

### 3.24 CONSTRUCTION IMPACTS

This section describes the construction methods and related types of impacts considered for the build alternatives. Construction methods are the basis for assessing and qualifying the potential environmental impact from construction activities. These construction methods will be used to prepare, construct, and implement the typical highway and freight corridor improvements that make up the build alternatives.

#### 3.24.1 CONSTRUCTION METHOD APPROACH

This section identifies the types of construction associated with the alternatives, describes the typical sequence and methods for each type of construction (mainline/interchanges and freight corridor), and discusses potential construction-related impacts.

##### 3.24.1.1 HIGHWAY IMPROVEMENT PROCESS

**CONSTRUCTION WORKSITE CHARACTERISTICS.** The worksite for a highway capacity improvement project is the existing highway right-of-way and additional right-of-way (including any temporary construction easements) that has been acquired for the project. The defining characteristic of this worksite is the need to maintain traffic on the existing highway during construction of the improvement. During construction, traffic is first shifted to one side of the existing roadway while the opposite side is improved (e.g., new retaining walls and pavement installed to widen the roadway, barriers installed or replaced), then traffic is shifted back onto the newly improved portion while the other side is improved. Operational issues associated with construction require coordination between the construction contractors and responsible agencies.

**TYPICAL CONSTRUCTION SEQUENCE.** The typical construction sequence will be:

- Pre-construction activities
- Mobilization and site preparation—Clear any remaining buildings or other improvements from any new right-of-way.
- Initial traffic control phase—Implement a plan for the temporary protection and direction of traffic. The initial traffic control plan phase may include construction of new sound walls along the new edge of the right-of-way.
- Repeat for each traffic control phase—Remove the portions of existing structures; construct the portions of new structures and bridges, existing structure widening, and existing embankment widening or excavations; and widen pavement and install temporary pavement markings. Repeat for the next phase of the traffic control plan.

- Final traffic control plan phase—Construct new wearing surface across entire width of each direction of roadway and install final pavement markings.
- Finishes—Construct elements such as signage and landscaping (this phase may start prior to the final traffic control phase).

**PRE-CONSTRUCTION ACTIVITIES.** Pre-construction activities will include the following:

- Coordination with affected Interstate 710 (I-710) Corridor cities.
- Develop project aesthetics plan within public participation framework.
- Coordination with utility providers and appropriate potholing and other activities to locate and clearly mark the types and locations of all utility facilities in the project disturbance limits.
- Coordination with utility providers on protection in place, relocation, and/or removal of utility facilities in the disturbance limits.
- Execution of detailed soils and geotechnical testing.
- Execution of hazardous waste contamination testing and site remediation, as needed.

**MOBILIZATION AND SITE PREPARATION.** The key mobilization activity will be to develop a traffic control plan for the temporary protection and direction of traffic. As part of this, coordination with emergency service providers regarding detours and other traffic conditions will be ongoing.

The proposed project is expanding the highway right-of-way; therefore, site preparation will include:

- Installation of fencing around construction and staging areas.
- Delineation of disturbance limits and any environmentally sensitive areas or other areas to be avoided.
- Clearing, grading, and preparation of the field office location(s) and staging areas.

- Moving construction equipment to the staging areas and around the construction areas.
- Clearing the new right-of-way of conflicting structures, obstructions, and utilities.

The proposed project includes replacing existing structures and pavement; therefore an aggregate (pavement) crushing plant to recycle used pavement into new aggregate may be established. The crushing plant will not be mobilized until sufficient material has been removed to allow several months of continuous operation. (If the project does not require recycling, the contractor will dispose of the waste material, either as embankment material or at a disposal site.)

Best management practices (BMPs) will be implemented on an ongoing basis, consistent with the needs for each construction activity.

**INITIAL TRAFFIC CONTROL PHASE.** Each traffic control phase will shift traffic away from that phase's work zone and will install temporary barriers to protect workers in the work zone from traffic. The shift can use some combination of closed lanes, narrowed lanes, and the pavement shoulder for through traffic.

**EARTHWORK.** The contractor will construct the required retaining walls, embankments, and excavations. The design will attempt to balance cut and fill requirements, but severe terrain or urban conditions may require imported fill or exported cut material. If the overall schedule permits, the embankments will be allowed to consolidate for a year or two before pavement is placed on them. The contractor will route any existing drainage that crosses the alignment through new and extended pipes or box culverts. The contractor will install inlets and pipes, detention basins, and outfalls for roadway drainage.

**STRUCTURES.** The contractor will construct grade separation, drainage, and other bridges or concrete boxes as required.

**PAVEMENT.** The contractor will finish grading the new roadbed, install subbase, base rock, and bridge approach slabs, and may pave the new roadway. The new pavement will drain to the inlets previously constructed. The contractor will construct any transition sections required. The contractor will install pavement markings on the completed roadway.

**REPEAT FOR EACH TRAFFIC CONTROL PHASE.** Subsequent traffic control phases will shift traffic onto the completed portion of the work to create a new work zone. The contractor will construct/reconstruct the portion of the pavement and structures in the new work zone, then shift the traffic to a new traffic control phase until all new pavement and structures are complete.

**FINAL TRAFFIC CONTROL PLAN PHASE.** For some roadway widening, when the temporary barrier is removed, the contractor will overlay a new pavement wearing surface across the entire roadway width. This paving could be done at night, when traffic volumes are reduced, and may take several nights. The contractor will install temporary pavement markings as the new top layer is installed. The contractor will install permanent markings after the new pavement has aged for a week.

**UNIQUE FEATURES OF ALTERNATIVES 6B AND 6C.** Due to the zero-emission features of Alternatives 6B and 6C, special facilities will need to be installed. For Alternative 6B, overhead catenary structures may need to be installed provided this is the method of conveyance chosen for the zero-emission freight corridor. For Alternative 6C, tolling facilities will also be installed.

**FINISHES.** Construction of the new pavement wearing course and markings may complete the project, or construction may continue with shoulder barriers, signage, and landscaping.

### 3.24.2 TYPICAL CONSTRUCTION IMPACTS

This section describes construction impacts that are typical to all build alternatives. Temporary impacts to affected resources are described in Section 3.24.3.

- Traffic plan lane closures and lane narrowing will divert more traffic demand than will be added as a result of construction traffic.
- The existing roadway drainage will be disrupted during construction. The construction contractor will use silt fences, hay bales, and other measures to control runoff and erosion.
- Roadway widening will generate waste pavement and waste structural concrete that will either be placed in landfills or recycled.
- Most roadway widening activities will not increase the ambient highway noise level. Demolition and pile driving are inherently noisy and will be audible at nearby land uses, but these activities and their associated noise will also be of comparatively short duration compared to the paving activities.
- Much of the work involved in setting up the traffic control phases, demolishing existing structures, and final paving will take place at night, when traffic volumes are less. The night worksites will be illuminated, and the illumination may have an impact on adjacent land uses.

- Roadway projects will generate short-term pollutant noise increases and air emissions (fugitive dust emissions, mobile source emissions and asbestos) (see Section 3.24.3.13 for more detail regarding temporary impacts to air quality)

### 3.24.3 CONSTRUCTION IMPACTS ON SPECIFIC RESOURCES

#### 3.24.3.1 LAND USE

The information in this section is based on the CIA (March 2011) and the *Section 4(f) Evaluation* (June 2012). Construction will temporarily affect nearby land uses. Temporary construction impacts will include disruption of local traffic patterns and access to residences and businesses; increased traffic congestion; and increased noise, vibration, and dust. Although some businesses could close or relocate during a prolonged construction period, this impact will be localized and will not likely result in long-term changes in land use.

Table 3.24-1 lists the temporary direct and indirect impacts to parks and recreation facilities by the build alternatives.

In addition, construction of the build alternatives will result in temporary impacts to pedestrian and bicyclist access points to regional and local trails and 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 where construction activities will occur. While these impacts will cease after completion of construction, measures are provided in Section 3.24.4.1 to minimize impacts and maintain connectivity and access for pedestrians and bicyclists during construction.

#### 3.24.3.2 GROWTH

The information in this section is based on the CIA, the *I-710 Railroad Goods Movement Study* (Metro, 2009), and the *I-710 EIR/EIS Initial Feasibility Analysis* (Metro, 2009). Construction activities related to the I-710 Corridor Project will occur over an extended time period, and construction of the build alternatives will result in an increase in construction-related (direct and indirect) jobs (see Section 3.3.1 for additional detail). These direct and indirect employee needs will likely be accommodated by the existing labor pool within the Study Area since the unemployment rate in the Study Area currently ranges from 8 percent to 22 percent. Therefore, because of the availability of workers in the local communities, construction of the build alternatives will not increase demand for population or housing in the Study Area and will not result in additional growth-related effects related to population and housing growth.

**Table 3.24-1 Temporary Direct and Indirect Impacts to Park and Recreational Facilities**

Park	Address	Owner/ Operator	Direct or Indirect Impact
Cesar E. Chavez Park	401 Golden Ave.	City of Long Beach	<p>The build alternatives will require the temporary use of 6.1 acres in the southern part of the Park for a TCE during project construction.</p> <p>During construction of the build alternatives, parts of Cesar E. Chavez Park may be temporarily closed to public access, to protect the safety of park users and the project construction workers. The closed areas will not be used for any construction activities and will be returned to public use in the same or better condition as when the areas were closed off to public access.</p> <p>The basketball court west of Cesar E. Chavez Elementary School will be removed temporarily during project construction.</p> <p>The build alternatives will require the temporary use of 0.41 acre of land for a detour road in the Park during construction of realigned Broadway.</p>
Wrigley Heights No. 2	Planned	City of Long Beach	<p>During construction, the build alternatives will result in temporary impacts to access along Wardlow Rd.; however, a TMP will be prepared to minimize access impacts and provide detours and alternate access points. These impacts will cease once construction was complete.</p>
Tanaka Park	1400 W. Wardlow Rd.	City of Long Beach	<p>During construction, the build alternatives will result in temporary impacts to access along Wardlow Rd.; however, a TMP will be prepared to minimize access impacts and provide detours and alternate access points. These impacts will cease once construction was complete.</p>
Golf Learning Center	3701 Pacific Pl.	Private	<p>During construction, the build alternatives will result in temporary impacts to access along Pacific Pl; however, a TMP will be prepared to minimize access impacts and provide detours and alternate access points. These impacts will cease once construction was complete.</p>
Coolidge Park	352 E. Neece St.	City of Long Beach	<p>During construction, the build alternatives will result in temporary impacts to access along Artesia Blvd.; however, a TMP will be prepared to minimize access impacts and provide detours and alternate access points. These impacts will cease once construction was complete.</p>

**Table 3.24-1 Temporary Direct and Indirect Impacts to Park and Recreational Facilities**

Park	Address	Owner/ Operator	Direct or Indirect Impact
Maywood River Park	5000 Slauson Ave.	City of Maywood	During construction, the build alternatives will result in temporary impacts to access to the park from Slauson Ave.; however, a TMP will be prepared to minimize access impacts and provide alternate access points, if necessary. These impacts will cease once construction was complete.
Spane Park	14400 Gundry Ave.	City of Paramount	During construction, the build alternatives will result in temporary impacts to access along Rosecrans Ave.; however, a TMP will be prepared to minimize access impacts and provide detours and alternate access points. These impacts will cease once construction was complete.
Ralph C. Dills Park	6500 San Juan St.	City of Paramount	During construction, the build alternatives will result in temporary impacts to access along Rosecrans Ave.; however, a TMP will be prepared to minimize access impacts and provide detours and alternate access points. These impacts will cease once construction was complete.
Meadows Park	15753 Gundry Ave.	City of Paramount	During construction, the build alternatives have the potential to result in temporary impacts to access along Alondra Blvd.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Circle Park	10129 Garfield Ave.	City of South Gate	During construction, the build alternatives have the potential to result in temporary impacts to access along Garfield Ave; a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Imperial Equestrian Center	5543 Leeds St., South Gate	Private	During construction, the build alternatives have the potential to result in temporary impacts to access along Imperial Hwy. west of the equestrian center; however, a TMP will be prepared to minimize impacts and provide detours). These potential impacts will cease once construction was complete.
Parque Dos Rios	Adjacent to Los Angeles River, north of Imperial Hwy., and east of I-710	Watershed Conservation Authority	During construction, the build alternatives have the potential to result in temporary impacts to access along Imperial Hwy.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.

Source: *Community Impact Assessment*, 2012.

I-710 = Interstate 710

TMP = Traffic Management Plan

### 3.24.3.3 COMMUNITY IMPACTS

The information in this section is based on the CIA.

**BUILD ALTERNATIVES.** 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. Table 3.24-2 lists the short-term access disruptions to community facilities by the build alternatives.

In addition, temporary jobs will be created by the construction of the build alternatives. As shown in Table 3.24-3, construction employment has two components, direct and indirect.

The direct component is the number of construction jobs that are created to complete the I-710 Corridor Project. The indirect component is the additional employment and business activity that will be generated in the regional economy by the initial construction expenditure for the I-710 Corridor Project. Alternative 5A will generate an estimated 24,624 direct and 47,434 indirect construction jobs, for a total of 72,058 jobs. These construction jobs will generate temporary employment and revenues for both the local and regional economies. Alternatives 6A/B/C will generate the highest number of temporary jobs, generating between 47,975 (Alternative 6A, Option 3) and 52,649 (Alternative 6B, Option 1) direct jobs and between 92,415 (Alternative 6A, Option 3) and 101,419 (Alternative 6B, Option 1) indirect jobs, for a total of between 140,390 and 154,068 construction jobs.

A Traffic Management Plan (TMP), as described in Chapter 2 and Section 3.24.4.5, will also be implemented for the I-710 Corridor Project in a cost-efficient and timely manner with minimal interference to the traveling public. The TMP, when implemented, will minimize construction-related traffic delay by the effective application of traditional traffic mitigation strategies and innovative combinations of public and motorist information, demand management, incident management, system management, alternative route strategies, construction strategies, and other strategies.

Additionally, temporary construction impacts will occur under all build alternatives and will occur for property owners whose properties are fully acquired and require relocation. These property owners will be temporarily impacted during the relocation process.

Lastly, construction activities will temporarily affect environmental justice populations. Temporary construction impacts will include disruption of local traffic patterns and access to residences and businesses, increased traffic congestion, and increased noise, vibration and dust. However, construction activities will provide jobs, which will benefit local economies that include minority and low-income populations.

**Table 3.24-2 Temporary Direct and Indirect Impacts to Community Facilities**

<b>Facility</b>	<b>Address</b>	<b>Owner/ Operator</b>	<b>Direct or Indirect Impact</b>
Atlantic Library	2269 Atlantic Blvd.	City of Commerce	During construction, the I-710 Corridor Project build alternatives have the potential to result in temporary impacts to access along Atlantic Blvd.; however, a TMP will be prepared to minimize impact and provide detours. These potential impacts will cease once construction was complete.
Whaley Middle School	14401 S. Gibson Ave.	Compton Unified School District	During construction, the I-710 Corridor Project build alternatives have the potential to result in temporary impacts to access along Rosecrans Ave.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Dominguez High School	15301 S. San Jose Ave.	Compton Unified School District	During construction, the I-710 Corridor Project build alternatives have the potential to result in temporary impacts to access along Alondra Blvd.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Ellen Ochoa Learning Center	5027 Live Oak St.	LAUSD	During construction, the I-710 Corridor Project build alternatives have the potential to result in temporary impacts to access along Florence Ave; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Fire Station No. 3	1222 Daisy Ave.	City of Long Beach	During construction, the build alternatives have the potential to result in temporary impacts to access along Anaheim St.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Fire Station No. 11	160 E. Market St.	City of Long Beach	During construction, the I-710 Corridor Project build alternatives have the potential to result in temporary impacts to access along Long Beach Blvd.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Fire Station No. 12	6509 Gundry Ave.	City of Long Beach	During construction, the build alternatives have the potential to result in temporary impacts to access along Willow St.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Fire Station No. 13	2475 Adriatic Ave.	City of Long Beach	During construction, build alternatives have the potential to result in temporary impacts to access along Artesia Blvd.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.

**Table 3.24-2 Temporary Direct and Indirect Impacts to Community Facilities**

<b>Facility</b>	<b>Address</b>	<b>Owner/ Operator</b>	<b>Direct or Indirect Impact</b>
Police Station - Long Beach West Division	1835 Santa Fe Ave.	City of Long Beach	During construction, the build alternatives have the potential to result in temporary impacts to access along Pacific Coast Hwy.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Zion Evangelical Church	W. 14th St.	Private	During construction, the build alternatives have the potential to result in temporary impacts to access along Anaheim St.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Foursquare Church	17th St.	Private	During construction, the build alternatives have the potential to result in temporary impacts to access along Pacific Coast Hwy.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Lynwood High School	4050 Imperial Hwy.	LUSD	During construction, the build alternatives have the potential to result in temporary impacts to access along Imperial Hwy.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Lynwood Adult Education School	4050 Imperial Hwy.	LUSD	During construction, the build alternatives have the potential to result in temporary impacts to access along Imperial Hwy.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Heliotrope Avenue Elementary School	5911 Woodlawn Ave.	LAUSD	During construction, the build alternatives have the potential to result in temporary impacts to access along Slauson Ave.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Maywood Elementary School	5200 Cudahy Ave.	LAUSD	During construction, the build alternatives have the potential to result in temporary impacts to access along Slauson Ave.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Apostolic Christian Church	Located along Alamo Ave.	Private	During construction, the build alternatives have the potential to result in temporary impacts to access along Slauson Ave.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.
Zamboni Elementary School	15733 Orange Ave.	PUSD	During construction, the build alternatives have the potential to result in temporary impacts to access along Alondra Blvd.; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction was complete.

**Table 3.24-2 Temporary Direct and Indirect Impacts to Community Facilities**

Facility	Address	Owner/ Operator	Direct or Indirect Impact
Fire Station 54	4867 Southern Ave.	Los Angeles County Fire Department	During construction, the build alternatives have the potential to result in temporary impacts to access along Southern Ave., east of the fire station; however, a TMP will be prepared to minimize impacts and provide detours. These potential impacts will cease once construction is complete.

Source: *Community Impact Assessment*, 2012.  
 I-710 = Interstate 710  
 TMP = Traffic Management Plan

**Table 3.24-3 Estimated Construction Employment for the I-710 Corridor Improvement Project**

Estimated Capital Construction Costs (\$millions) <sup>1</sup>		Estimated Employment Generated			
		Direct Jobs <sup>2</sup>	Indirect Jobs <sup>3</sup>	Total Jobs	
Alternative 5A		\$2,592	24,624	47,434	72,058
Alternative 6A	Option 1	\$5,091	48,365	93,165	141,530
	Option 2	\$5,056	48,032	92,525	140,557
	Option 3	\$5,050	47,975	92,415	140,390
Alternative 6B	Option 1	\$5,542	52,649	101,419	154,068
	Option 2	\$5,208	49,476	95,306	144,782
	Option 3	\$5,200	49,400	95,160	144,560
Alternative 6C	Option 1	\$5,310	50,445	97,173	147,618
	Option 2	\$5,277	50,132	96,569	146,701
	Option 3	\$5,268	50,046	96,404	146,450

Source: *Community Impact Assessment*, 2012.

<sup>1</sup> Capital construction costs from URS, 2011.

<sup>2</sup> ARTBA estimates 9.5 new on-site construction jobs are created for every \$1 million of investment in freeway construction projects in the United States.

<sup>3</sup> ARTBA estimates 18.3 new indirect employment jobs are created for every \$1 million of investment in freeway construction projects in the United States.

ARTBA = American Road and Transportation Builders Association

I-710 = Interstate 710

3.24.3.4 UTILITIES/EMERGENCY SERVICES

The information in this section is based on the *Utility Impacts Report* (November 2011) and the CIA (March 2012).

**ALTERNATIVE 5A.** Construction activities that require closures of travel lanes and ramps under Alternative 5A 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. Because specific construction staging plans have not been developed yet, details regarding the location of or duration of traffic delays due to lane closures or ramp closures are not available.

**ALTERNATIVES 6A/B/C.** Construction activities that require closures of travel lanes and ramps under Alternative 5A will also occur under Alternatives 6A/B/C. Therefore, the implementation of Alternatives 6A/B/C could also 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 Alternatives 6A/B/C, indirect and temporary impacts as a result of the Southern California Edison (SCE) 220-kilovolt (kV), 66 kV, and Southern California Gas Company (SCG) high-pressure pipeline relocations will include traffic disruption during construction, the need for construction staging areas and temporary construction easements, the reconstruction of city streets from trenching, and the presence of construction equipment and dump trucks during construction. These impacts will be minimized with the implementation of the transportation management plan discussed in Measure TR-1 in Section 3.5, Traffic and Transportation/Pedestrian and Bicycle Facilities.

#### 3.24.3.5 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

The information in this section is based on the following documents:

- *Freeway Traffic Operations Analysis Report* (December 2011)
- *Intersection Traffic Impact Analysis Report* (February 2012)

During construction, the I-710 Corridor Project will 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. As is typical with major highway improvements, many of the details of the construction process will be determined during the design phase of the project.

A TMP will be implemented for the I-710 Corridor Project in order to construct the project in a cost-efficient and timely manner with minimal interference to the traveling public. The TMP will also address changes in pedestrian and bicycle circulation and provide measures to minimize the adverse effects of construction activities on pedestrian and bicycle travel within the Study Area.

#### 3.24.3.6 VISUAL/AESTHETICS

The information in this section is based on the I-710 Corridor Project *Visual Impact Assessment (VIA)* (December 2011) and the *Urban Design and Aesthetics Toolbox Report* (July 2011).

**ALTERNATIVE 5A.** Short-term visual impacts under Alternative 5A will 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 will cease after completion of construction. The effects of vegetation clearing will gradually improve over time as landscaping for the I-710 Corridor Project matures.

**ALTERNATIVES 6A/B/C.** Short-term visual impacts under Alternatives 6/B/C will include the same effects as described above under Alternative 5A, but will also include construction of the freight corridor. As the freight corridor will be an elevated structure for the majority of the I-710 Corridor Project, visual impacts will be greater during construction than those of Alternative 5A due to the more extensive amount of construction activities and a longer duration of construction.

#### 3.24.3.7 CULTURAL RESOURCES

The information in this section is based on the following technical reports:

- *Historic Property Survey Report* (March 2012)
- *Historical Resources Evaluation Report* (October 2011)
- *Archaeological Survey Report* (February 2012).

Impacts to cultural resources will result from construction of any of the build alternatives, not from operation of the project itself. Impacts to cultural resources are considered permanent, not temporary, as discussed in Section 3.7.

#### 3.24.3.8 HYDROLOGY AND FLOODPLAIN

This section is based on the *Los Angeles River Impact Report* (November 2011), the *Jurisdictional Delineation Report* (May 2012), the *Preliminary Hydrology Report* (November 2011) and the *Water Quality and Stormwater Runoff Study* (December 2011) for the I-710 Corridor Project.

**ALTERNATIVE 5A.** Construction equipment will be operated within the Los Angeles River and Compton Creek 100-year floodplains during construction of the bridge and levee improvements discussed under permanent impacts in Section 3.8. Following the completion of construction

activities within the 100-year floodplain, the disturbed area will be returned to the existing condition.

Construction activities have the potential to impact the natural and beneficial values of the Los Angeles River and Compton Creek by impacting water quality and jurisdictional waters. As discussed in Section 3.24.3.9, potential impacts to water quality could occur during construction of Alternative 5A due to increased erosion or accidental spills. However, BMPs, including erosion control measures, will be implemented during the construction of Alternative 5A to reduce impacts to water quality. In addition, as discussed in Section 3.24.3.17, prior to clearing or construction, highly visible barriers (such as orange construction fencing, stakes, or flags) will be installed around riparian/riverine vegetation to be preserved that will minimize impacts to jurisdictional waters during construction. Therefore, with the measures presented in Sections 3.24.4.9 and 3.24.4.17, construction of Alternative 5A will not result in short-term adverse impacts to natural and beneficial floodplain values.

**ALTERNATIVES 6A/B/C.** The temporary impacts discussed above under Alternative 5A will be applicable to floodplain impacts to the Los Angeles River, Compton Creek, and the Rio Hondo Channel under Alternatives 6A/B/C. However, because more improvements within the 100-year floodplain are proposed under Alternatives 6A/B/C than under Alternative 5A, a greater area of the floodplain will be temporarily impacted for a longer duration under Alternative 6A. Measures described above for Alternative 5A will reduce impacts to water quality, and construction of Alternatives 6A/B/C and will not result in short-term adverse impacts to natural and beneficial floodplain values.

#### 3.24.3.9 WATER QUALITY AND STORMWATER RUNOFF

This section is based on the *Water Quality and Stormwater Runoff Study* (December 2011).

**ALTERNATIVE 5A.** Evaluation of construction impacts focus on the effects to existing water quality associated with stormwater runoff from the construction site. This construction work involves the removal of the existing structures and construction of the new highway alignments and related improvements. The construction phase of the project has the potential to impact the present and future water quality of the receiving waters through the transport of pollutants. The primary impact locations having the greatest risk to water quality are areas at or adjacent to the highway and stormwater discharge points. This includes working on structures that are located within the Los Angeles River channel.

Events such as the accidental discharge of waste products produced during construction are of primary concern. Pollutants can range from trash left on the structures to petroleum hydrocarbons that have spilled in active construction areas and construction staging areas.

Equipment that is operated in the vicinity of the channels within the construction area may leak petroleum compounds and contaminate areas of the work site. In addition, staging areas utilized for the fueling of equipment also are subject to this risk. Other concerns for discharge of hazardous materials that might degrade water quality include areas set aside for the cleaning of equipment over the course of the construction period. Elevated levels of pH as well as suspended and dissolved solids are water quality parameters of concern.

Construction sites tend to disturb soil and promote erosion of channel banks. The total disturbed soil area for Alternative 5A will be 1,503 acres. At some locations the beds/banks of the affected channel structures will be modified during construction of replacement bridges. Additionally, although the Los Angeles River and related channels are currently concrete-lined, soil erosion from nearby areas could allow for the transport of solid material through surface runoff into the channels, increasing total suspended solid (TSS) levels.

Alternative 5A requires the partial removal and demolition of some existing structures. Alternative 5A will have some construction over and adjacent to the local water bodies. Alternative 5A will disturb existing channel bottom sediments. Any construction work within the channel areas will likely result in sediment resuspension and dispersal into the water column of the channels.

For the entire length of the I-710 Corridor Project, two primary levels of construction will occur: heavy construction that will disturb sediment (such as excavation of the channel bottom or foundation demolition) and light construction with minimal resuspension effects (e.g., pile driving for the erection of false work). Regardless of the type of construction activities, some resuspension of fine-grained bottom sediments will occur.

Anticipated construction activities within the Los Angeles River channel include the following:

- Excavation of existing channel levees
- Demolition of existing bridge structures
- Installation of cofferdams and/or shoring
- Pile driving within the existing channel or tidal waters
- Securing of floating work platforms to the existing channel bottom
- Erection of construction forms
- Placement of structural concrete

- Finishing of bridge structures, including painting, sandblasting, and cleanup

Regardless of the type of construction activities, some resuspension of fine-grained bottom sediments will occur.

The requirements of the Construction General Permit are based on the risk level of the project. The overall risk level is based on two factors: receiving water risk and sediment risk. A Risk Level Determination was developed for the project using composite factors. The sediment risk was calculated based on a composite Rainfall Erosivity Factor computed from the Environmental Protection Agency (EPA) website using global positioning system (GPS) coordinates from locations in downtown Long Beach, at the State Route 91 (SR-91)/I-710 interchange, and in the city of Commerce. An average LS factor of 1 was used in the calculation. The Receiving Water (RW) risk factor was determined after reviewing the 2006 303(d) listed water quality limited segments of the Los Angeles River (Reaches 1 and 2), Compton Creek, Rio Hondo River (Reach 1), and the Long Beach Harbor (Inner Harbor) for sediment impairment. Although the receiving water risk level is low for the Los Angeles River, Compton Creek, and the Rio Hondo River, there are two drainage outlets near the southern terminus of I-710 that discharge directly into the Los Angeles/Long Beach Inner Harbor. Therefore, the Project Risk Level is a Medium risk level 2 for the entire project with the exception of the outlets leading to the Long Beach inner harbor. These inlets yield a risk level of 3, or High.

The construction activity that has the greatest potential to impact groundwater involves the removal and disposal of groundwater during the excavation required for the structural I-710 foundations. The construction of support structures may require the use of either the cast-in-drilled-hole (CIDH) or cast-in-steel-shell (CISS) methods. In the CIDH method, a hole is drilled, filled with slurry to prevent cave-ins, and then pumped with concrete (which displaces the slurry and is reused). In areas of high groundwater, the hole is expected to passively fill with groundwater, which will be removed prior to filling the hole with slurry and concrete (i.e., dewatering). The removed groundwater will then be disposed of according to the selected method. This construction activity is not expected to affect groundwater movement because of the use of slurry to prevent caving and groundwater movement. The amount of dewatering necessary will be determined by the contractor's method of construction and relative groundwater elevation.

During construction, applicable construction site BMPs will be incorporated into the construction documents, including temporary soil stabilization, sediment and tracking control, and waste management. Groundwater removed during dewatering operations will be disposed of off site at approved locations or treated on site and incorporated into the grading operations. These requirements are specified in the measures provided in Section 3.24.4.9, below.

With the incorporation of the proposed site-specific BMPs during the construction phase of the I-710 Corridor Project, no adverse impacts to water quality due to construction of the proposed improvements are anticipated.

**ALTERNATIVES 6A/B/C.** Water quality impacts during construction of Alternatives 6A/B/C will be similar to those discussed above under Alternative 5A. However, temporary water quality impacts will be greater because more improvements are proposed under Alternative 6A/B/C; therefore, there will be more disturbed soil area (1,716 acres) and more work within and adjacent to the water bodies within the project area.

#### 3.24.3.10 GEOLOGY

The information in this section is based on the *Geotechnical Final Report* (January 2010) and the *Geotechnical Memorandum* for the northern portion of the Study Area (Department of Transportation Division of Engineer Service, Geotechnical Service, May 2010).

**BUILD ALTERNATIVES.** Temporary impacts are related to construction activities. Each of the build alternatives will alter existing landforms due to grading and construction activities. Construction activities may also temporarily disturb soil outside the facility footprint, but within the project right-of-way, primarily in the trample zone around work areas, heavy equipment traffic areas, and material laydown areas. Temporary impacts will include soil compaction and increased possibility of soil erosion.

During construction of the proposed project, excavated soil will be exposed, and there will be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. The proposed project will be required to adhere to the requirements of the General Construction Permit and implement erosion and sediment control BMPs specifically identified in a project Storm Water Pollution Prevention Plan (SWPPP) in order to keep sediment from moving off site into receiving waters. Refer to Section 3.24.3.9 for additional information regarding construction-related water quality issues and mitigation.

The construction activities associated with the proposed build alternatives could be impacted by ground motion, liquefaction, and possibly ground rupture (deformation) to some degree if an earthquake were to occur during construction. Implementation of safe construction practices and compliance with the California Department of Transportation (Caltrans) and California Division of Occupational Safety and Health Administration (Cal-OSHA) requirements will minimize the impacts of these conditions.

These temporary impacts will occur for any of the build alternatives, but will be greater under Alternatives 6A/B/C due to the freight corridor component of those alternatives.

#### 324.3.11 PALEONTOLOGY

The information in this section is based on the *Paleontological Resources Identification and Evaluation Report* (October 2011).

**BUILD ALTERNATIVES.** Direct impacts to paleontological resources will result from construction of any of the build alternatives but not from operation of the facility itself. Impacts to paleontological resources are considered permanent, not temporary, as discussed in Section 3.11 of this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

#### 324.3.12 HAZARDOUS WASTE/MATERIALS

The information in this section is based on the *Initial Site Assessment (ISA)* (December 2011).

**ALTERNATIVE 5A.** Hazardous materials may be encountered during excavation and construction activities for Alternative 5A.

The database review identified 19 sites that will pose a potential environmental concern during construction of Alternative 5A. Online agency database information was only available for 13 of these sites. These 13 sites include:

- Public Service Transfer Station No. 1 (Site No. 1100)
- 701 W. Baker St., Long Beach (Site No. 2049)
- Caltrans Long Beach, West Los Angeles River No. 2 (Site Nos. 2053, 2054, 2055, 2058, 2060, 2062, 2064, 2065, 2066, 2067, and 2102)
- Former Robert Shaw Controls, 100 W. Victoria St., Long Beach (Site No. 3004)
- 15116 S. Gibson Ave. (Site Nos. 3055 and 3056)
- 5201 Imperial Hwy., South Gate No. 2 (Site No. 4015)
- Southeastern Disposal and By-Product (Site No. 4020)
- GWS Nursery & Supplies, Inc. (Site Nos. 4016, 4018, 4020, and 4078)
- Caltrans – South Gate No. 2 (Site No. 4058)

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- GWS, Inc. (Site Nos. 4072, 4073, 4075, 4076, and 4078)
- South Gate Solid Fill (Site Nos. 4072, 4074, 4075, 4076, and 4078)
- 10101 Miller Wy., South Gate (Site No. 4085)
- 9301 Garfield Ave., South Gate (Site Nos. 4105, 4102, and 4213)
- 5501 E. Slauson Ave., Commerce (Site No. 5039)

Additional agency file information is required to evaluate potential impacts to the proposed project from the remaining six sites. Once the preferred design alternative has been selected, these file reviews will be completed as part of a focused parcel-by-parcel study.

The database review identified 11 sites located at arterial intersections that will pose a potential environmental concern during construction of Alternative 5A. These 11 sites include:

- Intersection ID No. 151 (Assessor's Parcel Number [APN] 6321-002-009); 2330 E. Slauson Ave., Huntington Park
- Intersection ID No. 151 (APN 6321-003-001); 2400 E. Slauson Ave., Huntington Park
- Intersection ID No. 29 (APN 7207-013-026); 2601 Atlantic Ave., Long Beach
- Intersection ID No. 29 (APN 7207-014-019); 2600 Atlantic Ave., Long Beach
- Intersection ID No. 54 (APN 6171-002-024); 11175 Long Beach Ave., Lynwood
- Intersection ID No. 63 (APN 6025-016-002); 7201 S. Alameda St., Los Angeles
- Intersection ID No. 35 (APN 7132-028-019); 5005 Long Beach Blvd., Long Beach
- Intersection ID No. 35 (APN 7133-003-033); 4990 Long Beach Blvd., Long Beach
- Intersection ID No. 61 (APN 6232-002-015); 5731 Firestone Blvd., South Gate
- Intersection ID No. 13 (APN 7272-002-009); 500 W. Anaheim St., Long Beach
- Intersection ID No. 44 (APN 7102-012-012); 7512 Alondra Blvd., Paramount

The database review identified 31 off-site properties that will pose a potential environmental concern during the construction of Alternative 5A. However, online agency database information was only available for six of these sites. These six sites include:

- 11750 Wright Rd., Lynwood
- 8601 Garfield Ave., South Gate (ARCO – Vinvale Tank Farm)
- 9510 Garfield Ave., South Gate
- 5619 Randolph St., Commerce (Southland Oil)
- 5050 E. Slauson Ave., Los Angeles (Pemaco)
- 3960 E. Washington Blvd., Commerce

Additional review of information in agency files is required to evaluate potential impacts to the proposed project from the remaining 25 sites. Once the preferred design alternative has been selected, these file reviews will be completed as part of the focused parcel-by-parcel study.

During the database review, 13 solid waste sites were identified within the project disturbance limits. These sites are previously discussed in Table 3.12-5 and shown in Figure 3.12.5 in Section 3.12, Hazardous Waste/Materials. Waste materials may be encountered during construction and/or excavation activities at those properties that operated as waste disposal sites and therefore, these sites are considered to be sites of potential environmental concern.

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. A soil investigation is needed to assess the potential presence of hazardous contaminants on the sites identified above. In addition, file reviews need to be conducted to collect additional information in order to evaluate the potential impacts of several of these sites on the I-710 Corridor Project. Considering the history and nature of activities conducted at some of the sites located within the ISA study area, contaminated groundwater may be encountered during construction. Dewatering of contaminated groundwater during construction of Alternative 5A could impair adjacent surface waters. A groundwater evaluation is needed to determine the location of any groundwater contamination.

Site investigations will be undertaken on all hazardous materials sites within the right-of-way for Alternative 5A to determine whether hazardous materials are present on site. Hazardous material spills associated with any acquired property will be removed and remediated prior to construction of Alternative 5A.

Elevated concentrations of aerially deposited lead (ADL) may be present along existing roadways that will be modified by Alternative 5A. During grading activities, there is the possibility of hazardous concentrations of ADL to be released into the environment and affect construction workers. A soil investigation is needed to determine the extent of ADL-contaminated soils adjacent to I-710.

Structures that will be removed or modified as part of Alternative 5A may contain asbestos-containing materials (ACM), polychlorinated biphenyls (PCBs), and/or lead-based paint (LBP), which could be released into the environment if not properly handled and removed for disposal. A predemolition survey for ACM and LBP is needed to determine the presence of ACM and LBP materials within structures to be demolished.

Any transformers that will be removed or relocated during construction of Alternative 5A will be considered PCB-containing unless labeled or tested otherwise. Leaking transformers that impact adjacent soils will be a concern during project construction because they could affect construction workers and the environment.

Yellow traffic stripe and pavement-marking materials (paint, thermoplastic, permanent tape, and temporary tape) that will be removed as part of the project may contain elevated concentrations of metals such as lead. Removal of these materials during project construction could affect construction workers and the surrounding environment. Yellow tape and paint will be tested for metals, such as lead, prior to removal and disposal.

Soils along the railroad tracks located near Washington Blvd., within the project disturbance limits, are assumed to be impacted by petroleum hydrocarbons, lead, and arsenic. During grading or excavation within the railroad right-of-way, hazardous concentrations of the contaminants listed above could be released into the environment and affect construction workers.

Previously unknown contaminants could be encountered at the properties to be acquired as part Alternative 5A due to poor housekeeping, improperly stored chemicals, or past spills. If not handled properly, these contaminants could affect construction workers and the surrounding environment.

**ALTERNATIVES 6A/B/C.** Temporary impacts during construction of Alternatives 6A/B/C will be similar to those discussed above for Alternative 5A. However, different database sites of potential environmental concern will be encountered during construction of Alternatives 6A/B/C. During the database review, 28 sites were identified to impact the project disturbance limits during construction under Alternatives 6A/B/C. However, online agency file review information was only available for 15 of the 28 sites. These 15 sites include:

- Public Service Transfer Station No. 1 (Site No. 1100)
- Occidental Petroleum Corporation (Site Nos. 1137 and 1139)
- 801 W. Baker St., Long Beach (Site No. 2049)
- Caltrans Long Beach, West Los Angeles River No. 2 (Site Nos. 2053, 2054, 2055, 2058, 2069, 2062, 2064, 2065, 2066, 2067, and 2102)
- Former Robert Shaw Controls, 100 W. Victoria St., Long Beach (Site No. 3004)
- 5201 Imperial Hwy., South Gate (Site No. 4015)
- Southeastern Disposal and By-Products (Site No. 4020)
- Caltrans – South Gate No. 2 (Site No. 4058)
- GWS, Inc. (Site Nos. 4072, 4074, 4073, 4075, and 4076)
- South Gate Solid Fill (Site Nos. 4072, 4074, 4075, 4076, and 4078)
- 10101 Miller Wy., South Gate (Site No. 4085)
- 930t1 Garfield Ave., South Gate (Site No. 4105)
- Former Berk Oil and PMC (Site Nos. 4112, 4113, and 4114)
- 5501 E. Slauson Ave., Commerce (Site No. 5039)
- 4560 E. Washington Blvd., Commerce (Site No. 6432)

Additional review of information in agency files is required to evaluate potential impacts to the proposed project from the remaining 13 sites. Once the preferred design alternative has been selected, these file reviews will be completed as part of the focused parcel-by-parcel study.

#### 3.24.3.13 AIR QUALITY

**CONSTRUCTION IMPACTS.** The information in this section is based on the *Air Quality and Health Risk Assessment (AQ/HRA)* (February 2012) and *Air Quality and Health Risk Assessment Addendum* (June 2012). 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 will include carbon monoxide (CO), nitrogen oxide (NO<sub>x</sub>), volatile organic

compounds (VOCs), particulate matter less than 10 microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and toxic air contaminants such as diesel particulate matter (DPM). Ozone is a regional pollutant that is derived from NO<sub>x</sub> and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction will involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects will be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities will temporarily generate PM<sub>10</sub>, PM<sub>2.5</sub>, and small amounts of CO, sulfur dioxide (SO<sub>2</sub>), NO<sub>x</sub>, and VOCs. Sources of fugitive dust will include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site will deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM<sub>10</sub> emissions will vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM<sub>10</sub> emissions will depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles will settle near the source, while fine particles will be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the EPA to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The Caltrans Standard Specifications (Section 10) pertaining to dust minimization requirements require use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust-related PM<sub>10</sub> emissions, heavy trucks and construction equipment powered by gasoline and diesel engines will generate CO, SO<sub>2</sub>, NO<sub>x</sub>, VOCs, and some soot particulate (PM<sub>10</sub> and PM<sub>2.5</sub>) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic will increase slightly while those vehicles are delayed. These emissions will be temporary and limited to the immediate area surrounding the construction site.

SO<sub>2</sub> is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting Federal standards can contain up to 5,000 parts per million (ppm) of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and ARB regulations ([Title 13, California Code of Regulations, \[CCR\] Sections 2281-2285](#)), off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO<sub>2</sub> related issues due to diesel exhaust will be minimal.

**ODORS.** Some phases of construction, particularly asphalt paving, will result in short-term odors in the immediate area of paving sites. Such odors will be quickly dispersed below detectable thresholds as distance from the sites increases.

**NATURALLY OCCURRING ASBESTOS.** The project is located in Los Angeles County, which is among the counties listed as containing serpentine and ultramafic rock. However, the project site is not located within the region of the County known to contain serpentine or ultramafic rock. Therefore, the impact from naturally occurring asbestos during project construction will be minimal to none.

**CONSTRUCTION EMISSIONS.** As analyzed in the AQ/HRA, the emissions of criteria pollutants from construction activities were calculated using the Road Construction Emissions Model Version 6.3.2, developed by Sacramento Metropolitan Air Quality Management District. The model can be used to estimate emissions from both vehicle exhaust and fugitive dust. However, the emission factors used in the model for exhaust emissions are specific to the Sacramento area. Therefore, the emission factors for vehicle exhaust from South Coast Air Quality Management District (SCAQMD) were used to quantify the exhaust emissions. For analysis purposes, it was assumed that project construction will take place in seven segments (these segments were defined for preliminary engineering of the build alternatives), which may or may not overlap with each other with regard to timing of construction and is expected to take place over several years (eight to 15). According to the project schedule, some of the construction phases are expected to take more than five years to complete. However, the construction period at any one location is likely to be less than three or four years. Therefore, construction-related emissions are considered temporary; and any construction-related PM<sub>2.5</sub> and PM<sub>10</sub> emissions due to this project were not included in the hot spot analysis. This project will comply with the SCAQMD Fugitive Dust Rules for fugitive dust during construction of this project. In addition, per Transportation Conformity Rule 93.117, the project will be required to comply with any PM<sub>2.5</sub> and PM<sub>10</sub> control measures in the State Implementation Plan (SIP). Excavation, transportation, placement, and handling of excavated soils will result in no visible dust migration. A water truck or tank will be available within the disturbance limits to suppress and control the migration of fugitive dust from earthwork operations. However, as a conservative estimate of peak-day emissions, construction emissions were calculated for a “worst-case” scenario that assumed, among other things, that construction of all the segments will happen at the same time (approximately seven years). Details about the assumptions, method, and results of this “worst-case” construction scenario can be found in Appendix B of the AQ/HRA.

Tables 3.24-4 summarize the peak-day emissions of criteria pollutants for all four build alternatives for the “worst-case” construction scenario. These emissions will not occur in one

**Table 3.24-4 Criteria Pollutant Mass Emissions for Construction**

Pollutant	Peak Day (All Segments Total) (lbs/day)		Peak Day (Maximum Single Segment) (lbs/day)		SCAQMD CEQA Threshold (lbs/day)
	Alternative 5A	Alternatives 6A/B/C	Alternative 5A	Alternatives 6A/B/C	
NO <sub>x</sub>	1,364	1,510	287	287	100
CO	986	1,001	177	177	550
PM <sub>10</sub>	435	482	69	69	150
Exhaust	25	27	4	4	-
Fugitive Dust	410	455	65	65	-
PM <sub>2.5</sub>	117	129	21	21	55
Exhaust	52	57	11	11	-
Fugitive Dust	65	72	10	10	-
ROG	193	213	40	40	75

Source: *I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study*, February 2012.

Notes: Emissions are from construction equipment/activities.

Emissions estimates are conservative in that they do not assume use of green construction equipment.

Value for exhaust and fugitive dust are not peak values, but represent the constituents of PM<sub>10</sub> and PM<sub>2.5</sub> on the peak day.

Assumed that all seven segments are constructed simultaneously (maximum construction duration 87.4 months).

All numbers are rounded to an integer value.

CO = carbon monoxide

I-710 = Interstate 710

lbs/day = pounds per day

NO<sub>x</sub> = nitrogen oxides

ROG = reactive organic gases

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in diameter

PM<sub>10</sub> = particulate matter less than 10 microns in diameter

SCAQMD = South Coast Air Quality Management District

location, but be spread out along the I-710 Corridor and among the seven segments. It should be noted that it is extremely unlikely that the worst-case construction scenario could occur. All criteria pollutant single-segment peak-day emissions are below the SCAQMD threshold except NO<sub>x</sub>. The single-segment peak-day emissions may be spread out along the entire length of that segment (1.4 to 4.7 miles). Construction phasing and additional mitigation measures, if feasible, will reduce peak-day emissions. Construction minimization measures are discussed in Section 3.24.4.13.

#### 3.24.3.14 NOISE

The information in this section is based on the *Traffic Noise Study Report* (January 2012).

**CONSTRUCTION VIBRATION.** Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these

vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels that will result in damage to nearby structures. However, old and fragile structures will require special consideration to avoid damage.

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

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

Potential pile driving activities will be located within existing channel or tidal waters and approximately 50 feet from the closest residence. Therefore, residences located 50 feet from pile driving activities will be subject to a vibration level of 0.3 PPV. This vibration level is considered to be strongly perceptible and will have the potential to damage the residential structure because the structure is considered old. Other construction equipment and activities will generate vibration levels much lower than those of pile driving and will therefore result in lower vibration levels at adjacent receiver locations. Residences located further than 50 feet from these activities will experience decreasing vibration levels the further away from the pile driving activities in which residences are located. No adverse temporary groundborne vibration impacts are anticipated as a result of pile driving with implementation of avoidance and minimization measures described in Section 3.24.4.14, to conduct pre- and post-construction surveys and alternatives to pile driving, respectively, for residential structures that are located 50 feet or closer from pile driving activities.

**CONSTRUCTION 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 7-1.011, "Sound Control Requirements." These requirements state that noise levels generated during construction will comply with applicable local, State, and Federal regulations.

Figure 3.24-1 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 70 to 90 A-weighted decibels (dBA) at a distance of 50 feet. Noise produced by construction equipment will reduce over distance at a rate of about six dBA per doubling of distance. Normally, construction noise levels should not exceed 86 dBA maximum instantaneous noise level ( $L_{max}$ ) at a distance of 50 feet. No adverse noise impacts from construction are anticipated because construction will be conducted in accordance with the Caltrans standard specifications and will be short-term, intermittent, and dominated by local traffic noise.

#### 3.24.3.15 ENERGY

The information in this section is based on the *I-710 Corridor Project Energy Report* (March 2012).

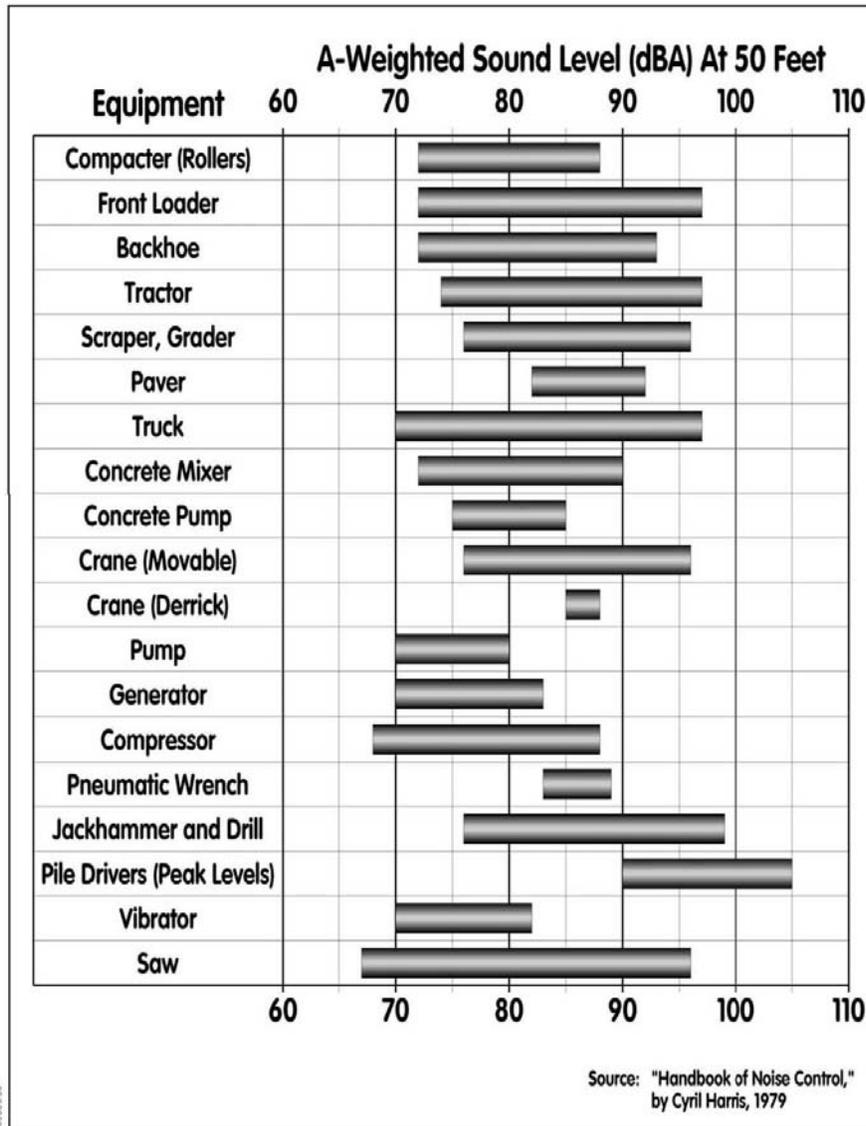
Indirect construction energy effects involve the one-time, nonrecoverable energy costs associated with construction of roads, structures, and vehicles. Based on the estimated costs to construct the build alternatives, it would take approximately 354 trillion British thermal units (BTUs) to construct Alternative 5A and 726 trillion BTUs to construct Alternatives 6A, 6B or 6C. As described in Section 3.15, Energy, there are very small direct energy savings with the build alternatives, so the payback period for the energy consumed during construction is not quantifiable. However, similar to other completed major infrastructure construction projects in Southern California, because the construction energy consumed is such a small fraction of regional energy consumption, the construction of any of the build alternatives is not likely to create a noticeable impact on short-term energy demand during project construction.

#### 3.24.3.16 NATURAL COMMUNITIES

This section is based on the *Natural Environment Study* (NES; January 2012). Temporary impacts to natural communities may occur during construction where habitats are temporarily disturbed during grading or other activities, as shown in Section 3.16, Natural Communities, Table 3.16-2. In general, Alternatives 6A/B/C will result in greater temporary impacts than Alternative 5A due to the increased number of structural columns/piers associated with Alternatives 6A/B/C.

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**Figure 3.24-1 Construction Equipment Noise Levels**



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**BUILD ALTERNATIVES.**

**ESTUARINE HABITAT.** Temporary effects are anticipated to include construction-related effects such as dust, potential fuel spills from construction equipment, and unauthorized activities of equipment or personnel outside designated construction areas, as well as operational effects such as effects on adjacent habitats caused by stormwater runoff, traffic, and litter. Temporary effects will also result in areas chosen for staging, areas directly adjacent to the placement of abutments and piers during construction, and areas beneath bridges to be demolished and removed. These construction-related effects can cause temporary water quality impacts to the Los Angeles River, which then affect the estuarine habitat present. Temporary impacts to estuarine habitat will be the same for all the build alternatives because the proposed improvements to the four bridges that are located within tidal waters are the same for Alternatives 5A and 6A/B/C. As shown in Section 3.16, Natural Communities, Table 3.16-2, Alternatives 5A and 6A/B/C are expected to result in temporary effects to approximately 8.04 acres of estuarine habitat. The figures in Appendices I and J of the NES illustrate the locations where estuarine habitat will be impacted by Alternatives 5A and 6A/B/C, respectively.

**RIPARIAN/RIVERINE HABITATS.** Temporary effects are anticipated from the placement of staging areas, construction of piers and abutments, and demolition and removal of existing bridges. Additional temporary indirect effects will include construction-related effects such as dust, potential fuel spills from construction equipment, possible night lighting during construction, and activities of equipment or personnel outside designated construction areas, as well as operational issues such as effects on adjacent habitats caused by stormwater runoff, traffic, and litter. Temporary effects will also result in areas chosen for staging, areas directly adjacent to the placement of abutments and piers during construction, and areas beneath bridges to be demolished and removed. These construction-related effects can cause temporary water quality impacts to the Los Angeles River, which then affect riparian/riverine habitat present.

Temporary impacts to riparian/riverine habitats will be greater from Alternatives 6A/B/C than from Alternative 5A. As shown in Section 3.16, Natural Communities, Table 3.16-2, Alternative 5A will result in temporary impacts to 32.00 acres of riparian/riverine habitats. Alternatives 6A/B/C are expected to result in temporary effects to 39.63 acres of riparian/riverine habitats due to the pile driving of three piers/columns within freshwater emergent marsh and riparian scrub habitats during construction of the elevated freight corridor over Drainage Box 3 (see Sheet 4 of Appendix J of the NES). Under Alternatives 6A/B/C, eight piers/columns will be driven within freshwater waters of the Los Angeles River at the location of the SR-91 crossing of the river (see Sheet 7 of the Appendix J of the NES).

Alternatives 6A/B/C will result in the driving of six additional piers/columns within the low-flow channel of freshwater waters of the Los Angeles River and five piers/columns within the upper concrete banks of the river. The figures in Appendices S-1 and S-2 of the Draft EIR/EIS illustrate the locations where riparian/riverine habitats will be impacted by Alternatives 5A and 6A/B/C, respectively.

**WILDLIFE CORRIDORS/HABITAT FRAGMENTATION.** Temporary impacts during pile-driving activities could have an effect on marine mammals (California sea lion [*Zalophus californianus*]), migratory birds, and fisheries. The percussive forces generated during any pile-driving activities associated with the four southernmost bridges may result in injury to California sea lions swimming in the estuarine portion of the Los Angeles River within and adjacent to the Biological Study Area (BSA). Migratory birds could be affected during pile-driving activities and other types of construction along the length of the corridor.

All build alternatives will include construction or expansion of 28 piers on the following four bridges over the lower Los Angeles River that could affect California sea lions and estuarine fisheries: the 7th St. bridge (seven piers), the Anaheim St. bridge (six piers), the Pacific Coast Hwy. bridge (six piers), and the Willow St. bridge (nine piers). A new bridge will be constructed over the lower Los Angeles River at 7th St., while the Anaheim St., Pacific Coast Hwy., and Willow St. bridges will be expanded. Construction and expansion of the four bridges in the lower Los Angeles River will not alter the movement of California sea lions through the channel. However, some minimal isolation of work areas (e.g., air bubble curtain system or air-filled isolation casings) in the Los Angeles River may be required to minimize indirect impacts (e.g., turbidity). These isolated work areas will be unavailable for use by wildlife. This unavailability will be temporary while work is taking place on and around bridge support structures. Once the work is completed, the bridges will not impede the movement of California sea lions through the channel.

As discussed in Section 3.24.3.19, Animal Species, portions of the Los Angeles River within the BSA provide habitat for a number of fish and bird species. Fish inhabiting Queensway Bay may occasionally move upstream to tidal and freshwater portions of the Los Angeles River. Fish and birds moving in the river may be affected by bridge construction, particularly during pile-driving activities. Construction of the bridges may also alter the movement of fish and birds through the mouth of the Los Angeles River. This impact will be temporary during the period of pile driving and bridge deck construction. Once the pile driving is completed, the bridges will not impede the movement of fish or birds through the channel.

### 3.24.3.17 WETLANDS

This section is based on the NES (January 2012) and the *Jurisdictional Delineation Report* (May 2012). As shown in Section 3.17, Wetlands and Other Waters of the United States, Table 3.17-3, the proposed project may result in temporary effects through the degradation of jurisdictional areas as a result of placement of staging areas, construction of piles and abutments, and demolition and removal of existing bridges. Additional temporary indirect effects will include construction-related effects such as dust, potential fuel spills from construction equipment, and activities of equipment or personnel outside designated construction areas, as well as operational effects such as effects on adjacent habitats caused by stormwater runoff, traffic, and litter. Temporary effects will also result in areas chosen for staging, in areas directly adjacent to placement of abutments and piles during construction, and in areas beneath bridges to be demolished and removed.

Temporary impacts to jurisdictional areas will be greater from Alternatives 6A/B/C than from Alternative 5A. A total of 38.19 acres of United States Army Corps of Engineers/Regional Water Quality Control Board (USACE/RWQCB) jurisdictional areas will be temporarily impacted under Alternative 5A, and 59.19 acres will be temporarily impacted under Alternatives 6A/B/C. Under Alternative 5A, 1.41 acres of USACE/RWQCB nonjurisdictional areas will be temporarily impacted and 7.06 acres will be temporarily impacted under Alternatives 6A/B/C. Alternative 5A will result in 52.37 acres of temporary impacts to California Department of Fish and Game (CDFG) jurisdictional areas and Alternative 6A/B/C will temporarily impact 84.81 acres. Additionally, Alternatives 6A/B/C will result in temporary impacts to the three additional areas noted in Section 3.17.3.1 in the discussion of permanent impacts.

### 3.24.3.18 PLANT SPECIES

This section is based on the NES (January 2012). Temporary impacts to populations of southern tarplant could result from implementation of any of the build alternatives. During construction, grading, staging, or other construction-related activities could disrupt populations located below the elevated corridor to be constructed as part of Alternatives 6A/B/C. In general, Alternatives 6A/B/C will result in greater temporary impacts to the populations of southern tarplant than Alternative 5A.

### 3.24.3.19 ANIMAL SPECIES

This section is based on the NES (January 2012).

**BURROWING OWL.** Temporary impacts to burrows that could be used by the owls may result from all build alternatives. Should burrows be permanently impacted, burrowing owls will likely

disperse to adjoining areas and construct new burrows in place of those that were destroyed from project implementation.

**SPECIAL-STATUS BAT SPECIES.** Temporary impacts could result to roosting bats during construction. When a night roost (a structure [natural or humanmade] in which bats roost during the evening between foraging bouts) is eliminated, the energy required for bats to successfully utilize the surrounding foraging area may be negatively affected. Although a day roost may double during the evening as a night roost if it is close to a foraging area, night roosts are used only in the evening.

Project effects to special-status bat species (including but not limited to Yuma myotis and silver-haired bat) will include temporary indirect disturbance (such as noise, vibration, dust, night lighting, and human encroachment) from construction. In addition, construction could temporarily impede access to roost sites (existing and future) in the crevices of bridges, culverts, and overhead structures. Although none of the structures identified as day and/or night roosts appear to be utilized by large numbers of bats, if several structures in a given area will be impacted at one time, there may be an impact with regard to the availability of suitable crevices for roosting. The avoidance and minimization measures described in Section 3.24.4.19 will ensure that temporary effects to bat species are absent or minimal from implementation of any of the proposed alternatives.

**OTHER SPECIAL-STATUS ANIMAL SPECIES NOT REQUIRING SURVEYS.** Temporary impacts to all animal species will be greater from implementation of Alternatives 6A/B/C than from Alternative 5A, given the greater amount of habitats permanently affected by Alternatives 6A/B/C.

Temporary impacts to other nonlisted special-status species 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. These special-status animal species could be affected indirectly by project-generated changes in water quality. Such changes could involve increased pollution levels, increased turbidity, or impacts on the fish on which they feed. However, by following the avoidance and minimization measures described in Section 3.24.4.19, temporary impacts to other special-status animal species is not expected to be substantial.

**SPECIES PROTECTED UNDER THE MARINE MAMMAL PROTECTION ACT.** Temporary impacts to marine mammals (California sea lion) will be the same from implementation of any of the build alternatives. Construction and expansion of the four bridges in the lower Los Angeles River will bring construction personnel and equipment into the area where California sea lions may occur. Although there will be an incremental increase in activity due to bridge construction, the Los Angeles River typically draws large numbers of people engaged in recreational and commercial

activities. Therefore, the temporary presence of construction personnel is not expected to adversely impact sea lions.

The percussive forces generated during any pile-driving activities may result in injury to California sea lions within and adjacent to the BSA, where estuarine habitat exists. Prior studies have shown that loud underwater sounds, such as those produced by in-water pile driving, can have detrimental effects on marine mammals. However, some minimal isolation of work areas (e.g., air bubble curtain system or air-filled isolation casings) in the Los Angeles River may be required to minimize indirect impacts (e.g., turbidity). These isolated work areas will be unavailable for use by wildlife. This impact unavailability will be temporary while work is taking place on and around bridge support structures. Additionally, implementation of avoidance and minimization measures listed in 3.24.4.19 is expected to ensure that temporary effects to marine mammals and other aquatic species will be minimal.

Project activity on dry land is not expected to impact California sea lions, provided that sediments and construction materials are retained on land and measures are implemented to prevent the movement of soil, concrete, and other construction materials into the Los Angeles River channel.

**FISHERIES PROTECTED UNDER THE MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT.** Fish moving through the river may be directly affected by bridge construction, particularly during the pile-driving activities. As previously noted, all build alternatives will include driving 28 pilings in tidal waters across the Los Angeles River at the 7th St., Anaheim St., and Pacific Coast Hwy. crossings. The percussive forces generated during pile-driving activities may result in injury and death to fish within the impact area. Injury includes damage to the auditory tissue of fishes or temporary hearing loss (THL) (ICF Jones & Stokes and Illingworth and Rodkin 2009). Temporary hearing loss occurs at lower levels than auditory tissue damage and is dependent on the size of the fish, with smaller fish being affected at lower levels than larger fish (ICF Jones & Stokes and Illingworth and Rodkin 2009). In addition to the direct effect of hearing loss or auditory tissue damage, sound levels from pile driving may also result in indirect effects such as inability to avoid predators or detect prey and inability to communicate or detect the environment (ICF Jones & Stokes and Illingworth and Rodkin 2009).

In addition to auditory tissue damage and temporary hearing loss, increased sound levels associated with pile driving may also affect fish by causing permanent physiological and anatomical damage. Nonauditory tissue damage may include capillary rupture in skin, neurotrauma, eye hemorrhage, swim bladder rupture, and death of individual fish (ICF Jones & Stokes and Illingworth and Rodkin 2009). Such impacts may be the result of single or repeated exposure to elevated sound levels.

The acoustic impact area for the I-710 Corridor Project is estimated to extend from bank to bank and upstream and downstream 1,000 meters from each crossing. This area is estimated using calculations in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin 2009).

Pile driving can be accomplished with sound levels that are below the peak and cumulative single event noise level (SEL) for fish. Through the use of proper equipment and attenuation methods (if needed), pile driving for the bridge can be completed within the acoustic limits established in the *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (ICF Jones & Stokes and Illingworth and Rodkin 2009). This technical guidance has been adopted by the National Oceanographic and Atmospheric Administration (NOAA) Fisheries, United States Fish and Wildlife Service (USFWS), Caltrans, CDFG, and the Oregon Department of Transportation.

Construction of the bridges may also alter movement of fish through the mouth of the Los Angeles River. However, some minimal isolation of work areas (e.g., air bubble curtain system or air-filled isolation casings) in the Los Angeles River may be required to minimize indirect impacts (e.g., turbidity). These isolated work areas will be unavailable for use by wildlife. This impact unavailability will be temporary while work is taking place on and around bridge support structures. Once the work is completed, the bridges will not impede the movement of fish through the channel.

Construction of the I-710 Corridor Project on dry land is not expected to impact fish, provided that sediments and construction materials are retained on land and measures are implemented to prevent the movement of soil, concrete, and other construction materials into the river channel.

**ESSENTIAL FISH HABITAT.** The I-710 Corridor Project will have a temporary adverse effect on Coastal Pelagic Management Plan Species. The I-710 Corridor Project will not impede movement of fish into and out of the Los Angeles River corridor, as no coffer dams or dewatering are proposed. Construction will have a temporary effect on fish that inhabit the river during pile-driving operations, as described above. In addition to the injury and mortality that may result from pile driving, pile driving will likely make the channel bottom in the vicinity of the bridges unsuitable for fish during pile-driving operations.

3.24.3.20 THREATENED AND ENDANGERED SPECIES

This section is based on the NES (January 2012).

**GREEN TURTLE.** All build alternatives proposed for the I-710 Corridor Project will include driving 28 pilings in tidal waters across the Los Angeles River at the 7th St., Anaheim St., and Pacific Coast Hwy. crossings. With Alternatives 6A/B/C, a greater number of pilings will be required upstream of tidal waters in freshwater areas of the Los Angeles River to accommodate improvements to 12 other bridges (Willow St., Wardlow Rd., Interstate 405 [I-405], Del Amo Blvd., Long Beach Blvd., SR-91, Alondra Blvd., Interstate 170 [I-170], Imperial Hwy., I-710 as it crosses to west side of the Los Angeles River, Southern Ave., Firestone Blvd., Clara St., Florence Ave., Gage Ave., Randolph St., and Slauson Ave.).

Any green turtles that might visit the area around the mouth of the Los Angeles River (outside of the BSA) could be temporarily affected indirectly by changes in water quality originating upstream. Such changes could involve increased pollution levels, increased turbidity, or impacts on sea grasses and algae on which green turtles feed. However, by following the avoidance and minimization measures outlined below and in Section 3.24.4.9, Section 3.24.4.16, and Section 3.24.4.19, no noticeable changes in water conditions will occur.

**CALIFORNIA BROWN PELICAN.** Temporary impacts to California brown pelican 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. Furthermore, brown pelicans could be affected indirectly by temporary project-generated changes in water quality. Such changes could involve increased pollution levels, increased turbidity, or impacts on the fish on which they feed. However, these impacts will be avoided or minimized by following the measures outlined in Section 3.24.4.9, Section 3.24.4.16, and Section 3.24.4.19.

This species is a large, highly mobile bird that frequently habituates to urbanized marine environments such as the Los Angeles River. For example, under a USFWS approved protocol, biologists have been conducting year-round monitoring of California brown pelicans (and other special-status birds) during ongoing construction of the San Francisco Oakland Bay Bridge Seismic Safety Project for over six years. Monitoring includes observing brown pelicans and other bird species during multiple periods of large (eight foot) and small diameter pile driving. During the monitoring surveys biologists have not observed behavior that indicates brown pelicans have been disturbed during construction activities, including all types of pile driving. Pelicans were frequently observed flying through or foraging near marine construction areas during pile driving and other activities with no apparent adverse effects. Based on the Bay

Bridge observations,<sup>1</sup> brown pelicans foraging in the Los Angeles River are expected to avoid construction activities that might distress them and/or will quickly habituate to project construction activities, including pile driving. It is likely that brown pelicans foraging in the area of the Los Angeles River corridor are already habituated to relatively high ambient noise levels due to traffic on I-710 freeway and the surrounding urban environment.

**AMERICAN PEREGRINE FALCON.** Temporary impacts to American peregrine falcon 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. Furthermore, peregrine falcons could be affected indirectly by project-generated changes in water quality. Such changes could involve increased pollution levels, increased turbidity, or impacts on aquatic organisms on which they feed. However, these impacts will be avoided or minimized by following the measures outlined in Section 3.24.4.9, Section 3.24.4.16, and Section 3.24.4.19.

**CALIFORNIA LEAST TERN.** Temporary impacts to California least tern 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. Furthermore, California least terns could be temporarily affected indirectly by project-generated changes in water quality. Such changes could involve increased pollution levels, increased turbidity, or impacts on the fish on which they feed. By following the avoidance and minimization measures outlined in Section 3.24.4.9, Section 3.24.4.16, and Section 3.24.4.19, no noticeable changes in water conditions will occur. This species leaves California altogether for more than half of each year so that, other than long-term effects on fish populations (final source), there will be no effects when the species is absent.

#### 3.24.3.21 INVASIVE SPECIES

Impacts related to invasive species are considered permanent impacts because the introduction of invasive species into previously undisturbed areas will permanently affect the habitat. Therefore, temporary impacts related to invasive species are described in Section 3.21, Invasive Species under permanent impacts.

#### 3.24.3.22 CUMULATIVE IMPACTS

Temporary cumulative impacts as a result of the proposed project, in combination with other past, present and future projects, are anticipated to occur if projects are under construction

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<sup>1</sup> Weekly observation memos posted at [biomitigation.org](http://biomitigation.org).

concurrently (see Table 3.25-2 in Section 3.25, Cumulative Impacts, which lists the planned construction schedule for major projects in the Study Area), but 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 an adverse cumulative impact on humans or the physical environment. Additionally, it is possible that, if more than one project is being constructed in the same general area, there could be a cumulative effect on consumption of local resources such as fuel, energy, construction materials, etc. 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 will be coordinated to ensure adequate circulation in the area.

#### 3.24.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance, minimization, and/or mitigation measures are proposed to reduce the construction impacts of the I-710 Corridor Project build alternatives.

##### 3.24.4.1 LAND USE

As previously discussed in this section, the build alternatives will result in temporary land use impacts from construction of the I-710 Corridor Project. Measures are provided below to reduce these impacts. In addition, as part of the TMP specified in Mitigation Measure TR-1 in Section 3.5 (Traffic and Transportation/Pedestrian and Bicycle Facilities) of this Draft EIR/EIS, a plan to maintain business access will also be provided. Avoidance, minimization, and mitigation measures to reduce construction impacts to parks and recreational trails are described in Section 3.1.3.3 of this Draft EIR/EIS.

**CON-1** During construction, the California Department of Transportation (Caltrans) will require the construction contractor to maintain vehicular and pedestrian access to businesses within the construction area throughout the construction period. If existing access points are disrupted, alternative access will be provided. Appropriate signage and temporary sidewalks will be provided as needed throughout construction, and the construction contractor will provide and maintain appropriate signage to direct both pedestrian and vehicular traffic to businesses via alternate routes. Disabled access will also be maintained during construction.

**CON-2** During construction, Caltrans will require establishment of one or more public information field office(s) near the construction site(s). The field office(s) will serve the following purposes:

- Provide the community and businesses with a physical location where information pertaining to construction can be obtained in both English and Spanish
- Enable Caltrans staff to facilitate communication between Caltrans staff and residents and business operators
- Notify property owners, residences, and businesses of major construction activities (e.g., utility relocation/disruption, rerouting of delivery trucks) at least 14 days prior to the disruption
- Respond to phone inquiries
- Coordinate business outreach programs

#### 3.24.4.2 GROWTH

There are no temporary adverse growth-related effects of the build alternatives; therefore, no avoidance, minimization, and/or mitigation measures are required.

#### 3.24.4.3 COMMUNITY IMPACTS

The build alternatives have the potential to result in temporary impacts to access, potentially resulting in a short-term impact to community character and cohesion. A minimization measure is included in Section 3.24.4.5 of this Draft EIR/EIS to further reduce potential temporary impacts to access as a result of construction.

#### 3.24.4.4 UTILITIES/EMERGENCY SERVICES

The build alternatives will result in temporary impacts to fire, law enforcement, and emergency service response times as a result of construction. The following measures are provided below to reduce these impacts.

**CON-3 FIRE, LAW ENFORCEMENT AND EMERGENCY SERVICES.** Prior to and during construction, Caltrans and the construction contractor will coordinate all temporary ramp closures and detour plans with fire, emergency medical, and law enforcement providers to minimize temporary delays in emergency response times as part of the Traffic Management Plan (TMP), including the identification of alternative routes and routes across the construction areas for emergency vehicles, developed in coordination with the affected agencies.

**CON-4 UTILITIES.** Major utility relocations will be subject to preparation of Specific Utility Relocation Plans. For temporary impacts, the Specific Utility Relocation Plans will include (Specific Utility Relocation Plan elements for permanent impacts are included in Section 3.4, Utilities and Emergency Services):

- Description of proposed changes/demolition of existing facilities.
- Identification of potential conflicts that need to be resolved with the relocation plan, including temporary roads and staged construction.
- A work plan that describes the nature of the construction activity, haul routes, a construction traffic management plan if warranted, hours of construction, construction duration and schedule, planned service interruptions, if any, types of construction activities, and anticipated noise level.
- A summary of existing and planned Utility Team Coordination Meetings that will include all utility companies affected by the project. The meetings will occur during the final design phase and include final design and construction staging. The meeting participants will discuss and plan a workable sequence of utility alterations so that the utility work can be coordinated and, where possible, completed in advance of highway work. Topics to be addressed include sensitive environmental areas, hazardous material sites, erosion controls during construction, and any community events that will be occurring during construction and need to be accommodated.
- A determination if a community meeting will be held prior to the issuance of demolition and grading permits. Community meetings will be held for major utility relocations that are (1) within 500 feet of residences or schools, and (2) that will require construction duration of 30 days or more. Caltrans will hold a community pre-construction meeting, in concert with the construction contractor, to provide information regarding the construction schedule and activities. The construction information will include the location and duration of each construction activity, whether or not and, if applicable, the specific location, days, frequency, and duration of the pile driving that will occur, construction traffic management plans, and any accommodation of community events that will be occurring during the construction period. Notification of this meeting will be provided to owners and occupants within 500 feet of the utility relocation site.

**CON-5** Prior to grading activities, Caltrans will require the construction contractor to notify Underground Service Alert (USA) at least two days prior to excavation by calling 811 to require that all utility owners within the project disturbance limits identify the locations of underground transmission lines and facilities.

#### 3.24.4.5 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

Implementation of the I-710 Corridor Project will cause temporary impacts during the construction phase. The following measure is proposed to address these impacts.

**CON-6** **Traffic Management Plan.** Prior to construction, Caltrans will prepare a TMP to address short-term traffic impacts during construction of the Interstate 710 (I-710) Corridor Project. The objectives of the TMP are to:

- Maintain traffic safety during construction;
- Maintain an acceptable level of traffic flow throughout the transportation system during construction;
- Minimize traffic delays and facilitate reduction in the overall duration of construction activities;
- Minimize detours and impacts to pedestrians and bicyclists; and
- Foster public awareness of the project and construction-related impacts.

The TMP will include the elements recommended in the Caltrans TMP Guidelines (June 2009) including:

- Public information;
- Traveler Information Strategies;
- Incident Management;
- Construction Strategies;
- Demand Management; and
- Alternate Route Strategies

#### 3.24.4.6 VISUAL/AESTHETICS

Mitigation measures have been identified and are described below to avoid, minimize, or reduce the adverse visual impacts that may result from construction of the I-710 Corridor Project.

**CON-7**        **Construction Plan.** Prior to the start of construction, to address adverse impacts associated with views of construction access and staging areas, Caltrans will require the construction contractor to construct the project in accordance with the Caltrans Standard Construction Specifications, including appropriate measures to address visual impacts during construction.

#### 3.24.4.7 CULTURAL RESOURCES

Although the cultural resource studies for the I-710 Corridor Project identified three historic properties and one Local Landmark/historical resource that will be impacted by all of the build alternatives; the features that qualify the resources as a historic property, Local Landmark, and/or a historical resource will not be impacted. However, the following measures will be implemented to address the discovery of cultural resources or human remains during project construction:

**CON-8**        If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

**CON-9**        If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County of Los Angeles (County) Coroner will be contacted. Pursuant to Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendant (MLD). At that time, the District 7 Environmental Branch Chief or the District 7 Native American Coordinator will be contacted so that he/she may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

#### 3.24.4.8 HYDROLOGY AND FLOODPLAIN

Measures to minimize temporary construction impacts on the natural and beneficial floodplain values related to water quality are discussed in Section 3.24.4.9. Measures to minimize temporary construction impacts to jurisdictional waters are discussed in Section 3.24.4.17.

#### 3.24.4.9 WATER QUALITY

Compliance with standard requirements and permits listed below will minimize short-term, construction-related impacts to water quality.

**CON-10** Caltrans will require the construction contractor to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) and any subsequent permit as they relate to construction activities for the project. This will include submission of the Permit Registration Documents, including a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Quality Control Board (SWRCB) at least 14 days prior to the start of construction. The SWPPP will meet the requirements of the Construction General Permit and will identify pollutant sources associated with construction activities; identify non-stormwater discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain best management practices (BMPs) to reduce or eliminate pollutants associated with the construction site. The BMPs identified in the SWPPP will be implemented during project construction. A Notice of Termination (NOT) will be submitted to the SWRCB upon completion of construction and the stabilization of the site.

**CON-11** Caltrans will require the construction contractor to comply with the provisions of the Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties, Order No. R4-2008-0032, NPDES No. CAG994004, as they relate to discharge of non-stormwater dewatering wastes for the project, including monitoring and reporting requirements. This will include submitting to the Los Angeles Regional Water Quality Control Board (RWQCB) a NOI at least 45 days prior to the start of non-stormwater dewatering discharge and a Notice of Termination or Transfer (NOTT) upon completion of dewatering discharge.

#### 3.24.4.10 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

While implementation of construction practices will reduce the I-710 Corridor Project's risk for geologic hazards such as soil erosion and slope instability, the measure listed below will reduce potential temporary construction impacts and will apply to all build alternatives.

**CON-12** Caltrans will prepare a quality assurance/quality control plan that will be maintained during construction. The plan will include observing, monitoring, and testing by a geotechnical engineer and/or geologist during construction to confirm that geotechnical/geologic recommendations are fulfilled, or if different site conditions are encountered, appropriate changes are made to accommodate such issues. The geotechnical engineer will prepare weekly reports while grading excavation and construction activities are underway.

#### 3.24.4.11 PALEONTOLOGY

Impacts to paleontological resources are considered permanent, not temporary. Therefore, no avoidance, minimization, and/or mitigation measures are proposed.

#### 3.24.4.12 HAZARDOUS WASTE/MATERIALS

The measures below will substantially reduce temporary adverse impacts related to hazardous materials and hazardous wastes during construction.

**CON-13** Prior to and during construction, Caltrans will test and remove yellow traffic stripes and pavement marking material in accordance with Standard Special Provision (SSP) XE 15-300.

**CON-14** If suspect hazardous waste or underground tanks are encountered during construction, the contractor will stop work and follow the procedures outlined in Appendix E, Caltrans Unknown Hazards Procedures for Construction.

**CON-15** During preparation of Plans, Specifications, and Estimates, Caltrans will conduct a groundwater evaluation to assess disposal alternatives for groundwater encountered during construction and to comply with the requirements of the NPDES permitting process.

#### 3.24.4.13 AIR QUALITY

Construction of the I-710 Corridor Project will result in temporary adverse impacts related to fugitive dust and construction equipment and vehicle emissions. The standard conditions and SCAQMD Rule 403 (fugitive dust), described below, will substantially reduce potential adverse short-term air quality impacts during construction of the I-710 Corridor Project.

**CON-16** The contractor will comply with Caltrans Standard Specifications, Sections 7-1.01F and 10.

- Section 7, “Legal Regulations and Responsibility,” addresses the contractor’s responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience of the public; and damage or injury to any person or property as a result of any construction operation. Section 7-1.01F specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Section 10 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.

- CON-17** The construction contractor will apply water or dust-palliative per Caltrans Standard Specifications Section 18 or applicable air district regulations, whichever are more stringent for air quality, to the site and equipment as frequently as necessary to control fugitive dust emissions. South Coast Air Quality Management District (SCAQMD) Rule 403 will also be followed.
- CON-18** The construction contractor will spread soil binder on any unpaved roads used during construction and all project construction parking areas, consistent with storm water pollution control requirements (Caltrans Standard Specifications Section 7-1.01 G).
- CON-19** The construction contractor will wash trucks as they leave the highway right-of-way as necessary to control fugitive dust emissions and trucks tracking dust off the project site, consistent with storm water pollution control requirements (Caltrans Standard Specifications Section 7-1.01 G).
- CON-20** The construction contractor will properly tune and maintain construction equipment and vehicles. The construction contractor will use low-sulfur fuel in all construction equipment as provided in California Code of Regulations (CCR) Title 17, Section 93114.
- CON-21** The construction contractor will develop and implement a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction fugitive dust impacts to adjacent land uses.

- CON-22** The construction contractor will locate equipment and materials storage sites as far away from adjacent residential and park uses as practical. The construction contractor will keep construction areas clean and orderly.
- CON-23** The construction contractor will establish Environmentally Sensitive Areas (ESAs) for sensitive air receptors within which construction activities involving extended idling of diesel equipment will be prohibited to the extent feasible.
- CON-24** The construction contractor will use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on off-site roads used by construction traffic, consistent with storm water pollution control requirements (Caltrans Standard Specifications Section 7-1.01 G).
- CON-25** The construction contractor will cover all loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce particulate matter less than 10 microns in size (PM<sub>10</sub>) and the deposition of particulate matter during transportation.
- CON-26** The construction contractor will remove dust and mud deposited on paved public roads due to construction activity and traffic to decrease particulate matter, consistent with storm water pollution control requirements (Caltrans Standard Specifications Section 7-1.01 G).
- CON-27** The construction contractor will route and schedule construction traffic to avoid peak travel times as much as possible and to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- CON-28** The construction contractor will install mulch or plant vegetation as soon as practical after grading to reduce windblown particulates in the area.
- CON-29** During clearing, grading, earthmoving, or excavation operations, excessive fugitive dust emissions will be controlled by regular watering or other dust preventive measures using the following procedures, as specified in the SCAQMD Rule 403. All material excavated or graded will be sufficiently watered to prevent excessive amounts of dust. Watering will occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. All material transported on site or off site will be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earth moving, or excavation operations will be minimized so as to prevent excessive amounts of dust. These control techniques will be indicated

in project specifications. Visible dust beyond the property line emanating from the project will be prevented to the maximum extent feasible.

#### 3.24.4.14 NOISE

During construction, Caltrans will implement the following measures to minimize the temporary noise impacts from construction.

**CON-30** Equipment noise control will be applied to revising old equipment and designing new equipment to meet specified noise levels.

**CON-31** In-use noise control where existing equipment is not permitted to produce noise levels in excess of specified limits.

**CON-32** Site restriction is an attempt to achieve noise reduction through modifying the time, place, or method of operation of a particular source.

**CON-33** Personal training of operators and supervisors is needed to become more aware of the construction site noise problems.

**CON-34** Equipment noise control is needed to reduce the noise emissions from construction sites by mandating specified noise levels for the design of new equipment and updating old equipment with new noise control devices and techniques, as described below:

- Mufflers are very effective devices, which reduce the noise emanating from the intake or exhaust of an engine, compressor, or pump. The fitting of effective mufflers on all new equipment and the retrofitting of mufflers on existing equipment is necessary to yield an immediate noise reduction at all types of road construction sites.
- Sealed and lubricated tracks for crawler mounted equipment will lessen the sound radiated from the track assembly resulting from metal-to-soil and metal-to-metal contact. Contractors, site engineers, and inspectors will ensure that the tracks are kept in excellent condition by periodic maintenance and lubrication.
- Lowering exhaust pipe exit heights closer to the ground can result in an off-site noise reduction. Barriers are more effective in attenuating noise when the noise source is closer to ground level.

- General noise control technology can have substantially quieter construction equipment when manufacturers apply state-of-the-art technology to new equipment or repair old equipment to maintain original equipment noise levels.

**CON-35** In-use site noise control is necessary to prevent existing equipment from producing noise levels in excess of specified limits. Any equipment that produces noise levels less than the specified limits will not be affected. However, those exceeding the limit will be required to meet compliance by repair, retrofit, or replacement. New equipment with the latest noise-sensitive components and noise control devices are generally quieter than older equipment, if properly maintained and inspected regularly. It will be repaired or replaced if necessary to maintain the in-use noise limit. All equipment applying the in-use noise limit will achieve an immediate noise reduction if properly enforced.

**CON-36** Site restrictions will be applied to achieve noise reduction through different methods, resulting in an immediate reduction of noise emitted to the community without requiring any modification to the source noise emissions. The methods include shielding with barriers for equipment and site, truck rerouting and traffic control, time scheduling, and equipment relocation. The effectiveness of each method depends on the type of construction involved and the site characteristics.

- Shielding with barriers will be implemented at an early stage of a project to reduce construction equipment noise. The placement of barriers must be carefully considered to reduce limitation of site access. Barriers may be natural or man-made, such as excess land fill used as a temporary berm strategically placed to act as a barrier.
- Efficient rerouting of trucks and control of traffic activity on construction sites will reduce noise due to vehicle idling, gear shifting, and accelerating under load. Planning proper traffic control will result in efficient workflow and reduce noise levels. In addition, rerouting trucks does not reduce noise levels but transfers noise to other areas that are less sensitive to noise.
- Time scheduling of activities will be implemented to minimize noise impacts on exposed areas. Local activity patterns and surrounding land uses must be considered in establishing site curfews. However, limiting working hours can decrease productivity. Sequencing the use of equipment with relatively low noise levels versus equipment with relatively

high noise levels during noise-sensitive periods is an effective noise control measure.

- Equipment location will be as far from noise-sensitive land use areas as possible. The contractor will substitute quieter equipment or use quieter construction processes at or near noise-sensitive areas.

**CON-37** Educating contractors and their employees to be sensitive to noise impact problems and noise control methods. This may be one of the most cost-effective ways to help operators and supervisors become more aware of the construction site noise problem and to implement the various methods of improving the conditions. A training program for equipment operators is recommended to instruct them in methods of operating their equipment to minimize environmental noise. Many training programs are presently given on the subject of job safety. This can be extended to include the impacts due to noise and methods of abatement.

**CON-38** A pre- and post-construction survey will be conducted for residential structures located within 100 feet of pile driving locations to determine whether any new cracks or other damage have occurred. The proposed project will be responsible for the cost of damage to structures resulting from project construction.

**CON-39** Alternatives to pile driving such as pre-drilling and cast-in-place will be required to limit vibration generation to a small amount, which will be considered negligible.

#### 3.24.4.15 ENERGY

Construction of any of the build alternatives would not result in adverse direct or indirect impacts related to energy consumption in the Study Area nor in the South Coast Air Basin (Basin) compared to the no build conditions under Alternative 1. No avoidance, minimization, or mitigation measures are required. However, measures have been provided in Section 3.15.5 of the Energy section of this Draft EIR/EIS in the interest of promoting energy efficiency.

#### 3.24.4.16 NATURAL COMMUNITIES

Measures to avoid and minimize temporary impacts to natural communities of concern are described below. Related measures are also provided in Section 3.24.4.9, Water Quality, and Sections 3.24.4.17 through 3.24.4.21. Caltrans will implement the following measures to avoid and minimize effects to estuarine habitat:

- CON-40** Prior to clearing or construction, highly visible barriers (such as orange construction fencing) will be installed around sensitive habitats adjacent to the project footprint under the guidance of a biological monitor to designate ESAs to be preserved. No grading or fill activity of any type will be permitted within these ESAs. In addition, no construction activities, materials, or equipment will be allowed within the ESAs. All construction equipment will be operated in a manner so as to prevent accidental damage to nearby preserved areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within the ESAs. Silt fence barriers will be installed at ESA boundaries to prevent accidental deposition of fill material in areas where the ESA is immediately adjacent to planned grading activities.
- CON-41** A biologist will monitor construction within the vicinity of estuarine and riparian/riverine habitats for the duration of the project to ensure that vegetation removal, BMPs, ESAs, and all avoidance and minimization measures are properly implemented.
- CON-42** A biological monitor will be present during all vegetation clearing to flush any wildlife species present prior to construction.
- CON-43** An employee education program for all construction personnel will be developed and implemented by the biological monitor prior to construction. At a minimum, the program will include the following topics: (1) responsibilities of the biological monitor; (2) delineation and installation of visible barriers of ESAs; (3) limitations on all movement of those employed on site, including ingress and egress of equipment and personnel, to designated construction zones (personnel shall not be allowed access to ESAs); (4) on-site pet prohibitions; (5) use of trash containers for disposal and removal of trash; and (6) project features designed to reduce the impacts to listed species and habitat and promote continued successful occupation of adjacent habitat areas.
- CON-44** Prior to construction, pre-construction surveys for *Caulerpa taxifolia* (a nonnative seaweed) will be conducted by a qualified biologist to ensure that the Biological Study Area (BSA) is not infested with this nonnative invasive seaweed. If present, containment and proper eradication of any individuals of this species prior to construction will be required.
- CON-45** The use of rodenticides, herbicides, insecticides, or other chemicals that could potentially harm listed species shall be prohibited in and adjacent to sensitive habitats. Use of rodenticides, herbicides, insecticides, or other chemicals in other

areas will be monitored by a qualified biologist to ensure no accidental effects in sensitive habitats.

- CON-46** A construction SWPPP and soil erosion and sedimentation plan will be developed by the construction contractor to minimize erosion and identify specific pollution prevention measures that will eliminate or control potential point and nonpoint pollution sources on site during and following the project's construction phase. The SWPPP will identify specific BMPs to be implemented during project construction so as not to cause or contribute to an exceedance of any water quality standard. A Storm Preparation and Evacuation Plan shall be prepared as part of the SWPPP prepared for the project. The plan shall include a requirement that no work shall occur within drainages during storm events. In addition, the SWPPP will contain provisions for changes to the plan such as alternative mechanisms, if necessary, during project design and/or construction to achieve the stated goals and performance standards.
- CON-47** A Fisheries Management Plan is expected to be required through informal consultation with the National Marine Fisheries Service (NMFS). If required, a Fisheries Management Plan will be developed and submitted to the NMFS for approval prior to completion of the final design. The Fisheries Management Plan will also be submitted to the United States Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Game (CDFG), as necessary, for information and permit condition compliance. The Fisheries Management Plan will contain provisions for changes to the plan such as alternative mechanisms, if necessary, during project design and/or construction to achieve the stated goals and performance standards.
- CON-48** All avoidance, minimization, and mitigation measures identified in the Habitat Mitigation Monitoring Plan (HMMP), the Fisheries Management Plan, and the SWPPP will be followed.
- CON-49** BMPs will be included in the Fisheries Management Plan and/or SWPPP to limit the resuspension of sediment and to manage resuspended sediment during construction in and adjacent to the Los Angeles River, particularly to limit the spread of contaminated sediment. These BMPs may include cofferdams, silt or turbidity curtains, or other watertight barricades surrounding the work areas that will contain resuspended sediment in the work area until it settles.

- CON-50** All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated nonsensitive upland habitat areas. The designated upland areas will be located in such a manner as to prevent runoff from any spills from entering sensitive habitats and waters of the United States.
- CON-51** In addition to specific BMPs identified in the SWPPP, project construction shall be carried out under standard BMPs (e.g., no staging or vehicle repair in sensitive areas, implementation of erosion control measures, and fuel spill cleanup). During project construction, the proper use and disposal of oil, gasoline, diesel fuel, antifreeze, lead paint, and other toxic substances shall be enforced. No construction materials, equipment, debris, or waste shall be placed or stored where it may be subject to tidal erosion and dispersion. Construction materials shall not be stored in direct contact with the soil anywhere along the project alignment.
- CON-52** Measures to contain all contaminated soils and material, including contaminated topsoil and lead-based paint from demolished bridges, shall be in place prior to and during soil moving (e.g., grading) and demolition activities. All contaminated soils and material shall be removed from the BSA and disposed of at an approved disposal site.
- CON-53** Construction techniques utilized within and adjacent to the Los Angeles River channel will be designed to minimize effects on downstream conditions (e.g., flow rate or turbidity). During low flow, there will be no substantial contribution to or disruption of normal processes downstream. However, some minimal isolation of work may be required to minimize turbidity (e.g., air bubble curtain system or air-filled isolation casings around bridge support structures). Any potential disruption during storm events will be inconsequential amid typical high-volume flows.
- CON-54** All debris generated during bridge construction and deconstruction will be prevented from settling into the Los Angeles River. When work is taking place over the Los Angeles River, floating booms (and/or other acceptable equipment) shall be used to contain debris. All construction-related debris shall be removed no later than the end of each day.
- CON-55** A biological monitor will be on site during pile-driving activities in the Los Angeles River to monitor fish that may become injured or killed during the pile driving. All pile driving and bridge construction will take place during daylight hours. If fish are observed to be injured or killed, pile driving will cease, and the CDFG and

NMFS will be contacted to determine appropriate steps to avoid additional effects to the fish. The results of the pile-driving monitoring will be reported to Caltrans within two weeks following the completion of pile-driving activities at each location.

**CON-56** To minimize impacts of pile driving in the Los Angeles River, minimal impact construction equipment and methods (e.g., a vibrating driver, crane, vibratory hammer, or hydraulic press) will be used during construction.

**CON-57** To minimize impacts of pile driving in the Los Angeles River, sound levels will be monitored during pile-driving activities in the Los Angeles River to ensure that peak sound levels do not exceed the threshold for injury to fish (206 decibels [dB] peak or 183 dB Sound Exposure Level [SEL]). If sound levels exceed threshold, additional mitigation measures (e.g., work when the current is reduced, using a hydraulic hammer, the smallest hammer needed to advance the pile, air bubble curtain system, or air-filled isolation casings) will be developed in consultation with the resource agencies.

#### 3.24.4.17 WETLANDS AND OTHER WATERS OF THE UNITED STATES

In addition to the above measures for natural communities, the following measures will be implemented to avoid and minimize temporary impacts to jurisdictional areas.

**CON-58** Prior to the start of construction, Caltrans shall apply for and obtain an Individual Permit (IP) and/or a Letter of Permission (LOP) from the USACE for effects to jurisdictional wetlands pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act, respectively.

**CON-59** Prior to the start of construction, Caltrans shall apply for and obtain a Lake or Streambed Alteration Agreement (SAA) from the CDFG for impacts to riparian and streambed areas under the jurisdiction of Section 1602 of the Fish and Game Code.

**CON-60** Prior to the start of construction, Caltrans shall apply for and obtain a Water Quality Certification from the RWQCB for effects to jurisdictional wetlands pursuant to Section 401 of the CWA.

#### 3.24.4.18 PLANT SPECIES

Minimization efforts are warranted to minimize temporary disturbance to larger portions of the populations than is necessary to improve the I-710 Corridor. In addition to the above measures

for natural communities, the following measure will be implemented to avoid and minimize impacts to southern tarplant.

**CON-61** During construction, Caltrans shall ensure that a qualified biologist will monitor construction within the vicinity of southern tarplant populations for the duration of the project to ensure that vegetation removal, BMPs, ESAs, and all avoidance and minimization measures are properly implemented.

#### 3.24.4.19 ANIMAL SPECIES

In addition to the above measures for natural communities, the following measures will be implemented by Caltrans to avoid and minimize impacts to special-status animal species.

**CON-62** A biologist will monitor construction within the vicinity of burrowing owl (BUOW) locations (if present) for the duration of the project to ensure that vegetation removal, BMPs, ESAs, and all avoidance and minimization measures are properly implemented.

**CON-63** In order to avoid effects to nesting birds, bridge demolition, native vegetation removal, or tree-trimming (native or exotic) activities will occur outside of the nesting bird season (February 15–September 1). In the event that vegetation clearing is necessary during the nesting season, a qualified biologist must conduct a pre-construction survey to identify the locations of nests. Should nesting birds be found, an exclusionary buffer will be established by the biologist. This buffer will be clearly marked in the field by construction personnel under the guidance of the biologist, and construction or clearing will not be conducted within this zone until the biologist determines that the young have fledged or the nest is no longer active.

**CON-64** On-site pets and the deliberate feeding of wildlife shall be prohibited.

**CON-65** Within 30 days prior to any phase of construction, pre-construction surveys will be conducted to ensure that any BUOW that may occupy the site are not affected by construction activities. These pre-construction surveys are also required in order to demonstrate compliance with the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code. If any of the pre-construction surveys determine that BUOW are present, mitigation measures may be required. The specifics of the required measures shall be coordinated between Caltrans District Biologist and the resource agencies.

- CON-66** If any of the pre-construction surveys determine that BUOW are present, one or more of the following measures may be required: (1) avoidance of active nests and surrounding buffer area during construction activities; (2) passive relocation of individual owls; (3) active relocation of individual owls; and (4) preservation of on-site habitat with long-term conservation value for the owl. The specifics of the required measures shall be coordinated between the Caltrans District Biologist and the resource agencies.
- CON-67** In June prior to construction, a qualified bat biologist will survey the project area to assess the potential for its use as a maternity roost, since maternity roosts are generally formed in late spring. The qualified bat biologist shall also perform pre-construction surveys, since bat roosts can change seasonally. The surveys shall include a combination of structure inspection, sampling, exit counts, and acoustic surveys. Pre-construction surveys shall also include nighttime surveys to determine whether night-roosting bats are present. If a maternity roost is found, no work will take place on that structure until the end of the maternity season and exclusion devices are installed.
- CON-68** In order to prevent effects to bridge- and crevice-nesting bats and birds (i.e., swifts), all work on existing bridges with potential habitat identified during the pre-construction surveys (including bat maternity roosts) will have bat/bird exclusion devices installed between September 1 and November 30 (with consideration of weather conditions). Installation of the exclusion devices will be conducted under the guidance of a qualified biologist and will be limited if weather conditions are such that they will be harmful to evicted species (e.g., cold temperatures). Such exclusion efforts must be continued to keep the structures free of bats and birds until the completion of construction. All exclusion techniques shall be coordinated between the Caltrans District Biologist and the resource agencies.
- CON-69** In order to prevent project effects to bridge- and crevice-nesting birds (i.e., swallows), all work on existing bridges with potential habitat that is conducted between February 15 and September 1 will be removed of all bird nests prior to construction under the guidance and observation of a qualified biologist prior to February 15 of that year, before the swallow colony returns to the nesting site. Removal of swallow nests that are under construction must be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed (such as netting or a similar mechanism that keeps birds from building nests). Nest removal and exclusion device installation shall be monitored

by a qualified biologist. Such exclusion efforts must be continued to keep the structures free of swallows until September 1 or completion of construction. All nest exclusion techniques will be coordinated between the Caltrans District Biologist and the resource agencies.

**CON-70** Construction work in the vicinity of the Los Angeles River, adjacent parks, wetlands, and vacant lands will be limited to daylight hours to minimize disturbance to wildlife movement to the best extent feasible. However, this may be difficult to achieve since most highway construction in the region is conducted at night to avoid impacting commuter traffic. If work must be done at night, noise and lighting will be directed away from the Los Angeles River, adjacent parks, wetlands, and vacant lands.

**CON-71** The Los Angeles River corridor will be kept clear of all equipment or structures that could potentially serve as barriers to wildlife passage.

An Incidental Harassment Authorization (IHA) and associated Mitigation Management and Monitoring Plan (MMMP) issued under the authority of Section 101 (a) (5) (D) of the MMPA will not be required for impacts to California sea lion (Monica Deangeles [NMFS], personal communication, December 15, 2009).

#### 3.24.4.20 THREATENED AND ENDANGERED SPECIES

The avoidance and minimization measures described in Section 3.24.4.9 and Section 3.24.4.16 will ensure that temporary effects to green turtle, California brown pelican, American peregrine falcon, and California least tern are absent or minimal from implementation of any of the proposed build alternatives.

#### 3.24.4.21 INVASIVE SPECIES

In compliance with Executive Order (EO) 13112, Caltrans shall implement the following measure:

**CON-72** A weed abatement program will be developed to minimize the importation of nonnative plant material during and after construction. Eradication strategies will be employed should an increase in invasive plants occur.

At a minimum, this program will include:

- Pre-construction surveys for *Caulerpa taxifolia* are warranted to ensure that the BSA is not infested with this nonnative invasive seaweed. If

present, containment and eradication of any individuals of this species prior to construction will be required.

- During construction, the construction contractor shall inspect and clean construction equipment at the beginning and end of each day and prior to transporting equipment from one project location to another.
- During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible.
- During construction, the construction contractor shall ensure that all active portions of the construction site are watered a minimum of twice daily or more often when needed due to dry or windy conditions to prevent excessive amounts of dust.
- During construction, the construction contractor shall ensure that all material stockpiled is sufficiently watered or covered to prevent excessive amounts of dust.
- During construction, soil/gravel/rock will be obtained from weed-free sources.
- Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control.
- After construction, affected areas adjacent to native vegetation will be revegetated with plant species approved by the Caltrans District Biologist that are native to the vicinity.
- After construction, all revegetated areas will avoid the use of species listed in California Invasive Plant Council's (Cal-IPC) California Invasive Plant Inventory that have a high or moderate rating.
- Eradication procedures (e.g., spraying and/or hand weeding) will be outlined should an infestation occur; the use of herbicides will be prohibited within and adjacent to native vegetation, except as specifically authorized and monitored by the Caltrans District Biologist.

3.24.4.22 CUMULATIVE

Should all or part of the I-710 Corridor Project be under construction at the same time as any of the major projects listed in Table 3.25-2 in Section 3.25, Cumulative Impacts, of this Draft EIR/EIS, the following measure will be implemented:

- CON-73** Prior to completion of Plans, Specifications, and Estimates for construction, Caltrans shall consult with the lead agencies of other major projects within two miles of the I-710 Corridor Project to ensure that the construction plans are coordinated and do not result in conflicts regarding construction staging areas, roadway closures, or detour routes.

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