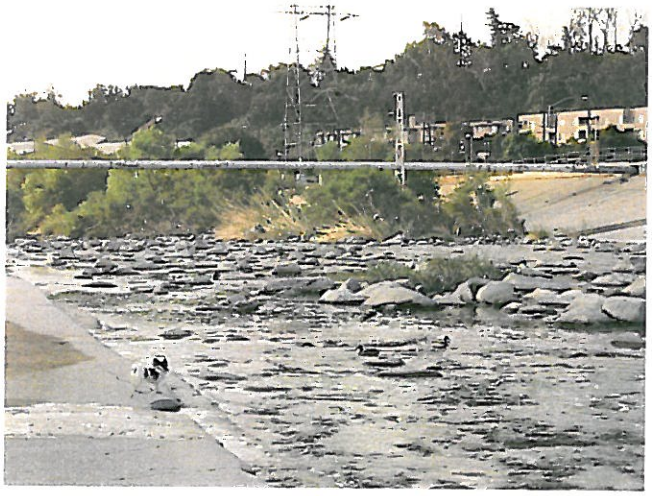
All build alternatives include improvements to the freeway drainage system.

Alternatives 6A/B/C will also impact the Dominguez Gap Basins (west basins), which are used for groundwater recharge, and a retention basin at the I-710/I-105 interchange. Potential replacement locations have been identified for these basins.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect the hydrology and floodplains of the area, please see Section 3.8 of the Draft EIR/EIS.

S.5.9 WATER QUALITY AND STORMWATER RUNOFF

BUILD ALTERNATIVES. Alternatives 6A/B/C would result in a greater increase in impervious surface area compared to Alternative 5A. The increase in impervious surface and, therefore, the increase in runoff and pollutant loading under Alternatives 6A/B/C, would be greater than under Alternative 5A. All build alternatives would add new impervious surfaces, thereby increasing the amount of storm- water runoff within the project limits and introducing additional amounts of water pollutants into the runoff in the area. However, detention basins and/or bioswales would be implemented to treat stormwater runoff prior to discharge to receiving water bodies and manage increased stormwater flows. Therefore, permanent impacts to the water quality of groundwater in the vicinity of the I-710 Corridor Project would be minimal following the completion of construction because there would not be any increase in the transport of pollutants into the groundwater through infiltration during the operational life of the new structures.



Although all build alternatives will result in increased surface water runoff due to the increase in paved surface area, the project design includes features to capture and treat runoff before it enters the Los Angeles River.

S.5.10 GEOLOGY, SOILS, SEISMIC, AND TOPOGRAPHY

BUILD ALTERNATIVES. The roadway, structures, and other features of the build alternatives could be impacted by ground motion and liquefaction and possible ground rupture (deformation), to some degree. Design and construction of the I-710 Corridor Project to current highway and structure design standards, including applicable seismic standards, would minimize the potential impacts on the build alternatives.

A bioswale storm water runoff treatment feature.

S.5.11 PALEONTOLOGY

BUILD ALTERNATIVES. Permanent impacts from the build alternatives on paleontological resources (fossils) would include destruction of paleontological resources, damage to paleontological resources during grading, destruction of rock units that may contain paleontological resources, loss of contextual data associated with paleontological resources, and loss of associations between paleontological resources. However, impacts to paleontological resources can be mitigated through monitoring and fossil recovery during construction.

Certain areas of the I-710 Corridor have a high sensitivity for the presence of fossils. During grading in these areas, monitoring will be conducted to collect any fossils unearthed during construction.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect the water quality, geology and paleontological resources of the area, please see Section 3.9 -11 of the Draft EIR/EIS.

S.5.12 HAZARDOUS WASTE/MATERIALS

BUILD ALTERNATIVES. Hazardous waste risks associated with the build alternatives are related to property acquisitions, project construction, and project operation. To ensure that no risk is posed to project construction workers and the general public during construction, any property acquired must be free of hazardous wastes prior to the start of construction.

The Study Area includes many properties such as oil fields, industrial areas, and gas stations where there is a potential to encounter hazardous waste. To mitigate this impact, any soil and groundwater contamination would be cleaned up prior to the start of construction in these areas.

Operation and maintenance of the facilities proposed as part of the build alternatives would not introduce new sources of hazardous materials/ waste. Routine maintenance activities would be required to follow applicable regulations with respect to handling and disposal of potentially hazardous materials. Vehicles traveling on the I-710 mainline would continue to transport

hazardous substances that could spill and impact the roadway, adjacent properties, or resources. However, the purpose of the I-710 Corridor Project is to improve traffic safety, which could reduce traffic accidents that could result in hazardous waste spills. Implementation of the build alternatives would not result in a substantial permanent adverse impact related to hazardous waste and materials. The build alternatives would decrease hazardous waste risks in the long term as a result of the cleanup and remediation of any hazardous waste contamination on properties that would be acquired for the project.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect hazardous waste/materials of the area, please see Section 3.12 of the Draft EIR/EIS.

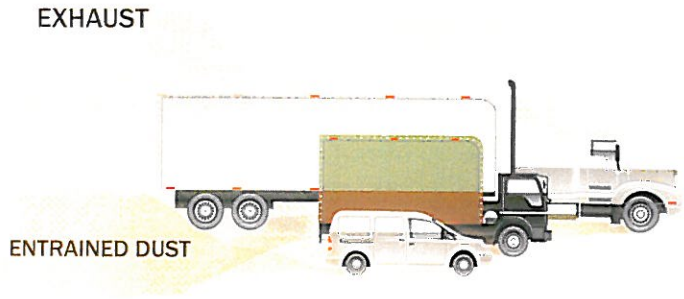
S.5.13 AIR QUALITY

BUILD ALTERNATIVES. Table S-2, on the next page, provides a listing of the air pollutants, their sources, and their adverse effects, which are evaluated in the I-710 air quality analysis.

S.5.13.1 PROJECT STUDY AREA

Given the size of the I-710 Corridor Project and its impact on the region, incremental mobile source (traffic-generated) emission impacts were assessed for the Basin, an Area of Interest (or AOI), which is a sub-region of the Basin that includes cities and communities along the I-710 freeway and the I-710 freeway itself (see Figure S.1). For the AQ/HRA dispersion modeling analyses, the American Meteorological Society/ Environmental Protection Agency Regulatory Model (AERMOD) dispersion model and a coarse receptor grid were used to determine a zone of impact of the emissions from the I-710 freeway itself. This modeling zone of impact was generally the size of the general I-710 Study Area (see Figure S.1) and smaller than the AOI.

Traffic Emissions



A comprehensive Air Quality/Health Risk Assessment (AQ/HRA) was conducted to study the effects of the build alternatives.

S.5.13.2 AQ/HRA ALTERNATIVES COMPARISON SUMMARY

Multiple metrics were used to assess the air quality impacts and health risks of the project alternatives. A single metric cannot, and should not, be used to evaluate the full impacts of any build alterative. The results of the different analyses should be considered together to give a fuller and more comprehensive understanding of project alternative air quality and health risk impacts. All project alternatives, including Alternative 1 (No Build), have locations of greater impacts, depending on the air quality metric used. In summary, the analyses show that:

- Criteria and air toxic exhaust emissions are generally lower (sometimes as much as 80+ percent lower) in the 2035 alternatives compared to 2008. The greatest reductions are in the Basin and I-710 Study AOI. The smallest reductions are along the I-710 freeway.
  - o For the Basin and I-710 Study AOI, the emission changes for all 2035 build alternatives (compared to 2035 Alternative 1) are essentially zero: less than 1 percent increase or slight decreases (Alternatives 6B, 6C, 6B ZEE Design Option, and 6C ZEE Design Option only).

Table S-2 Summary of Air Pollutants		
Pollutants	**Sources**	**Primary Effects**
Ozone (O_3)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide (NO_2)	Motor vehicle exhaust. High temperature stationary combustion. Atmospheric reactions.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Carbon Monoxide (CO)	By-products from incomplete combustion of fuels and other carbon containing substances, such as motor exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.
Ultrafine Particulates	Both manufactured and naturally occurring. Vehicle exhaust. Combustion reactions. Smoke.	Ultrafine particles are deposited in the lungs where they have the ability to penetrate tissue, or to be absorbed directly into the bloodstream. Exposure to ultrafine particulates can induce lung disease and other systemic effects.
Sulfur Dioxide (SO_2)	Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coatings, etc.
Mobile Source Air Toxics (MSAT)	Vehicle exhaust. Includes acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter (DPM), and formaldehyde	Increased risk of cancer, neurological and reproductive disorders, blood disease, birth defects, developmental damage, kidney and liver damage, and respiratory disease.
Greenhouse Gases (GHG)	Fuel combustion. Includes carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).	Global climate change (GCC). Alterations in weather features that occur across the Earth as a whole, including temperature, wind patterns, precipitation, and storms.

- Along the I-710 freeway (including the freight corridor, if applicable), only Alternative 6B and Alternative 6C show decreases in emissions (mostly nitrogen oxides [NO_X] and reactive organic gases [ROGs]) compared to Alternative 1 (No Build). The other two build alternatives have increased emissions along the I-710 freeway compared to Alternative 1, with the greatest increases for Alternative 6A and then Alternative 5A.
  - For the ZEE Design Options for Alternatives 6B and 6C, the emissions of NO_X, ROG, and sulfur dioxide (SO_2) decrease when compared to Alternative 1 (No Build).
- Entrained PM_{10} and $PM_{2.5}$ emissions increase for all alternatives (compared to 2008) and

Figure S-1 South Coast Air Basin, Air Quality Area of Interest, General I-710 Project Study Area, and I-710 Freeway

in all study areas. These increases can be greater than the calculated incremental exhaust emission decreases, leading to the conclusion that total PM_{10} emissions increase in all study areas for 2035 project alternatives compared to 2008.

- o After the I-710 Corridor Project emission calculations were completed, the SCAQMD proposed a modified methodology for entrained PM emissions as part of its 2012 Air Quality Management Plan (AQMP) development. In SCAQMD's proposed methodology, 2008 PM_{10} and $PM_{2.5}$ estimates will be lower, particularly $PM_{2.5}$ estimates. Most importantly, future year entrained PM will remain constant unless the roadway is lengthened. Thus, actual PM impacts for the project alternatives (compared to the 2008 baseline) will be similar to the exhaust PM impacts than the results presented for total PM impacts.

- I-710 Freeway Near-Roadway Impacts: All alternatives (compared to 2008 or 2035 Alternative 1) showed greater criteria and air toxics emissions impacts along the I-710 freeway than in the I-710 Study Area of Interest or Basin. This was anticipated, because widening and/or building a freight corridor would attract more traffic to the I-710 freeway and reduce traffic (and emissions) on local roadways and other freeways. An additional dispersion modeling (AERMOD) assessment of near-roadway air quality and health risk impacts along the I-710 freeway was conducted to assess these impacts.

  For near-roadway impacts from I-710 freeway emissions (compared to 2008, unless noted):

  - o Principally, none of the 2035 alternatives is expected to result in an exceedance of

the California ambient air quality standards (CAAQS) or the national ambient air quality standards (NAAQS) for NO_2 and carbon monoxide (CO).

- o All 2035 alternatives (including the ZEE Design Options for Alternatives 6B and 6C) had near-freeway (<300 meters) total PM_{10} and $PM_{2.5}$ impacts, with the least impacts for Alternative 1.
- o Alternatives 5A and 6A had incremental exhaust PM_{10} and $PM_{2.5}$ impacts greater than the SCAQMD's significance threshold (although lower impacts than incremental total PM_{10} and $PM_{2.5}$).
- o Alternatives 1, 6B, 6C, 6B ZEE Design Option, and 6C ZEE Design Option had no incremental exhaust PM_{10} and $PM_{2.5}$ impacts greater than the SCAQMD's significance threshold.
- o Compared to 2008, cancer risk and hazard indices decrease throughout the modeling domain for all 2035 alternatives except Alternative 6A in nonresidential areas very near to the I-710 (mainline and/or freight corridor).
- o Compared to Alternative 1, Alternative 6B and Alternative 6C have lower cancer risk impacts until the freight corridor ends near the rail yards, while the other alternatives have greater cancer risk impacts. Cancer risk impacts north of Washington Blvd. are greater for all build alternatives (compared to Alternative 1), even for Alternatives 6B and 6C, because it is assumed that trucks not on the freight corridor are not operating in zero emission mode.

  - The ZEE Design Options for Alternative 6B and 6C would reduce the health risk north of the rail yards. However, when compared to Alternative 1, these alternatives would continue to expose a few small areas to an incremental cancer risk exceeding the 10 in a million threshold.

- The greatest greenhouse gas (GHG) reductions (compared to Alternative 1) occurred for Alternatives 6B and 6C with decreases of 600,000 and 490,000 $MTCO_2e$ per year (metric tons per year of carbon dioxide equivalent), respectively.

  - o Alternative 6B with the ZEE Design Option (compared to Alternative 1) would reduce the regional GHG emissions by 646,000 $MTCO_2e$/yr.
  - o Alternative 6C with the ZEE Design Option (compared to Alternative 1) would reduce the regional GHG emissions by 526,000 $MTCO_2e$/yr.

- $PM_{2.5}$ Mortality/Morbidity and Ultrafine Particulates

  - o Special I-710 Corridor Project qualitative analyses were conducted for $PM_{2.5}$ mortality/morbidity and ultrafine particulates, using total $PM_{2.5}$ and exhaust $PM_{2.5}$ impacts, respectively, as surrogates.
  - o The public's exposure to PM-related morbidity and mortality health risks would generally decrease relative to the 2008 baseline in all parts of the I-710 Study AOI; the exceptions would be some locations near portions of the I-710 freeway and/or freight corridor (<100 meters) as shown in Appendix R, AQ/HRA Maps, of the Draft EIR/EIS.
  - o The public's exposure to ultrafine particulates should decrease for all 2035 Alternatives relative to the 2008 baseline.
  - o Alternatives 6B and 6C had the lowest exhaust $PM_{2.5}$ emissions and modeled concentration impacts of all 2035 alternatives (even 2035 Alternative 1); therefore, it is expected that Alternatives 6B and/or 6C would decrease the public's health risk due to ultrafine particles, relative to the No Build Alternative.

- The ZEE Design Options for Alternative 6B and 6C would further reduce the exhaust $PM_{2.5}$ emissions and modeled concentration impacts.

- Regional and Project-Level Conformity

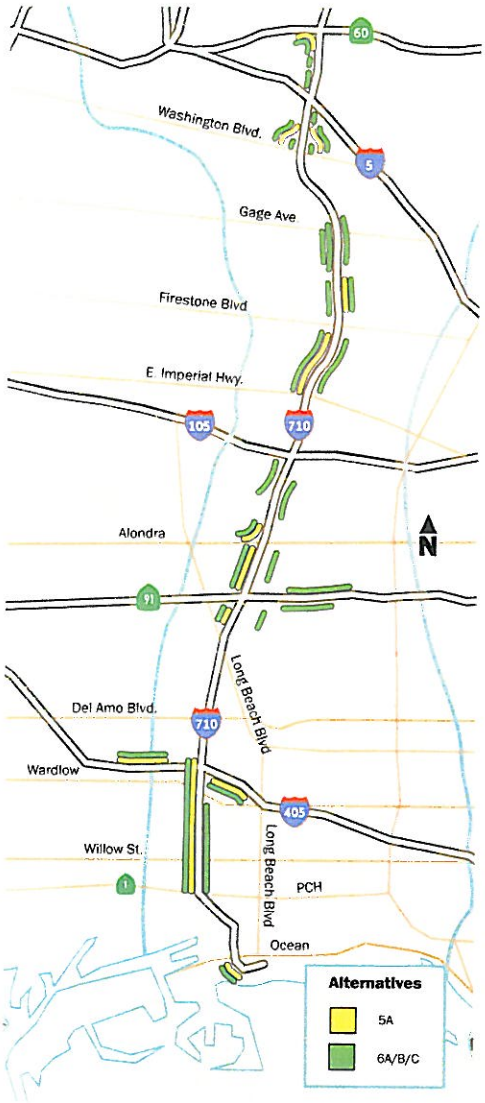
  - o Regional and project-level conformity analysis was conducted relative to conformity requirements under the Federal Clean Air Act. The I-710 Corridor Project is expected to demonstrate conformity with all Federal conformity requirements.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect air quality, please see Section 3.13 of the Draft EIR/EIS.

S.5.14 NOISE

BUILD ALTERNATIVES. Traffic noise modeling results for the build alternatives compared predicted design-year traffic noise levels with the project to existing conditions and to design-year no-build conditions. The comparison to existing conditions was included in the analysis to identify traffic noise impacts under 23 CFR 772. The comparison to the future no build condition indicates the traffic noise increase resulting from the project. Traffic noise impacts are predicted to occur throughout the I-710 Corridor, in addition to areas that already exceed Federal noise abatement criteria. Sound walls are proposed throughout the length of the project for all sensitive land uses categories including residential areas, schools, and parks.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect noise in the region, please see Section 3.14 of the Draft EIR/EIS.



Proposed soundwall locations along I-710.

S.5.15 ENERGY

BUILD ALTERNATIVES. Compared to 2008 existing conditions:

- 2035 Alternative 1 (No Build) and Alternatives 5A and 6A energy consumption increases by approximately 16 percent.
- 2035 Alternatives 6B and 6C energy consumption increases by approximately 14 percent.

Compared to 2035 No Build conditions:

- 2035 Alternative 5A energy consumption decreases by 0.1 percent.
- 2035 Alternative 6A energy consumption does not change.
- 2035 Alternative 6B energy consumption decreases by 2.0 percent.
- 2035 Alternative 6C energy consumption decreases by 1.6 percent.

Alternatives 5A and 6A/B/C improvements would increase average travel speeds during peak hours, remove bottlenecks, and reduce delays. However, VMT in the Study Area would also increase when comparing any of the build alternatives with the 2035 No Build condition. The build alternatives would result in a slight decrease in gasoline fuel consumption compared to the 2035 No Build condition. Alternative 5A would produce no change in diesel fuel consumption compared to the 2035 No Build condition. Similarly, Alternative 6A would produce a 1.3 percent increase in Study Area diesel fuel consumption as truck VMT increases in the Study Area due to the conventionally powered truck trips attracted to the freight corridor in this alternative. For Alternatives 6B and 6C, which include the zero-emission freight corridor with electric powered trucks, the diesel fuel consumption is estimated to be 6 to 8 percent less than under the 2035 No Build condition, as electric power is substituted for diesel power on the freight corridor.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect energy use in the region, please see Sections 3.15 of the Draft EIR/EIS.

S.5.16 NATURAL COMMUNITIES

BUILD ALTERNATIVES. Permanent direct and indirect impacts to natural communities would be greater under Alternatives 6A/B/C than under Alternative 5A. A total of 4.08 acres of permanent direct impacts to estuarine habitat and riparian/riverine habitats would occur under Alternatives 6A/B/C, whereas Alternative 5A would permanently and directly impact 0.94 acre of these habitats. Additionally, Alternatives 6A/B/C would permanently and indirectly impact 16.21 acres of estuarine habitat and riparian/riverine habitats, whereas Alternative 5A would permanently and indirectly impact 13.46 acres of these habitats. Potential hydraulic effects are associated with bridge modifications and the relocation of a segment of electrical transmission lines along the edge of the river, upstream. However, as analyzed in Section 3.8 of this Draft EIR/EIS, the proposed modifications would mimic the existing pier configurations upstream and downstream, and there would not be substantial effects to the water surface elevation, velocity of flood flows, sedimentation, or scour in the vicinity of the new piers. Because there are no substantial effects at the location of the modifications, there are no substantial effects to downstream locations, including the estuarine habitat.

Because the I-710 Corridor has restricted wildlife movement and resulted in habitat fragmentation for many years, none of the build alternatives are expected to have an adverse effect on wildlife movement. Nonetheless, Alternatives 6A/B/C will have a greater impact on wildlife corridors/habitat fragmentation than Alternative 5A due to the larger footprint of the freight corridor associated with

Alternatives 6A/B/C.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect natural communities, water, plant species, and animal species, please see Sections 3.16 - 19 of the Draft EIR/EIS.

The I-710 Corridor Project will be designed to be compatible with the Los Angeles River Master Plan.

S.5.17 WETLANDS AND OTHER WATERS OF THE U.S.

BUILD ALTERNATIVES. In general, Alternatives 6A/B/C would result in greater impacts to jurisdictional waters than Alternative 5A. Jurisdictional areas would be impacted at three locations by Alternatives 6A/B/C that would not be affected by Alternative 5A. Alternatives 6A/B/C are expected to result in direct permanent impacts to approximately 4.06 acres of United States Army Corps of Engineers (USACE)/Regional Water Quality Control Board (RWQCB) jurisdictional areas and 9.99 acres of California Department of Fish and Game (CDFG) jurisdictional areas. Alternative 5A would result in impacts of 0.92 acre (permanent direct) and 1.19 acres (permanent indirect) to USACE/RWQCB jurisdictional areas.

S.5.18 PLANT SPECIES

BUILD ALTERNATIVES. One sensitive plant species (Southern Tarplant) was identified in the Study Area. Direct impacts to southern tarplant populations could occur as a result of drilling or driving piles required to construct bridge columns. However, bridge columns are proposed outside of the limits of the populations, so direct permanent impacts to southern tarplant are not anticipated from implementation of the I-710 Corridor Project. Under Alternatives 6A/B/C, some degree of permanent shade where sunny conditions currently exist will occur as a result of the elevated freight corridor. Alternative 5A would result in extremely minor indirect permanent impacts to southern tarplant from shading, and Alternatives 6A/B/C would result in greater indirect permanent impacts from shading.

Southern Tarplant is one of the sensitive plant species within the study area.

S.5.19 ANIMAL SPECIES

BUILD ALTERNATIVES. Permanent impacts would be the same for all build alternatives at the location where burrowing owls were observed on two separate occasions in 2009. Implementation of any of the build alternatives proposed for the I-710 Corridor Project is not expected to substantially affect long-term use of the habitat by burrowing owl with incorporation of the proposed avoidance and minimization measures.

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 (existing bridges) permanently affected by Alternatives 6A/B/C. Implementation of any of the alternatives proposed for the I-710 Corridor Project is not expected to substantially affect long-term use of the structures by bats.

Permanent impacts to the 14 other special-status animal 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.

The Burrowing Owl was observed during wildlife surveys in the study area.

New bridge structures could result in occasional bird strikes. However, direct mortality is not expected with implementation of the proposed avoidance and minimization measures. The freight corridor in Alternatives 6A/B/C would be elevated along most of the lower portion of the Los Angeles River, and it includes an electrified overhead catenary system. This presents some potential for occasional bird strikes as birds leave the river to the west. However, the freight corridor and the attendant truck traffic, which will essentially parallel the Los Angeles River, will be highly visible and essentially continuous, reducing the likelihood of direct strikes. Because the overhead catenary system would be directly over the travel lanes in the freight corridor, it would likely not be an attractive perching structure for raptors or other native migratory birds, and thus, not a substantial electrocution hazard for birds. Permanent impacts to other non listed special-status species could occur in the form of direct mortality, habitat loss, and habitat fragmentation.

S.5.20 THREATENED AND ENDANGERED SPECIES

BUILD ALTERNATIVES. Permanent impacts to the California brown pelican, American peregrine falcon, California least tern, and green turtle 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. Permanent impacts to these species could occur in the form of direct mortality and habitat loss.

The California Brown Pelican is a frequent visitor in the southern portion of the study area.

However, based on the level of potential effects, it is anticipated that the build alternatives may affect but are not likely to adversely affect the green turtle and California least tern. Furthermore, the build alternatives would not result in a take of any threatened and endangered species including the California brown pelican and the American peregrine falcon. Although the western snowy plover has been observed along the lower reaches of the Los Angeles River's riverine habitat in the

current decade, it is an infrequent, non breeding visitor. Due to the lack of nesting habitat, the infrequency of foraging activity and measures for avoidance and minimization of construction impacts on foraging habitat, the build alternatives are not expected to adversely affect the western snowy plover.

S.5.21 INVASIVE SPECIES

BUILD ALTERNATIVES. Construction of the I-710 Corridor Project has the potential to spread invasive species by the entering and exiting of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that its seed is spread along the highway. Impacts associated with Alternatives 6A/B/C would be greater than impacts associated with Alternative 5A, given the larger area of disturbance associated with the freight corridor.

If you are interested in reading more about how the I-710 Corridor Project alternatives affect threatened, endangered and invasive species, please see Sections 3.20 and 3.21 of the Draft EIR/EIS.

S.5.22 CUMULATIVE IMPACTS

Cumulative impacts (both direct and indirect) were identified by considering the impacts of the I-710 Corridor Project and other current, or proposed actions in the area to establish whether, in the aggregate, they could result in cumulative environmental impacts. The analysis included review of adopted plans and related projects that may, in concert with the I-710 Corridor Project, have a cumulative adverse effect on sensitive resources in the Study Area and Los Angeles County. The reasonably foreseeable actions used in the cumulative impacts analysis were based on information provided by the cities of Bell, Bell Gardens, Carson, Commerce, Compton, Cudahy, Downey, Huntington Park, Lakewood, Long Beach, Los Angeles, Lynwood, Maywood, Paramount, Signal Hill, South Gate, and Vernon, which identified approved and pending developments proposed in the proximity of the Study Area. These files were cross-checked against files maintained by the State of California, Office of Planning and Research. Information on future transportation projects was provided by Caltrans, SCAG, Metro, and GCCOG. POLA and POLB also identified Port improvement projects that should be considered in the cumulative impacts analysis.

The cumulative impact analysis evaluates the effects of the I-710 build alternatives in combination with other major projects in the study area, such as expansion of port terminals.

If you are interested in reading more about the cumulative impacts of the I-710 Corridor Project, please see Section 3.25 of the Draft EIR/EIS.

The build alternatives, when combined with other cumulative projects, would contribute to cumulative land use, community character and cohesion, traffic (four intersections will remain impacted), visual, air quality (near corridor incremental concentration impacts only), noise, estuarine and riparian/riverine habitats and species associated with this habitat, southern tarplant populations, green turtle and the California least tern (minor incremental), and relocation impacts. The build alternatives would not

contribute to cumulative adverse impacts related to agricultural resources, geology and soils, hazards and hazardous waste, hydrology and water quality, mineral resources, population and housing, public services, recreation, or utilities and service systems.

S.5.23 SECTION 4(F) PROPERTIES

Potential impacts of the build alternatives to public parks and recreation facilities that qualify for protection under Section 4(f) of the 1966 U.S. Department of Transportation Act include:

- Cesar E. Chavez Park
- Bandini Park/Batres Community Center
- Parque Dos Rios
- Los Angeles River Trail and Rio Hondo Trail (temporary closure during construction only)

Parks are provided special protection under Section 4(f) of the 1966 U.S. Department of Transportation Act.

At Cesar E. Chavez Park, the consolidation of the smaller discontinuous parcels into three larger parcels would result in improved public access to the entire Park, including the areas not currently accessible to vehicles and pedestrians. At Bandini Park, the use of the land is an aerial easement for a wider bridge structure under Alternative 5A and a new freeway ramp connector for Alternatives 6A/B/C. For Parque Dos Rios, permanent use of land under Alternatives 5A and 6A/B/C and a temporary construction easement (TCE) for Alternative 5A only will be required. Temporary closures of segments of the Los Angeles River and Rio Hondo trails at their crossings of I-710 or local roads will be necessary to protect the safety of trail users and project construction workers during construction of the build alternatives.

With regard to historic properties that are eligible for protection under Section 4(f), Caltrans has determined that, because the build alternatives would not adversely affect the historical quality of the structure at Dale's Donuts, the historic qualities of the Union Pacific Railroad Lines or the Boulder Dam-Los Angeles Transmission Line, or affect their eligibility for the National Register, the requirements for protection under Section 4(f) do not apply to these resources.

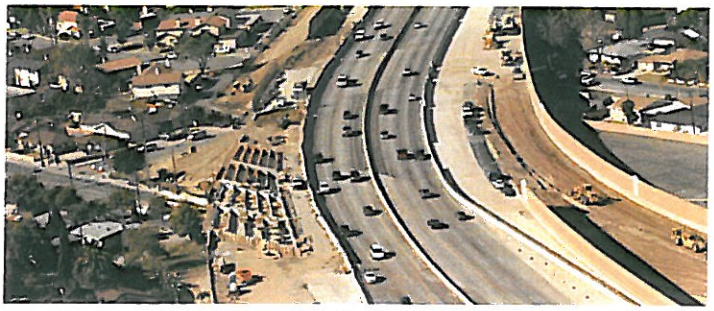
If you are interested in reading more about how the I-710 Corridor Project alternatives affect 4(f) properties in the Study Area, please see Appendix B of the Draft EIR/EIS.

S.5.24 CONSTRUCTION IMPACTS

Key findings related to construction impacts of the build alternatives are as follows:

- **Land Use:** Construction of the I-710 build alternatives would temporarily affect nearby land uses and would include disruption of local traffic patterns and access to residences and businesses; increased traffic congestion; and

increased noise, vibration, and dust.



Construction of any of the build alternatives will be a major undertaking. This photo shows a similar freeway widening project on SR-22 in Orange County.

- **Parks and Recreation:** Construction of the build alternatives would result in temporary impacts to pedestrian and bicyclist access points to regional and local bikeways (including the Los Angeles River Trail), as well as short-term closures of portions of the bikeways located in the vicinity of new and/or modified interchanges that would be improved during construction. The build alternatives would require the temporary use of 6.1 acres in the southern part of Cesar E. Chavez Park for a TCE during project construction. During construction of the build alternatives, parts of Cesar E. Chavez Park may be temporarily closed to public access. The basketball court west of Cesar E. Chavez Elementary School would be removed temporarily during project construction. The build alternatives would require the temporary use of 0.41 acre of land for a detour road in the Park during construction of realigned Broadway.

- **Community Character and Cohesion:** Construction of the improvements for the build alternatives is anticipated to result in short-term access disruptions related to construction and therefore result in a short-term impact to community character and cohesion. A Traffic Management Plan (TMP) would be implemented during construction of the I-710 Corridor Project in a cost-efficient and timely manner with minimal interference to the traveling public. In addition, construction jobs would be created by the construction of the build alternatives.

- **Environmental Justice:** Construction activities would temporarily affect environmental justice populations. However, construction activities would provide jobs, which would benefit local economies that include minority and low-income populations.

The build alternatives will result in many construction and construction-related jobs.

- **Utilities and Emergency Services:** Construction activities that require closures of travel lanes and ramps could result in traffic delays that could affect the ability of fire, law enforcement, and emergency service providers to meet response time goals within the Study Area. Under all build alternatives, utility relocations would occur prior to project construction. For utilities that will be protected in place, standard construction measures, such as contacting Underground Service Alert (USA), will be used to avoid impacting utilities and to avoid utility service disruptions.

- **Traffic Circulation, Pedestrians, and Bicyclists:** During construction, the I-710 Corridor Project would result in temporary impacts to traffic circulation due to traffic diversions resulting from temporary closures to local roadways,

sidewalks and bikeways, and freeway lanes and ramps. A TMP will be implemented to address changes in traffic flows and pedestrian and bicycle circulation and provide measures to minimize the adverse effects of construction activities on traffic flows and pedestrian and bicycle travel within the Study Area.

- **Visual/Aesthetics:** Short-term visual impacts under the build alternatives would occur to sensitive viewers during the construction period and include views of demolition of existing structures, clearing of existing vegetation, grading of cut-and-fill slopes, construction of the I-710 widening and structures, construction vehicles, and construction staging areas. Construction activities are temporary, and the adverse visual impacts related to construction activity would cease after completion of construction. The effects of vegetation clearing would gradually improve over time as landscaping for the I-710 Corridor Project matures.

Construction activity results in a variety of short-term impacts, especially air quality, noise, and visual. An extensive program of construction mitigation measures would be implemented for any of the build alternatives.

- **Hydrology/Floodplains:** Construction equipment would be operated within the Los Angeles River and Compton Creek 100-year floodplains during construction of the bridge and levee improvements discussed above under Permanent Impacts. Following the completion of construction activities within the 100-year floodplain, the disturbed area would be returned to the existing condition.

- **Water Quality:** Events such as the accidental discharge of waste products produced during construction are of primary concern. Other concerns, such as disturbed soil and erosion of channel banks; runoff from the construction site; disturbance of existing channel-bottom sediments due to construction over and adjacent to local water bodies; resuspension of fine-grained bottom sediments; and removal and disposal of groundwater are potential issues during construction of the build alternatives. However, standard construction measures require the capture and treatment of all runoff from the construction area. The potential for temporary water quality impacts would be greater under Alternatives 6A/B/C because more improvements are proposed under these alternatives and there would be more disturbed soil area and more work within and adjacent to the water bodies within the project area.

- **Geology, Soils, Seismic, and Topography:** Construction activities related to the build alternatives may temporarily disturb soil outside the facility footprint, yet within the project right-of-way, primarily in the trample zone around work areas, heavy equipment traffic areas, and material laydown areas. Temporary impacts would include soil compaction and increased possibility of soil erosion.

- **Paleontology:** There is the potential for direct impacts to paleontological resources to occur during construction. However, all impacts to paleontological resources are considered to be permanent impacts. Therefore, temporary impacts are not applicable to paleontological

resources.

- **Hazardous Waste:** Alternatives 6A/B/C will have a greater potential temporary hazardous waste impact prior to and during construction than Alternative 5A due to the larger footprint of the freight corridor associated with Alternatives 6A/B/C. Based on the findings of the records search and the site surveys, elevated concentrations of aerially deposited lead (ADL); asbestos-containing materials (ACMs), polychlorinated biphenyls (PCBs), and/or lead-based paint (LBP); and elevated concentrations of metals such as lead may be encountered during excavation and construction activities for all build alternatives. Contamination may be encountered during construction and excavation activities at those properties that require additional remediation; residual contamination may be encountered during construction and excavation activities at those properties that have received regulatory agency closure; and waste materials may be encountered during construction and excavation activities at those properties that operated as waste disposal sites. Additionally, contaminated groundwater may be encountered during construction.

Construction activities can create hazardous waste which will be disposed of at an appropriate disposal facility.

- **Air Quality/Greenhouse Gases:** During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NO_X, volatile organic compounds (VOCs), PM_{10}, $PM_{2.5}$, toxic air contaminants such as DPM, and GHGs. Peak-day emissions of GHGs (CO_2) are estimated to be approximately 165 metric tons per day for any build alternative. No cumulative effect is anticipated as construction of any stretch of the freeway improvements will be less than five years and other studies have indicated that air pollution from construction is below SCAQMD significance thresholds or can be mitigated to keep construction emissions below their thresholds.

- **Noise:** 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.

- **Energy:** Construction equipment and construction worker vehicles operating during construction of the I-710 Corridor Project would use fossil fuels. This increased fuel consumption would be temporary, would cease at the end of construction activities, and would not have a residual requirement for additional energy input. The marginal increases in fossil fuel use resulting from project construction are not expected to have appreciable impacts on energy resources.

- **Natural Communities:** Temporary impacts to natural communities may occur during

construction of all build alternatives where habitats are temporarily disturbed during grading or other activities. In general, Alternatives 6A/B/C would result in greater temporary impacts than Alternative 5A due to the increased number of structural bridge columns/piers associated with Alternatives 6A/B/C.

Controlling stormwater runoff during construction is critical to maintaining water quality in the Study Area.

- **Wetlands/Other Waters:** Temporary impacts to jurisdictional areas may occur during construction where wetlands or waters are temporarily disturbed during pile-driving activities, construction of abutments, grading, or other activities. Alternatives 6A/B/C would result in greater temporary impacts than Alternative 5A due to the increased number of piles within jurisdictional areas associated with Alternatives 6A/B/C.

- **Plant Species:** Temporary impacts to populations of southern tarplant could result from implementation of any of the build alternatives. In general, Alternatives 6A/B/C would result in greater temporary impacts to the populations of southern tarplant than Alternative 5A.

- **Animal Species:** Construction and expansion of the four bridges in the lower Los Angeles River would not alter long-term movement of California sea lions or fish protected under the Magnuson-Stevens Fishery Conservation and Management Act through the channel. 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.

- **Threatened & Endangered Species:** Temporary impacts to California brown pelican, American peregrine falcon, California least tern, and green turtle could occur during construction from temporary indirect disturbance (noise, vibration, dust, night lighting, and human encroachment). Construction could temporarily impede movement along the Los Angeles River. Brown pelicans could be affected indirectly by project-generated changes in water quality. Any green turtles that might visit the area around the mouth of the Los Angeles River could be temporarily affected indirectly by project-related changes in water quality originating upstream.

- **Invasive Species:** Construction of the I-710 Corridor Project has the potential to spread invasive species through the entering and exiting of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that its seed is spread along the highway.

- **Cumulative Impacts:** Temporary cumulative impacts as a result of the proposed project, in combination with other past, present and future projects, are not considered to be adverse. All temporary impacts described in the above sections, as well as impacts for other projects in the Study Area, will each be minimized or mitigated and will, therefore, not have a cumulative impact to humans or the physical environment. Temporary cumulative impacts to traffic and circulation can also result from

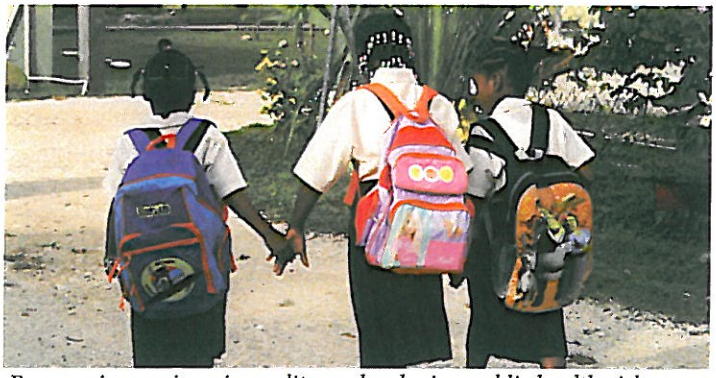
the construction of more than one project in a general area. In this case, TMPs for each project would be prepared in the future and would be coordinated to ensure adequate circulation in the area, including always maintaining the existing number of mainline freeway lanes.

If you are interested in reading more about how construction impacts from the I-710 Corridor Project affect the region, please see Section 3.24 of the Draft EIR/EIS.

S.5.25 PUBLIC HEALTH CONSIDERATIONS

Key findings related to the effects of the build alternatives on public health are as follows:

- **Parks and Recreation:** The build alternatives would not result in an adverse impact in access to parks as a result of barriers to walking or biking, changes in pedestrian or bike safety near parks, or in a reduction in park acreage and, therefore, would not have adverse effects on public health related to park access. The expansion and reconfiguration of Cesar E. Chavez Park would have beneficial effects by increasing opportunities for public use of the park following the completion of construction.



Because improving air quality and reducing public health risk are key goals of the project, public health was considered in all aspects of the project environmental studies.

- **Community Character and Cohesion:** Based on the nature of the changes in access in the Study Area, the proximity of these changes to residential and nonresidential properties, and the relocation availability and the Relocation Assistance Program (RAP) provided by Caltrans for the affected properties and considerations toward Last Resort Housing, the build alternatives would not result in isolation and/or segregation of residents without resources to relocate within their existing communities and, therefore, would not result in adverse effects to public health related to community character and cohesion.

  While the build alternatives would result in some changes in access, these changes would not result in adverse impacts in access to schools within the Study Area. Once in operation, the build alternatives would not result in adverse impacts to modes of travel for students and would enhance access to schools by reducing traffic congestion. Therefore, the build alternatives would not result in adverse effects to public health related to access to schools.

- **Environmental Justice:** The findings described above for Community Character and Cohesion would also apply to minority and low-income (environmental justice) populations within the I-710 Corridor.

- **Utilities and Emergency Services:** Recognizing both public concern and scientific uncertainty over possible health effects from electric and magnetic fields (EMF) exposure, the California Public Utilities Commission (CPUC) adopted a precautionary approach to reduce EMF exposures in 1993 (updated in 2006). While keeping electrical safety and good engineering practice as first priority, investor-owned electric utilities in California utilize design to reduce magnetic fields created by new and rebuilt electric facilities.

As the relocation of electrical transmission and distribution lines for the I-710 Corridor Project will utilize designs to reduce EMFs consistent with the CPUC guidance described above, public health considerations regarding EMF are not considered a concern.

Regarding emergency response time, other than the above-described effects, (adverse effects during construction and beneficial effects once the project is operational), public health was considered not to be a topic of concern for emergency services.

- **Traffic Circulation, Pedestrians, and Bicyclists:** The project would improve pedestrian facilities (sidewalks) by replacing the old ones that will be removed as part of the project. Bike travel would also be improved by providing new pavement on the arterial bridges that will be replaced over I-710 and the Los Angeles River. In many cases, existing interchanges will be replaced with Single Point Urban Interchanges. Although these interchanges are thought to pose a greater safety challenge to bicyclists and pedestrians, this user group is a consideration in the design of these types of interchanges and appropriate treatments are applied to balance vehicle, bicycle and pedestrian use.

Bicycle trails and bikeways will be maintained during and after construction.

Caltrans' Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians (Caltrans, 2010) will be used during the design process. Because sidewalks will be improved and bikeways and trails will be maintained, the I-710 Corridor Project would improve conditions for pedestrian and bicycle travel, thereby resulting in a beneficial effect to public health considerations related to congestion and mobility.

Modernizing the design of I-710 is expected to reduce the number of total and fatal accidents, resulting in accident rates on I-710 that are more reflective of the statewide average for a similar facility. This expected reduction in accidents would reduce public health risks related to traffic safety.

- **Water Quality:** Water quality BMPs would be implemented to treat stormwater runoff during construction and operation of the build alternatives. As a result, the build alternatives are not anticipated to degrade the water quality of the receiving waters. Treatment BMPs would be designed to drain and eliminate standing water; therefore, vectors (such as mosquitoes) would not be of concern. Therefore, the build alternatives would not pose risks to public health related to hydrology and water quality.

- **Geology, Soils, Seismic, and Topography:** The primary public health consideration related to geology is seismic safety. All new and modified bridge structures included in the build alternatives would be designed and constructed in accordance with Caltrans' latest seismic design criteria, thus minimizing public health risk concerns associated with structure collapses during an earthquake.

Technicians testing for hazardous materials.

- **Hazardous Waste:** The modern design of the I-710 Corridor Project under any of the build alternatives will result in reduced risk of traffic accidents, including those that could result in hazardous waste spills. Alternatives 6A/B/C further reduce the public health risk of hazardous waste spills by separating truck traffic from automobile traffic as a result of the freight corridor component of the alternatives. For these reasons, implementation of the build alternatives would not increase public health risks related to hazardous waste and materials in the short term and would decrease these risks in the long term as a result of the cleanup and remediation of hazardous waste contamination on properties that would be acquired for the project.

- **Air Quality:** All project alternatives will improve air quality and reduce public health risk in the Basin and the I-710 AOI. Along I-710, air quality will be improved and public health risk will be reduced at most locations, but there are some near roadways locations where there will be an increase in emissions and an increase in cancer risk. Alternatives 6B and 6C have the fewest areas with these near roadway impacts. There are no feasible mitigation measures to reduce these localized near roadway impacts; therefore, these would be unavoidable adverse impacts.

- **Noise:** The proposed noise barriers to be constructed under any of the build alternatives will reduce noise levels for people living and working in the I-710 Corridor.

If you are interested in reading more about public health considerations for the I-710 Corridor Project Alternatives, please see each topical section in Chapter 3 of the Draft EIR/EIS.

S.6 SUMMARY OF SIGNIFICANT IMPACTS UNDER CEQA AFTER MITIGATION

As discussed in detail in Chapter 4.0, CEQA Evaluation, the following impacts of the build alternatives were determined to be significant, adverse, and unavoidable after implementation of the identified avoidance, minimization, and mitigation measures, as well as the project design features:

- **Permanent noise impacts:** Although all build alternatives include noise barriers to provide noise abatement, not all noise increases may be able to be abated; therefore, this would be a significant unavoidable adverse impact under CEQA.

- **Permanent air quality impacts:** Although most areas will experience improved air quality, some near roadway sensitive receptors will be exposed to substantial pollutant concentrations that cannot be mitigated. Therefore, this would be a significant unavoidable adverse impact under CEQA.

- **Permanent land use and planning impacts:** Within the city of Commerce, Alternatives 6A/B/C would result in relocations in the Ayers neighborhood under Design Options 1 and 2

resulting in a significant unavoidable impact to community character and cohesion. Impacts would also occur in the city of Compton under all build alternatives due to the relocation of a senior apartment complex. Impacts would occur in the city of Bell Gardens due to the relocation of ten to 15 mobile homes under Alternatives 6A/B/C.

A neighborhood near the I-710.

- **Permanent population and housing impacts:** Alternatives 6A/B and C, Option 1 would result in 261 residential displacements. Some of these displaced residences are in areas where there is insufficient replacement housing available. 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 the construction of replacement housing in these areas may be necessary. Therefore, Alternative 6A/B and C Option 1 impacts related to the displacement of existing housing and people necessitating the construction of replacement housing are potentially significant and unavoidable.

- **Permanent traffic and transportation impacts:** Mitigation measures have not been recommended for four impacted intersections as mitigation is infeasible due to right-of-way constraints and other limitations identified during coordination meetings with the staff of the affected cities. These four intersections 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 intersections.

The remaining impacts of the build alternatives were determined to be either not significant or able to be avoided or reduced to below a level of significance based on implementation of the project avoidance, minimization, and mitigation measures and project design features, as described in detail in Chapter 4.0.

S.7 AREAS OF CONTROVERSY AND UNRESOLVED ISSUES

Based on input during the MCS, public scoping, and public outreach efforts, the following areas of public concern have been identified. Some of the issues raised may be considered controversial.

- **Air Quality/Health Risk:** Air quality and health risk continue to be controversial public issues because of the high emissions levels and resulting health risk to populations along the I-710 corridor due to existing traffic congestion and truck traffic from the Ports.

- **EPA Comments:** EPA has raised concerns regarding the analytical methodologies used to evaluate potential impacts of the I-710 Corridor project, and Caltrans is continuing to work with EPA to address their concerns.

- **Noise:** All of the build alternatives would result in noise impacts to sensitive receptors along the I-710 corridor.

- **Utility Relocations:** The project design is not advanced enough to determine the specific locations of some utility relocations, especially

the 66 kV lines owned by Southern California Edison between I-405 and SR-91.

- **Acquisition of Private Property/ Displacements:** Although the design of the build alternatives has been refined to minimize the need to acquire private property for the project, acquisition of property and displacement of existing residences and businesses may be controversial with individual property owners.

Caltrans, Metro, and the other I-710 Funding Partners are continuing to work with the community to resolve concerns within the ongoing community participation framework of the I-710 Corridor Project.

S.8 COORDINATION WITH PUBLIC AND OTHER AGENCIES

Early and continuing coordination between the general public and public agencies with the I-710 Corridor Funding Partners (Caltrans, Metro, GCCOG, POLB, POLA, SCAG, and I-5 JPA) has been and will continue to be an essential part of the environmental process in order to determine the scope of environmental documentation, the level of analysis, any potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including an extensive multitiered community participation process with numerous public meetings and interagency coordination meetings. Chapter 5.0 summarizes the results of the efforts by Caltrans, Metro, and the I-710 Corridor Project partner agencies to fully identify, address, and resolve project-related issues through early and continuing coordination.

S.9 SUMMARY COMPARISON OF ALTERNATIVES

Table S-3 on the following page provides a summary comparison of Alternative 1, Alternative 5A, and Alternatives 6A/B/C for key environmental topics of concern.

Table S-3 Summary Comparison of Alternatives					
Alternatives & Environmental Topics	**Alternative 1 - No Build**	**Alternative 5A**	**Alternative 6A**	**Alternative 6B**	**Alternative 6C**
Alternative Descriptions	No change to I-710	Widen I-710 to 10 lanes (5 lanes each direction) and modernize I-710 geometrics • Improves 42 local arterial intersections • Includes a Corridor Aesthetic Master Plan	Widen I-710 to 10 lanes (5 lanes each direction), modernize geometrics, and add a separated freight corridor (2 lanes each direction, 4 lanes total) • Improves 42 local arterial intersections • Includes a Corridor Aesthetic Master Plan	Same as Alternative 6A, but the separated freight corridor is for zero-emission trucks	Same as Alternative 6B with the separated freight corridor for zero-emission trucks, but the freight corridor is tolled
Air Quality/ Health Risk Assessment	The I-710 Corridor project would not be implemented. However, air quality would decrease and public health risk would increase over time due to increased traffic and congestion within the I-710 Corridor Study Area.	• Project area particulate matter emissions increase compared to no project conditions • Mobile source air toxics (MSAT) and criteria pollutant emissions would decrease compared to existing conditions • Reduced public health risk at most locations, but at some near-roadway locations emissions/ cancer risk would increase	• Project area particulate matter emissions increase compared to no project conditions • MSAT emissions and criteria pollutant emissions would decrease compared to existing conditions • Public health risk would be similar to the health risks associated with Alternative 5A	• Project area particulate matter emissions decrease compared to no project conditions • MSAT emissions and criteria pollutant emissions decrease compared to existing conditions • Alternative 6B has the fewest near-roadway locations with increased emissions/cancer risk	• Project area particulate matter emissions increase compared to no project conditions • MSAT and criteria pollutant emissions decrease compared to existing conditions. • Reduced public health risk at most locations, but emissions/cancer risk increases at some near-roadway locations

Table S-3 Summary Comparison of Alternatives					
Alternatives & Environmental Topics	**Alternative 1 - No Build**	**Alternative 5A**	**Alternative 6A**	**Alternative 6B**	**Alternative 6C**
Community Impacts					
Displacements	No displacements	115 residential and 88 nonresidential displacements	Between 183 and 261 residential and between 177 and 198 nonresidential displacements (depending on the design option)	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Access	No changes to access	• Improved pedestrian access • Alternative routes maintain existing access • Addition of a new I-710/Slauson Ave. interchange	• Improved pedestrian access • Alternative routes maintain existing access • Addition of a new I-710/Slauson Ave. interchange • Closure of I-710/ Washington Blvd. interchange under Design Option 3	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Parks & Recreation	No changes to parks and recreation facilities	Impacts to the following facilities: Parque Dos Rios, Rancho Rio Verde Riding Club, Golf Learning Center, Compton Par 3 Golf Course, Coolidge Park, Bandini Park, Cesar E. Chavez Park access/ parking benefit, Los Angeles River Trail improved access	Impacts to the following facilities: Parque Dos Rios, Rancho Rio Verde Riding Club, Golf Learning Center, Compton Par 3 Golf Course, Coolidge Park, Bandini Park, Cesar E. Chavez Park access/ parking benefit, Los Angeles River Trail improved access	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Noise	The build alternatives would not be implemented. Therefore, there would be no noise impacts.	• 23 noise barriers • 9 miles of proposed noise barriers • Noise barriers proposed for all sensitive land uses	• 46 noise barriers • 19 miles of proposed noise barriers • Noise barriers proposed for all sensitive land uses	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C

Table S-3 Summary Comparison of Alternatives					
Alternatives & Environmental Topics	**Alternative 1 - No Build**	**Alternative 5A**	**Alternative 6A**	**Alternative 6B**	**Alternative 6C**
Visual	The build alternatives would not be implemented. Therefore, there would be no visual impacts from the I-710 Corridor project.	Alternative 5A would have less visual impact than Alternatives 6A/B/C, because it does not include the elevated freight corridor.	Greater level of visual impact than Alternative 5A because it includes construction of the elevated freight corridor visible from nearby residential areas. The most substantial adverse visual impacts are in Long Beach and South Gate, due to close proximity to freeway-to-freeway interchanges, sound barriers, and the elevated freight corridor.	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Hazardous Waste	No changes to the existing physical environment and would not result in hazardous waste impacts	All new right-of-way for Alternative 5A would be evaluated to ensure it is free of hazardous waste prior to acquisition.	Prior to acquisition, all new right-of-way would be evaluated to ensure it is free of hazardous waste. Elevated freight corridor reduces public health risk from hazardous waste spills by separating truck traffic from automobile traffic.	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Traffic	No improvements to I-710, other than those currently planned. Traffic conditions would continue to deteriorate over time due to increased traffic volumes caused by regional growth in traffic.	• Compared to the other build alternatives, 5A has the greatest number of I-710 segments that operate at level of service (LOS) E/F in 2035 • Adverse impacts to four intersections in the project Study Area	• Compared to the other build alternatives, 6A has the third fewest number of I-710 segments that operate at LOS E/F in 2035 • Adverse impacts to four intersections in the project Study Area	• Compared to the other build alternatives, 6B has the fewest number of I-710 segments that operate at LOS E/F in 2035 • Adverse impacts to four intersections in the project Study Area	• Compared to the other build alternatives, 6C has the second fewest number of I-710 segments that operate at LOS E/F in 2035 • Adverse impacts to four intersections in the project Study Area

Table S-3 Summary Comparison of Alternatives					
Alternatives & Environmental Topics	**Alternative 1 - No Build**	**Alternative 5A**	**Alternative 6A**	**Alternative 6B**	**Alternative 6C**
Water Quality	No treatment of roadway surface runoff	Impervious surface would be increased by 110 acres. Percentage of treated runoff from these new impervious surfaces is not currently available.	Impervious surface would be increased by 326 acres. A total of 83 percent of the runoff from the new impervious surfaces would be treated.	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Cultural Resources	The build alternatives would not be implemented. Therefore, there would be no impacts to historic resources from the I-710 Corridor project.	Impacts to four historic resources: UP Railroad, Dale's Donuts, Boulder Dam-Los Angeles 287.5 kV Transmission Line, and Civic Center Community Building. It was determined there would be no adverse effect on historic properties.	Impacts to four historic resources: UP Railroad, Dale's Donuts, Boulder Dam-Los Angeles 287.5 kV Transmission Line, and Civic Center Community Building. It was determined there would be no adverse effect on historic properties.	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C
Biology/ Natural Resources	Alternative 1 would not impact estuarine and riparian/riverine habits.	Permanent direct impacts to 0.94 acres of estuarine and riparian/riverine habitats and permanent indirect impacts to 13.46 acres of this habitat.	Permanent direct impacts to 4.08 acres of estuarine and riparian/riverine habitats and permanent indirect impacts to 16.21 acres of this habitat.	Impacts are the same for Alternatives 6A/B/C	Impacts are the same for Alternatives 6A/B/C

I-710 = Interstate 710
kV = kilovolts
UP Railroad = Union Pacific Railroad