2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 Regulatory Setting

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration (FHWA) requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project

The base floodplain is defined as "the area subject to flooding by the flood or tide having a 1 percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

2.2.1.2 Affected Environment

The primary source used in the preparation of this section is the *I-10/Jackson Street Interchange Improvement Project Location Hydraulic Study* dated February 2019 (Pace 2019).

The project is located in the Middle Whitewater Watershed, which is in the Whitewater Hydrologic Unit, Coachella Hydrologic Area, and the Indio Hydrologic Sub-Area (HSA 719.47) according to the Department's Water Quality Planning Tool (WQPT). This hydrologic area covers over 540,000 acres in Riverside County. The properties surrounding the project area consist of retails, restaurants, commercial developments to the north side of the freeway and elementary school, park, undeveloped lands, limited industrial and residential to the south side of the freeway.

The project is within the Whitewater Hydraulic Unit, Hydrologic Unit Code 81002010705 (Caltrans WQPT), located within the Coachella Hydrologic Area. The watershed has its headwaters in the San Bernardino Mountains and is tributary to the Salton Sea.

The CVSC, a CVWD facility, is within the project area. Within the project limits, the channel is a FEMA mapped Zone AE floodplain contained within provisionally accredited levees (FEMA Panel number 06065C2252H, dated May 29, 2015). The channel flows north to south and is tributary to the Salton Sea. Within the project area, the channel runs west to east. The Zone AE flood zone is contained within the CVSC trapezoidal earthen channel levees that is a CVWD facility. The I-10/Jackson interchange is not located in a designated FEMA flood zone except a portion of the right-of-way at the south side of the I-10 eastbound on-ramp. Refer to Figure 2-8.

Natural and beneficial floodplain values include, but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, forestry, natural moderation of floods,

water quality maintenance, and ground water recharge. The CVSC contributes to groundwater recharge through unlined channel walls. Engineered groundwater recharge facilities are not present within the project limits, and there is no change in channel lining so there are no risks to the groundwater recharge beneficial use. The Colorado River Regional Water Quality Control Board does not consider groundwater recharge as one of the CVSC's beneficial uses.

2.2.1.3 Environmental Consequences

Temporary

No-Build Alternative

Under the No-Build Alternative, none of the proposed project improvements would be implemented; therefore, there would be no short-term impacts to hydrology or floodplains.

Build Alternatives 2 and 4

The project footprint for both Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

The project lies within a Zone AE floodplain. According to the *Location Hydraulic Study*, the flood hazard and flood depths in the CVSC will be minimally impacted as a result of the proposed project. The work in this area is limited to improvements on an existing bridge. There is low risk to open space, natural beauty, scientific study, outdoor recreation, agriculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge in agriculture due to this project.

During construction, temporary measures that will be taken to minimize impact to Contact Water Recreation (REC1) and Non-contact Water Recreation (REC2) include staging and work windows. Staging consists of implementing a plan to provide safe and efficient construction operations as well as to minimize community impacts during construction. These measures include appropriate signage, detours, and public notices. Temporary impacts to Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD) and Rare, Threatened, or Endangered Species (RARE) during construction will be minimized through implementing the avoidance and minimization measures **BIO-1** through **BIO-7** identified in Section 2.3, Biological Environment.

The Coachella Valley Stormwater Channel is an unlined flood control facility. The unlined channel provides some infiltration of stormwater runoff to groundwater as the soils within Whitewater River are classified as fine sand that is hydrologic soil group "A" which has the highest infiltration rate. There are no engineered groundwater recharge facilities within the project limits at the present, and there is no change in channel lining so there are no risks to the groundwater recharge beneficial use.

Permanent

No-Build Alternative

Under the No-Build Alternative, none of the proposed project improvements would be implemented; therefore, there would be no long-term impacts to hydrology or floodplains.

SOURCE: FEMA 2020; Mapbox, 2020.

I-10 / Jackson Street Interchange Project

Figure 2-8

FEMA Flood Zones

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Build Alternatives 2 and 4

The project includes permanent improvements within floodplain Zone AE; however, the project improvements that occur within the Zone AE floodplain do support incompatible floodplain development. The City of Indio participates in the National Flood Insurance Program (NFIP) (FEMA, NFIP).

The risk to life and property is low; there is no change to the current risk to life and property as a result of the proposed action within the SFHA. The proposed risks to natural and beneficial floodplain values are minimal and the impairments to the beneficial uses are temporary due to construction activities. There is no support for further incompatible floodplain development. Therefore, the combined Assessed Risk Level is LOW.

Through analysis and evaluation in the Location Hydraulic Study, there are no permanent impacts due to the proposed improvements; therefore, no permanent mitigation measures are necessary.

The Caltrans Standard Environmental Reference Chapter 17 criteria is met in the Coachella Valley Stormwater Channel because the proposed actions in these areas do not affect the boundaries of the mapped floodplain. This area constitutes as Minimal Encroachment. The proposed project would not result in a significant encroachment into a floodplain as defined in 23 CFR 650.105.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

No Avoidance, Minimization, and/or Mitigation Measures are required. Additional measures **BIO-1** through **BIO-7** related to biological resources are also included in Section 2.3, Biological Resources.

2.2.2 Water Quality and Stormwater Runoff

2.2.2.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source1 unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA's) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or

[1] A point source is any discrete conveyance such as a pipe or a man-made ditch.

toxic effluent2 standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater." The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department's MS4 permit covers all Department rights-of-way, properties,

[2] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012, and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below).
2. The Department must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges.
3. The Department stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Stormwater Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The project would be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009, and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Stormwater Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than 1 acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.2.2.2 Affected Environment

The primary source used in the preparation of this section is the *Water Quality Assessment Report prepared for the I-10/Jackson Street Interchange Improvement Project* dated April 2019 (HNTB 2019) and the Natural Environment Study (ESA 2019).

The project is located in the Middle Whitewater River Watershed, which is in the Whitewater Hydrologic Unit, Coachella Hydrologic Area, and the Indio Hydrologic Sub-Area (HSA 719.47), according to the WQPT. This hydrologic area covers over 540,000 acres in Riverside County. Receiving water bodies within the project boundaries include CVSC, which eventually discharges to Salton Sea about 25 miles downstream.

The drainage course of stormwater from the project to the Salton Sea was used to identify the Total Maximum Daily Load (TMDL) constituents associated with implementation of the proposed improvements. Stormwater within the project boundary will be collected in a series of drainage systems maintained by the Department and the City of Indio, where it ultimately discharges to the CVSC, which runs parallel, about 380 feet south of the I-10/Jackson Interchange, at PM R55.7. The CVSC continues to flow southeasterly for about 20 miles before ultimately discharging into the Salton Sea. According to the Final 2014-2016 Integrated Report (CWA Section 303(d) List/305(b) Report), the CVSC is listed as an impaired waterbody with a TMDL established for Indicator Bacteria. The portion of I-10 associated with this project is tributary to the CVSC, which is included in the Department TMDL Reach Prioritization Ranking Table and in turn incorporated in the Department Statewide NPDES Permit.

The project site is within the Coachella Valley Groundwater Basin; basin number 7-021 according to the California Geological Survey Groundwater Basin Boundary Tool. This region is under the jurisdiction of the California RWQCB, Colorado River Basin Region (Region 7).

The Colorado River is the main water supply to the region and elsewhere in California. Drainage to the Colorado River comes from the East Colorado River Basin, which is a 200-mile long strip that ranges from 7 to 40 miles wide. The project area is located within the Coachella Valley Planning Area, which is located primarily in Riverside County.

This project would be constructed within existing and future Department's right-of-way; therefore, the California Statewide Permit currently in effect would apply to this project. This project would require notification to the State Water Quality Control Board via the Stormwater MultiApplication Tracking System (SMARTS). Project registration documents would be filed and a Waste Discharge Identification (WDID) Number would then be assigned.

A Section 401 Water Quality Certification is required from the Colorado River RWQCB because this project will result in discharges to the CVSC. Additionally, a Section 404 permit from the United States Army Corps of Engineers, and California Department of Fish and Game 1602 Streambed Alteration Agreement is also required for this project, which would be obtained prior to construction.

Surface Streams

The project crosses the CVSC. This channel is tributary to the Salton Sea. No other stream crossings exist within the project limits for both Build Alternatives. Stormwater within the project boundary will be collected in a series of drainage systems maintained by the Department and the City of Indio, where it ultimately discharges to the CVSC, about 380 feet south of the I-10/Jackson Interchange. The CVSC continues to flow southeasterly for about 20 miles before ultimately discharging into the Salton Sea.

The project is proposing several Design Pollution Prevention BMPs, which would provide treatment to over 100 percent of the overall water quality value (WQV) to be treated. The Department-approved BMPs for the proposed bridge would be in compliance with respective jurisdictions, the City of Indio National Pollutant Discharge System (NPDES) Municipal Separate Storm Sewer System Permit (MS4 Permit). The final design of the BMPs and storm drain system would be performed in the design stage of the project.

Groundwater Hydrology

The project site is within the Coachella Valley Groundwater Basin; basin number 7-021 according. On a basin-wide scale, the general movement of both surface water and ground water is southward and eastward from the surrounding hills and mountains. On a local scale, however, the movement of ground water is more complex. Faults in the area divide the ground-water basin into several sub basins, which previous investigators have characterized as being relatively isolated from one another. Flow in and between sub basins is complex and is not well understood except as can be inferred from contour maps of ground-water levels.

Sources of Groundwater Recharge

CVWD and Desert Water Agency (DWA) work together on groundwater replenishments efforts. Groundwater recharge is partially funded by Replenishment Assessment Recharge (RAC) and includes three replenishment facilities within East Whitewater River sub-basin, West Whitewater River sub-basin, and Mission Creek sub-basin. The agencies also import water from the Sacramento Bay Delta and Colorado River, as well as entitlements to captured snow melt from the San Gorgonio Mountains. Colorado River water artificially replenishes the aquifer at four different sites within Coachella Valley, including Thomas E. Levy Groundwater Replenishment Facility, Whitewater Recharge Facility, Martinez Canyon Pilot Recharge Facility, and Groundwater Recharge Facility in Indio.

Municipal Water Supply

The beneficial uses for the CVSC does not include Municipal and Domestic Supply (MUN) that is described as uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply according to Caltrans Water Quality Planning Tool. Also drinking water reservoirs and/or recharge facilities do not exist within the project limits.

Indio Water Authority is owned by the City of Indio and Redevelopment Agency, and delivers water to Indio residents for municipal water programs and services (Indio 2019).

2.2.2.3 Environmental Consequences

Temporary

No-Build Alternative

Under the No-Build Alternative, none of the proposed project improvements would be implemented; therefore, no construction-related impacts to water quality would occur.

Build Alternatives 2 and 4

The project footprint for both Build Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives.

The pollutants associated with construction activities include sediment and silt generated with soil disturbance, and chemical pollutants associated with the construction materials that are brought onto the project site. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport via stormwater runoff from the project area. Chemical contaminants, such as oils, fuels, paints, solvents, nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages and ultimately into collecting waterways, contributing to the chemical degradation of water quality.

Construction materials, waste handling, and the use of construction equipment could also result in stormwater contamination and affect water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination. Operation of vehicles during construction could also result in tracking of dust and debris. Staging areas can also be sources of pollutants because of the use of paints, solvents, cleaning agents, and metals during construction. Pesticide use, including herbicides, fungicides, and rodenticides, associated with site preparation is another potential source of stormwater contamination. These pollutants would occur in the stormwater discharges and non-stormwater discharges and could potentially cause chemical degradation and aquatic toxicity in the receiving waters.

Erosion and sedimentation could affect the biological characteristics of the aquatic environment through interference with photosynthesis; oxygen exchange; and the respiration, growth, and reproduction of aquatic species. Other anticipated temporary impacts to the biological characteristics of the aquatic environment include equipment access below the OHWM of the CVSC during construction of the proposed bridge.

During the construction phase, soil disturbance activities include earth-moving activities such as excavation and trenching, soil compaction, cut and fill activities, and grading. The temporary disturbed surface area (DSA) is approximately 26.93 acres within the Department's right-of-way and 31.77 acres total (within and outside of the Department's right-of-way). Implementation of the SWPPP is expected to attenuate and minimize the amount of sediments released from the construction site (refer to measures **WQ-1** and **WQ-2** in Section 2.2.2.4, below). Short-term impacts caused by each of the Build Alternatives include potential increases in sediment loads because of removal of existing groundcover and disturbance of soil during grading. The temporary residual increase in sediment loads from construction areas is unlikely to alter the hydrologic response (i.e., erosion and deposition) downstream in the hydrologic subarea and, subsequently, the sediment processes in these areas would be reduced because all DSAs would be stabilized before completion of construction with permanent landscaping and/or permanent erosion control measures.

The Department-approved Treatment BMPs and temporary Construction Site BMPs are considered project design features. Therefore, with incorporation of Temporary and Permanent BMPs, no adverse impacts are expected with implementation of the project.

Dewatering is not anticipated during construction since a deeper groundwater level is expected based on historical data and preliminary investigations. If construction of the project requires the discharge of groundwater to the environment or dredged or fill material, implementation of measure **WQ-3**, described in Section 2.2.2.4, below, would minimize water quality and hydrological impacts associated with construction.

Jurisdictional waters include approximately 12.36 acres of non-wetland waters of the U.S. (under the jurisdiction of USACE) and RWQCB waters of the State as well as approximately 29.57 acres CDFW jurisdictional waters occur within the BSA. The waters are limited to the Whitewater River which is located in the southern portion of the BSA and is confined to the CVSWC. Wetlands were absent from the BSA.

Under Build Alternative 2, temporary impacts will occur in areas that span the width of the CVSWC, are under and adjacent to the proposed bridge. Build Alternative 2 would account for approximately 0.99 acre of temporary impacts to non-wetland waters of the U.S. and RWQCB waters of the State; and 6.41 acres of temporary impacts to CDFW jurisdictional waters.

Under Build Alternative 4, temporary impacts will occur in areas that span the width of the CVSWC, are under and adjacent to the proposed bridge. Build Alternative 4 would account for approximately 0.95 acre of temporary impacts to non-wetland waters of the U.S. and RWQCB waters of the State; and 6.32 acres of temporary impacts to CDFW jurisdictional waters.

Permitting will be required through the USACE, RWQCB and CDFW under sections 401 and 404 of the Clean Water Act and Section 1600 of the Fish and Game Code. Permits will be issued prior to any work with jurisdictional waters. Measures outlined in the permits will be followed and may include designating environmentally sensitive areas (ESA) and installation of ESA fencing, timing of work efforts and additional measures to minimize impacts within the Whitewater River. Project activities within the Whitewater River should be timed to begin immediately after maintenance activities conducted by the CVWD, if possible, to further reduce temporary impacts to the Whitewater River (see **BIO-1** in Section 2.3.3, Plant Species).

With the implementation of measure **BIO-1** and measures **WQ-4** through **WQ-6** in Section 2.2.2.4 below, and regulatory permit conditions, no direct or indirect temporary adverse impacts on drainages would result during the construction of the Build Alternatives.

Permanent

No-Build Alternative

Under this alternative, no reconstruction or improvements would be made to the existing I-10/Jackson Street interchange other than routine maintenance. There are currently no known Treatment BMPs located within the project limits and no additional impacts are anticipated.

Build Alternatives 2 and 4

The project footprint for both Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, except where otherwise noted. The project has the potential to affect water quality during the operation phase.

Operation of the project would result in an increase in impervious surface areas, which would result in an increase in stormwater runoff. Potential pollutants associated with the operation of transportation facilities include sediment from natural erosion; nutrients, such as phosphorus and nitrogen, associated with freeway landscaping; mineralized organic matter in soils; nitrite discharges from automobile exhausts and

atmospheric fallout; litter; and metals from the combustion of fossil fuels, the wearing of brake pads, and corrosion of galvanized structures. Build Alternative 4 which has the largest footprint of the build alternatives would add 7.88 acres of new impervious surface area.

No long-term impacts to the human use characteristics of the aquatic environment are anticipated.

Under the Build Alternatives 2 and 4, the goal of the proposed treatment BMP strategy is to treat more than 100 percent of the water quality volume from the new net impervious and pervious areas to fulfill the requirements of the Department's NPDES permit. The project proposes to treat approximately 3.11 more acres of impervious areas, thereby improving water quality over what is "required" by the NPDES permit.

The project proposes Design Pollution Prevention Infiltration Areas (DPPIAs) as treatment BMPs. Treatment provided will be based on infiltrated volumes. Nine DPPIAs are proposed within the project limits as treatment BMPs. Each DDPIA will not infiltrate 100 percent of its respective tributary WQV, however, the cumulative volume treated by all DDPIAs will exceed 100 percent of required WQV.

No long-term impacts are anticipated downstream as a result of the proposed bridge over the Coachella Valley Stormwater Channel (Whitewater River). The project will reduce the number and size of the bents in the channel, thereby improving the hydraulics of the channel. The existing bridge contains four single-column bents with 8-foot by 5-foot oblong concrete columns in the channel whereas the proposed bridge contains only two single-column bents with 7-foot circular concrete columns. The channel is an engineered leveed channel with drop structures, is assumed to be in equilibrium, and will not undergo long-term scour due to the proposed bridge structure.

Permanent impacts will be caused by the placement of support columns within the CVSWC. Impacts as a result of Build Alternative 2 would account for approximately 0.35 acre of permanent impacts to non-wetland waters of the U.S. and waters of the State (under the jurisdiction of USACE and RWQCB, respectively), and 0.78 acre of permanent impacts to CDFW jurisdictional waters.

For Build Alternative 4, permanent impacts will be caused by the placement of support columns within the CVSWC. Permanent impacts would occur for approximately 0.43 acre of non-wetland waters of the U.S. (under the jurisdiction of USACE) and RWQCB waters of the State; and 0.91 acre of permanent impacts to CDFW jurisdictional waters.

The Build Alternatives would add 7.88 acres of new impervious surface area. During the operational phase, runoff from the project corridor would be conveyed to Department-approved Treatment BMPs such as Design Pollution Prevention Infiltration Areas (DPPIAs) that would provide treatment to the maximum extent practicable, and would not likely create any surface water quality impacts.

Off-site flow northwest of the interchange is collected and conveyed within an existing 72-inch CMP pipe located 600 feet west of the Jackson Street overcrossing that discharges to CVSC. The proposed roadway improvements to Jackson Street and the I-10 on-ramps and off-ramps will not alter the existing off-site drainage pattern. The increase of stormwater runoff within the project limits due to the increased impervious area of the proposed improvements is small in comparison to the large off-site flows. The proposed BMPs also will attenuate small storm frequency events. In addition, increase in off-site flows is minimal due to the time of concentration comparison between on-site and off-site. As such, existing off-site drainage systems will be protected in place to the maximum extent possible. Where proposed improvements impact the existing off-site drainage systems, these systems will be extended or realigned to accommodate the proposed roadway improvements. Since the increase of runoff to the existing off-site drainage systems is minimal in comparison to the total tributary flow to the system due to time of concentration comparison, off-site design flows will remain in existing condition, and will be obtained

from available as-built drawings of the existing off-site systems. As such, it is anticipated that the proposed improvements will have a negligible impact on the flow capacity of the off-site systems.

Drainage inlets will also be proposed in areas with roadway low points and super-elevation reversals. Since all proposed side slopes are relatively flat, 4:1 (horizontal:vertical) or flatter, runoff will be allowed to sheet flow down embankment slopes to the maximum extent practicable to provide water quality treatment. Existing culverts will be extended or relocated where required to accommodate the proposed roadway improvements. Build Alternative 2 will require fewer on-site proposed drainage improvements than Build Alternative 4 due to the smaller footprint. Less linear feet of existing culvert will need to be removed and fewer inlets and proposed storm drain pipe will need to be proposed for Build Alternative 2 as the result of the reduced impact to the existing ramps.

Erosion control measures also would be used to address site soil stabilization and reduce deposition of sediments in adjacent surface waters. Typical measures would include the application of soil stabilizers such as soil binders, rock slope protection, velocity dissipation devices, and flared end sections for culverts.

It is not anticipated that either of the build alternatives would cause a change to sedimentation in receiving water bodies within the project area because the project would result in a very minor increase in runoff compared to the entire hydrologic area.

The Department-approved Treatment BMPs and temporary Construction Site BMPs are considered project design features. Therefore, with incorporation of Temporary and Permanent BMPs, no adverse impacts are expected with operation of the project.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented to minimize potential water quality and hydrological impacts associated with construction and operation:

WQ-1: The I-10/Jackson Street Interchange Improvement Project would be required to conform to the requirements of the Caltrans Statewide National Pollutant Discharge Elimination System Stormwater Permit, Order No. 2012-0011-DWQ, NPDES No. CAS000003, adopted by the State Water Resources Control Board on July 1, 2013, and any subsequent permit in effect at the time of construction. In addition, the I-10/Jackson Street Interchange Improvement Project would be required to comply with the requirements of Order No. 5-01-130, and the NPDES Permit for Construction Activities, Order No. 2012-006-DWQ, NPES No. CAS000002, as well as implementation of the BMPs specified in Department's Stormwater Management Plan.

WQ-2: The contractor would be required to develop a SWPPP. The SWPPP shall contain BMPs that have demonstrated effectiveness at reducing stormwater pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All Construction Site Best Management Practice would follow the latest edition of the Stormwater Quality Handbooks, Construction Site BMPs Manual to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, stormwater runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific stormwater effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing the exceedance of any water quality standards.

If construction of the I-10/Jackson Street Interchange Improvement Project requires the discharge of groundwater to the environment or dredged or fill material, the project would require the following measures to minimize water quality and hydrological impacts associated with construction.

WQ-3: If dewatering is determined to be required during PS&E for the preferred alternative, the contractor shall fully conform to the requirements specified in Order No. R5-00-175, General Waste Discharge requirements for Discharges to Surface Water which Pose an Insignificant (De Minimus) Threat to Water Quality, from the Colorado River RWQCB.

WQ-4: A section 404 Permit is will be acquired for the discharge of dredged or fill material into water of the U.S., because the project involves work over the CVSC.

WQ-5: A Section 401 Certification from the State is most frequently required in tandem with a Section 404 Permit; therefore, a 401 Certification from the State would be required to ensure that the discharge will comply with applicable Federal and State effluent limitations and water quality standards.

WQ-6: Per Section 1602 of the Fish and Game Code, the I-10/Jackson Street Interchange Improvement Project would be required to notify the Department of Fish and Game of any proposed activity that would substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

2.2.3 Geology/Soils/Seismicity/Topography

2.2.3.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.3.2 Affected Environment

The primary source used in the preparation of this section is the *Combined Paleontological Identification Report and Paleontological Evaluation Report (PIR/PER) for the Interstate 10/Jackson Street Interchange Improvement Project* (Cogstone, November 2018), the *Initial Site Assessment for I-10/Jackson Street Interchange Project* (ESA, September 2020), the *District Preliminary Geotechnical Report, Interstate 10/Jackson Street Interchange Improvement Project* (Earth Mechanics, Inc., April 2019), and the *Location Hydraulic Study* completed in February 2019 for this project (Pace, 2019).

Regional Geology

The project area is in the Coachella Valley at the northern end of the Salton Trough. Surrounded by mountains on all but the southeastern side, the Salton Trough is an extensional basin that parallels the San Andreas Fault Zone through the Coachella Valley from the Desert Hot Springs area to the Pacific Ocean south of the Gulf of California. The San Andreas Fault Zone lies near the center of the trough while the Pacific Plate is along the west side and the North American Plate is along the east. The northwesterly motion of the Pacific Plate relative to the North American Plate has formed this extensional basin and continues to cause the Salton Trough to widen and sink from the stretching of the continental crust. The San Andreas Fault Zone continues south through the Gulf of California, which is also widening and sinking.

Local Geology

The project is mapped as late Holocene eolian sands and Whitewater River sediments deposited less than 3,000 years ago. The project is also mapped within the northern boundary of the middle to late Holocene Lake Cahuilla beds and valley alluvial sands less than 6,000 years old with deposits of the Whitewater River in a modern, man-made channel.

Subsurface Soil Conditions

The majority of the project area is hardscape and was modified by the existing I-10/Jackson Street interchange. Only two areas of unmodified sedimentary deposits remained within the project area; on the north side of I-10 on either side of Jackson Avenue.

The soil of the study area is comprised of Fluvents, Indio fine sandy loam, and Indio very fine sandy loam. These soil types are generally pervious to surface water and are not suitable for subsurface liquid retention.

The subsurface soils at the site are expected to consist of engineered fill underlain by alluvial soils. The engineered fill is expected to consist of fine to coarse silty sand and the alluvial soil is expected to consist of interbedded micaceous very fine to fine sand and laminated clayey silt.

Faulting

The site is not located within a recognized State of California or Riverside County Earthquake Fault Zone. The site location relative to regional faults is shown on Figure 2-9, Geologic Fault Zone Map.

Seismicity

The project lies near the Coachella Segment of the San Andreas fault zone. The Coachella Segment is approximately 1.4 miles northeast of the project. The 1,100-km-long San Andreas fault zone is the principal element of the San Andreas fault system, which is a network of faults with predominantly dextral strike-slip displacement that collectively accommodates the majority of relative north-south motion between the North American and Pacific plates.

The site is in a seismically active area, and strong shaking could be expected in the life of the facility; however, there are no known active faults capable of fault rupture that pass through the site.

Although the Coachella Segment of the San Andreas fault zone is considered an Alquist-Priolo Special Studies Zone, it is over a mile from the project location. The site is not within 1,000 feet of any fault in the Department's Fault Database. Since the project site is not located within the confines of the fault zone, the risk of surface rupture at the site is considered low.

The City of Indio Geologic Hazards Map identifies the project area as being located in an area designated as a 5 for Seismic Shaking Intensities on a 1-10 scale for seismic shaking, where 1 is low and 10 is high (https://www.indio.org/civicax/filebank/blobdload.aspx?BlobID=23712).

Seismic Settlement

Seismic settlement may occur in areas where there are relatively loose, dry, granular soils, or where liquefaction occurs. The potential seismic settlement will be evaluated during the PS&E using site-specific soil borings.

Liquefaction

Soil liquefaction is the process by which the shear strength of granular-saturated soils is reduced because of an increase in pore pressure during seismic shaking. Requisite conditions for liquefaction to occur include saturated granular soils and non-plastic silt that are not free-draining, with a loose-packed grain structure capable of progressive rearrangement of grains during repeated cycles of seismic loading. When liquefaction occurs, the particles rearrange to a denser state, but excess pore pressure is not dissipated; therefore, the shear strength of the soil decreases, thus reducing the soil's ability to support foundations for buildings and bridges. The stability of slopes may also be reduced as discussed under lateral spreading.

The State of California Seismic Hazard Zone Maps delineate areas as being susceptible to liquefaction if past occurrence of liquefaction was reported or local geological, geotechnical, and groundwater conditions suggest a potential for liquefaction exists. Review of the Seismic Hazard Zones Maps for the Indio 7.5-Minute quadrangle indicates that the project does not fall in an area that is flagged as being susceptible to liquefaction. However, the more specific City of Indio Geologic Hazards Map identifies the project location to lie in an area susceptible to liquefaction as groundwater is generally shallower than 30 feet (https://www.indio.org/civicax/filebank/blobdload.aspx?BlobID=23712).

Fault Rupture

Fault rupture refers to the extension of a fault to the ground surface by which the ground breaks, resulting in an abrupt relative ground displacement—for example, vertical or horizontal offset. Surface fault ruptures are the result of stresses relieved during an earthquake event, and often cause damage to structures astride the rupture zone.

The project does not lie within a current Alquist-Priolo Earthquake Fault Zone or cross any mapped fault exhibiting offset of geologically recent deposits. The risk of surface fault rupture is therefore low. However, the potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

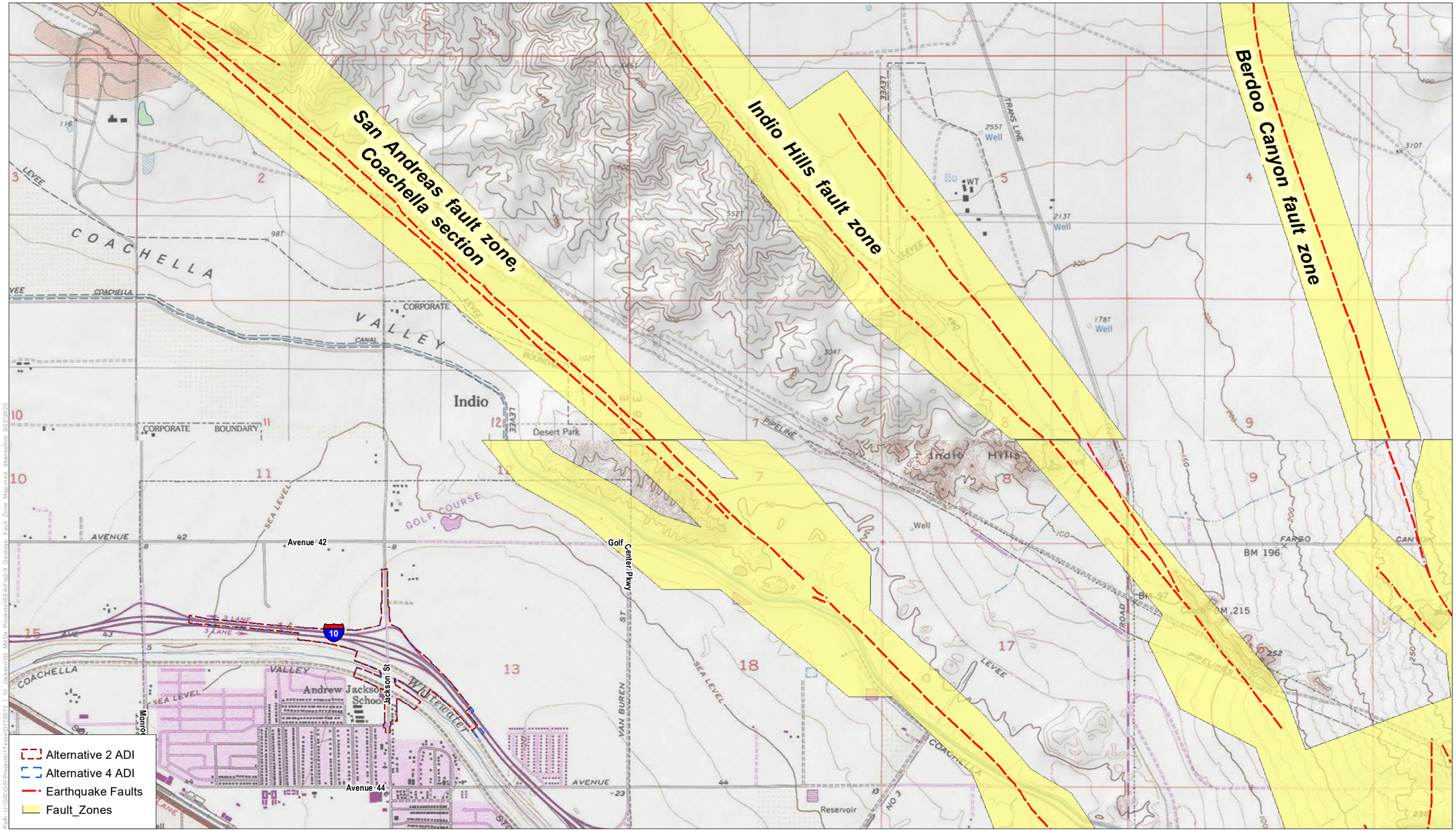
The proposed site is situated in a seismically active region, as is the case for most areas of Southern California, ground shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. During the life of the project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the site. Construction and operation of the project is not expected to generate shaking at any potential to produce fault rupture.

Seiches and Tsunamis

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Tsunamis are waves generated in large bodies of water by fault displacement or major ground movement. Tsunamis have no potential to occur in the project area given its inland location. Seiching is possible within the Whitewater River Channel if a large earthquake coincides with a high flow level event, although this is unlikely given how low the water level is in the channel in general.

Landslides

Seismically induced landslides occur when shaking from an earthquake causes pre-existing landslides to reactivate or triggers new landslides along planes of weakness in bedrock material. According to the Seismic Hazard Zones Map for the Indio 7.5-minute quadrangle, the project is not located in a zone of seismically induced landslides.



SOURCE: USGS 7.5' Topo Quads Myoma, West Berdoo Canyon, La Quinta, Indio;
Seismic Hazards Program, California Geological Survey, California Department of Conservation; City of Indio

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Figure 2-9
Geologic/Fault Zone Map

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2.2.3.3 Environmental Consequences

Temporary

No-Build Alternative

Under the No-Build Alternative, there would be no change to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils; therefore, there would be no impacts on geologic resources.

Build Alternatives 2 and 4

The project footprint for both Build Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

During construction of the Build Alternatives, excavated soil would be exposed, increasing the potential for soil erosion and unprotected soils, including slopes, would be subject to erosion during storms. Additionally, embankment slopes within the Whitewater Channel and the existing interchange as well as areas disrupted by grading are susceptible to erosion from surface runoff. Cut and fill slopes are frequently constructed in roadway projects.

Construction activities of the project could result in ground-shaking activities, but not at a level that could potentially cause fault rupture, landslides, liquefaction, or cause an earthquake. Compliance with the most current Department procedures regarding seismic design, which is standard practice on all Department projects, is anticipated to prevent any adverse effects related to seismic ground shaking. Conformance with the California Building Code (CBC) as well as adherence to standard engineering practices and the Department's design criteria, would reduce the effects of seismic ground shaking. Therefore, the project would not result in or contribute to seismic related hazards to the degree that would result in a significant impact to construction workers or the traveling public.

Permanent

No-Build Alternative

Under the No-Build Alternative, there would be no change to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils; therefore, there would be no impacts on geologic resources.

Build Alternatives 2 and 4

Fault-Induced Ground Rupture

The project does not lie within a current Alquist-Priolo Earthquake Fault Zone or cross any mapped fault exhibiting offset of geologically recent deposits. The risk of surface fault rupture is therefore low. However, the potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

The proposed site is situated in a seismically active region. As is the case for most areas of Southern California, ground shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. Construction and operation of the project is not expected to generate shaking at any potential to produce fault rupture.

Seismicity

Although the project site is in seismically active Southern California, it is within an existing transportation corridor. The project and all associated structures would be designed to meet the Department's design standards to minimize geologic and seismic hazards. A revised interchange at I-10/Jackson Street would not increase the risk of exposing people or structures to potential adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present.

Liquefaction and Seismically Induced Settlement

The City of Indio Geologic Hazards Map identifies the project location to lie in an area susceptible to liquefaction as groundwater is generally shallower than 30 feet. No proposed project activities would increase the potential for liquefaction in the project area past what it currently experiences. The project would follow the Department's latest design requirements to minimize any potential effects related to liquefaction and seismically induced settlement. With implementation of these standard measures, no direct or indirect, adverse, long-term impacts would occur as a result of the project.

Tsunami/Seiches

Tsunamis have no potential to occur in the project area given its inland location. Seiching is possible within the Whitewater River Channel if a large earthquake coincides with a high flow level event.

Landslides

No impacts are anticipated for seismically induced landslides, given the relatively stable and flat topography of the project area.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

All project components would be designed in accordance with standard engineering practices and Department standard specifications. Because no substantial adverse effects under NEPA or significant impacts under CEQA would occur related to geology, soils, topography and seismicity, no avoidance, minimization, and/or mitigation measures are required.

2.2.4 Paleontology

2.2.4.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

- 23 United States Code (USC) 1.9(a) requires that the use of Federal-aid funds must be in conformity with all federal and state laws.
- 23 USC 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by California Environmental Quality Act (CEQA).

2.2.4.2 Affected Environment

The primary sources used in the preparation of this section is the Co*mbined Paleontological Identification Report and Paleontological Evaluation Report (PIR/PER) for the Interstate 10/Jackson Street Interchange Improvement Project* (Cogstone, November 2018).

The project is mapped on the Indio 7.5' United States Geological Survey (USGS) topographic map, in sections 13 and 14 of Township 5 South, Range 7 East of the San Bernardino Base and Meridian. A record search of the project was obtained from the Western Science Center in June 2018. Additional records from the University of California Museum of Paleontology database (UCMPDB), the PaleoBiology Database, print sources, and previous record searches from the Natural History Museum of Los Angeles County, the San Diego Natural History Museum, and the San Bernardino County Museum were also reviewed for fossil records near to the project.

A field reconnaissance survey was conducted of the project area on June 18, 2018. The majority of the project area is hardscape and is modified by the I-10/Jackson Street interchange. All undeveloped ground surface areas that may be impacted within the project area are examined. Portions of the project where potentially fossiliferous sediments were present at the surface or where existing ground disturbances (e.g., cutbanks, ditches, animal burrows) incised into potentially fossiliferous sediments were intensely surveyed. Areas of hardscaping and landscaping are typically excluded. Only two areas of unmodified sedimentary deposits remained within the project area; on the north side of I-10 on either side of Jackson Avenue.

The project area is in the Coachella Valley at the northern end of the Salton Trough. Surrounded by mountains on all but the southeastern side, the Salton Trough is an extensional basin that parallels the San Andreas Fault Zone through the Coachella Valley from the Desert Hot Springs area to the Pacific Ocean south of the Gulf of California.

The project is mapped as late Holocene eolian sands and Whitewater River sediments deposited less than 3,000 years ago. The project is also mapped within the northern boundary of the middle to late Holocene Lake Cahuilla beds and valley alluvial sands less than 6,000 years old with deposits of the Whitewater River in a modern, man-made channel. The descriptions of these are found below:

- *Lake Cahuilla Deposits, Middle to Late Holocene*. Sediments of the Lake Cahuilla beds are generally composed of thin (1-2 cm thick), poorly sorted, fine-grained, light grayish-brown fluvial sands

interbedded with massive, poorly sorted, bioturbated, silty to sandy, white-to-light-gray lacustrine beds. In the La Quinta area, charcoal from fluvial deposits interfingering with the Lake Cahuilla beds has been dated to 5,890 + 60 years before present.

- *Valley Alluvium/Playa Deposits, Late Holocene.* Alluvial valley sediments in the area were laid down when Lake Cahuilla was dry or very shallow. These interfinger with the light grey, alkaline clays and micaceous silt of the Lake Cahuilla beds. Aside for the man-made channel deposits of the Whitewater River, the entire study area contains alluvial valley and playa deposits.
- *Eolian Deposits, Late Holocene.* These unconsolidated, well sorted, wind-blown sands occur as dunes and sheet sands. The dunes were produced in areas not covered by Lake Cahuilla. Since the lake coverage over the study area was periodic, the dunes interfinger with lake and Whitewater River sediments.
- *Whitewater River Deposits, Late Holocene.* Unconsolidated, fluvial sands and gravels occur in the recently active channels of the Whitewater River. Older fluvial deposits interfinger with lake and dune sediments, while modern sediments are deposited in the man-made Whitewater River Channel.

Results of Records Search and Pedestrian Survey

Only two areas of unmodified sedimentary deposits remained within the project area; on the north side of I-10 on either side of Jackson Avenue. Sediments of the late Holocene eolian deposits observed corroborated the sediment descriptions of Lancaster et al. (2012). The micaceous silts of the rest of the native deposits confirmed the local extent of the Lake Cahuilla beds as mapped by Dibblee and Minch. Small shells of the freshwater desert spring snail (*Tryonia*) and spring snail (*Pyrglopsis*) were present in all native and fill sediments owing to the ease of transport.

McLeod (2013, 2015) and Whistler et al. (1995) report fossil localities from the Lake Cahuilla beds in La Quinta, about 5 miles southwest of the I-10 at Jackson Avenue interchange. Freshwater mollusk shells were abundant on the surface and throughout almost every stratigraphic interval. Most vertebrate fossils were recovered from fluvial, rather than lacustrine, strata. Overall, diverse freshwater diatoms, land plant pollen, sponges, ostracods, mollusks, fish, and small terrestrial vertebrates were recovered from this paleontological sampling program. Additionally, fossils were reported within 2 miles of the project; however, these were from a much older Palm Springs Formation, which will not be impacted by project activities.

Paleontological Sensitivity

The Department utilizes a tripartite scale to characterize paleontological sensitivity consisting of no potential, low potential and high potential (see Table 2-30 below). Occurrences of fossil resources are closely tied to the geologic units (e.g., formations or members) that contain them. The probability for finding significant fossils in a project area can be broadly predicted from previous records of fossils recovered from the geologic units present in and/or adjacent to the study area.

If a paleontological resource is determined to be significant, of high sensitivity, or of scientific importance, and the project impacts it, a mitigation program must be developed and implemented. Mitigation can be initiated prior to, and/or during, construction.

Table 2-30 Paleontological Sensitivity Tripartite Scale

Caltrans Rank	Caltrans Description
No Potential	Rock units of intrusive igneous origin, most extrusive igneous rocks, and moderately to highly metamorphosed rocks are classified as having no potential for containing significant paleontological resources.
Low Potential	This category includes sedimentary rock units that: (1) are potentially fossiliferous, but have not yielded significant fossils in the past; (2) have not yet yielded fossils, but possess a potential for containing fossil remains; or (3) contain common and/or widespread invertebrate fossils if the taxonomy, phylogeny, and ecology of the species contained in the rock are well understood. Sedimentary rocks expected to contain vertebrate fossils are not placed in this category because vertebrates are generally rare and found in more localized stratum. Rock units designated as low potential generally do not require monitoring and mitigation. However, as excavation for construction gets underway it is possible that new and unanticipated paleontological resources might be encountered. If this occurs, a Construction Change Order (CCO) must be prepared in order to have a qualified Principal Paleontologist evaluate the resource. If the resource is determined to be significant, monitoring and mitigation is required.
High Potential	Rock units which, based on previous studies, contain or are likely to contain significant vertebrate, significant invertebrate, or significant plant fossils. These units include, but are not limited to, sedimentary formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. These units may also include some volcanic and low-grade metamorphic rock units. Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive. High sensitivity includes the potential for containing: (1) abundant vertebrate fossils; (2) a few significant fossils (large or small vertebrate, invertebrate, or plant fossils) that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data; (3) areas that may contain datable organic remains older than Recent, including Neotoma (sp.) middens; or (4) areas that may contain unique new vertebrate deposits, traces, and/or trackways. Areas with a high potential for containing significant paleontological resources require monitoring and mitigation.
Source: Caltrans 2014 County Sensitivity	

Typically geological units less than 11,700 years old are given a low sensitivity as they are too young to contain the remains of extinct Pleistocene animals. Although vertebrate fossils are known from the Lake Cahuilla beds, the closest vertebrate localities to the project area are 5 miles to the southwest in La Quinta. Approximately 7,050 pounds of sediment were washed to recover the fossils found in 1995. Radiometric dating from La Quinta produced dates too young to contain the remains of extinct Pleistocene animals. The snails and clams of the Lake Cahuilla beds are extremely common and are found throughout area that this lake previously covered. Because of these factors, the Lake Cahuilla beds are assigned a low potential for fossils. The Whitewater River sands and gravels, eolian deposits, and valley alluvium are also assigned a low sensitivity for fossils due to their age and other factors. See Table 2-31 and Figure 2-10 for the paleontological sensitivity of geologic units within the project study area.

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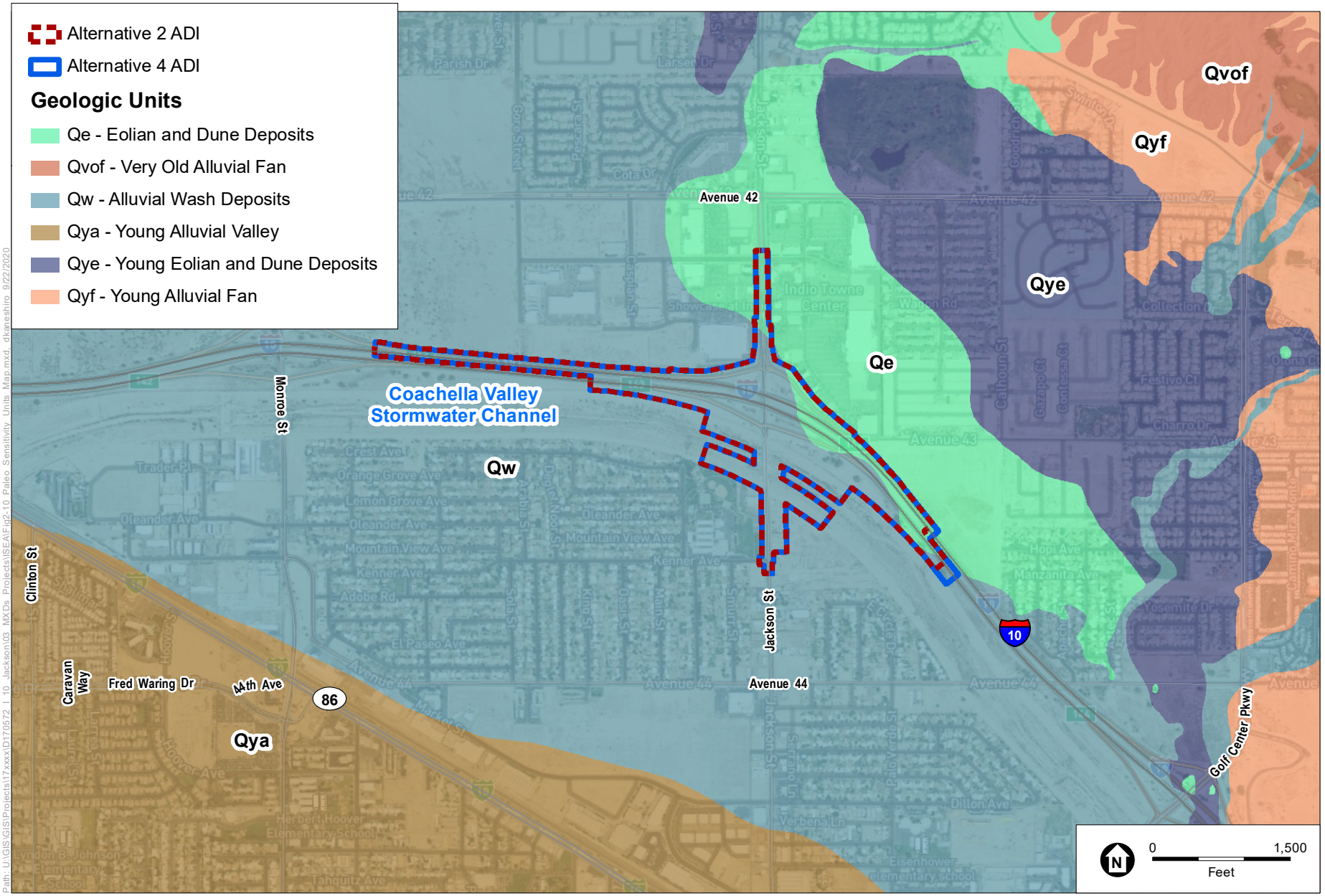

SOURCE: USGS, 2020; Mapbox, 2020.

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Figure 2-10

Paleontological Sensitivity Units Map

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Table 2-31 Paleontological Sensitivity of Geologic Units Within Project Study Area

Age	Unit	Caltrans Sensitivity	Justification
<6,000 years old, late Holocene	Eolian sands	Low	These are reworked from other deposits, so any fossils present would not be *in situ*.
	Whitewater River deposits	Low	The nearest vertebrate fossils are from La Quinta.
		low	Modern, channelized sediments have been deposited in the past 100 years, so any fossils present would not be *in situ.*
	Valley alluvium	Low	The nearest vertebrate fossils are from La Quinta.
	Lake Cahuilla beds	low	The nearest vertebrate fossils are from La Quinta.

2.2.4.3 Environmental Consequences

Temporary

There are no temporary impacts on paleontological resources. Any impacts on such resources during the construction period are considered permanent impacts and are discussed under the permanent impacts heading below.

Permanent

No-Build Alternative

Under the No-Build Alternative, no effects on paleontological resources would occur.

Build Alternatives 2 and 4

The project footprint for both Build Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

The literature, records search, and survey indicate that the project has low potential to affect important nonrenewable highly sensitive paleontological resources. No scientifically significant paleontological resources are anticipated to be impacted by the project. However, implementation of **PAL-1** would ensure that no impacts to sensitive paleontological resources would occur.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

No scientifically significant paleontological resources are anticipated to be impacted by the project. Due to this, no paleontological mitigation plan is required. However, implementation of **PAL-1** would ensure that no impacts to sensitive paleontological resources would occur.

PAL-1: If unanticipated discoveries are made all work must halt within 50 feet until a qualified paleontologist can evaluate the find. Work may resume immediately outside of the 50-foot radius.

2.2.5 Hazardous Waste/Materials

2.2.5.1 Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as "Superfund," is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

2.2.5.2 Affected Environment

The primary sources used in the preparation of this section is the *Initial Site Assessment for the I-10/Jackson Street Interchange Project* (ESA 2020), A*erially Deposited Lead Report for Interstate 10/Jackson Interchange Project* (Earth Mechanics Inc., 2019) and the *Hazardous Material Assessment for the Interstate 10/Jackson Street Interchange Project* (ATC Group Services, 2019).

The purpose of conducting a Phase I ISA is to identify Recognized Environmental Conditions (RECs) as defined by the ASTM International (ASTM) E 1527-13 Standard Practice for Environmental Site Assessments. The ASTM E 1527-13 Standard Practice defines the term REC as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. It is important to note that De minimis conditions are not RECs."

The purpose of an ISA is to enable the parties relying on it to satisfy one or more of the requirements for the innocent landholder defense to liability under the CERCLA and to evaluate the potential for Recognized Environmental Conditions (RECs) at the project site. Three types of RECs are defined by the ASTM E1527-13, as listed below.

In addition, the updated ASTM E1527-13 defined the two additional categories cited below.

The term Historical Recognized Environmental Conditions (HREC) means:

> *A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition.*

For a past REC to be considered an HREC it must:

- Have already been remediated (or meet current standards without remediation)
- Not require use restrictions or engineering controls (e.g., cap, subslab depressurization system)
- Meet current standards

If the REC has use restrictions or engineering controls (e.g., cap, subslab depressurization system, etc.), then the REC may be designated as a Controlled Recognized Environmental Condition (CREC), as defined below. Unlike HRECs, a CREC will be listed in the conclusions section of the Phase I assessment, along with other RECs. The purpose of this new category is to bring continuing obligations such as use restrictions, maintenance requirements, reporting requirements, etc. to the forefront. The term CREC means:

> *A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition*

> *considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment report.*

RECs, HRECs, and CRECs are not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The purpose of the asbestos and lead survey was to identify any accessible suspect asbestos-containing materials (ACM) and lead-containing materials, and inventory other hazardous materials including devices containing mercury, equipment containing polychlorinated biphenyls (PCBs), equipment containing chlorofluorocarbons (CFCs) and/or hydrochlorofluorocarbons (HCFCs), fluorescent light tubes in the structures.

No environmental site assessment can wholly eliminate uncertainty regarding the potential for RECs, HRECs, and CRECs in connection with a property. While every effort has been made to discover and interpret available historical and current information on the properties within the time available, some potential always remains for undiscovered contamination to be present.

The ISA completed for this project is based primarily on historical research, a database review, and a site reconnaissance of accessible areas. The conclusions presented are professional opinions based solely upon indicated data described in this report, visual site and vicinity observations, and the interpretation of the available historical information and documents reviewed, as described in this report.

Environmental Records Review

The purpose of the records review is to obtain and examine records that could help to evaluate potential RECs, HRECs, and CRECs in connection with the ADI or study area. Federal, state, and local regulatory agencies publish databases of businesses and properties that handle hazardous materials or hazardous waste, including those properties with a known release of hazardous substances to soil and/or groundwater. A commercial database service was contacted to perform the regulatory records database search for listings within the appropriate ASTM Standard minimum search distance.

The study area was listed on five federal, State, or local regulatory agency databases. Closed (already cleaned up) sites within the search radius and operating sites with no records of releases or use violations were not considered since they would not pose a risk to the ADI. The following Table 2-32 summarizes the searched regulatory records.

Table 2-32 Regulatory Records Review Search Sources

Federal
• Emergency Response Notification System (ERNS)
• Federal Institutional or Engineering Controls Registries (EC)
• Land Use Control Information System (LUCIS)
• Resource Conservation Recovery Act (RCRA) Sites with Controls
• RCRA-Generators List
• RCRA – Non-Generator
• FEMA Owned Storage Tanks
• Brownfields Management System

Federal
• Delisted National Priorities List
• No longer regulated RCRA Non-CORRACTS (Corrective Action Report) – Treatment, Storage, or Disposal Facility (TSDF)
• No longer regulated RCRA Corrective Action Faculties
• Superfund Enterprise Management System
• Superfund Enterprise Management System Archived Site Inventory
• U.S. EPA National Priority List (NPL), proposed NPL, and Delisted NPL Site List
• RCRA Corrective Action Facilities
• RCRA Subject to Corrective Action Facilities
State/Local
• DTSC Deed Restrictions
• Above Ground Storage Tanks
• Historic Underground Storage Tank
• Statewide Environmental Evaluation and Planning System
• Underground Storage Tanks
• Brownfield Sites
• CALSITES Database
• GEOTRACKER Cleanup Sites
• Leaking Underground Storage Tanks
• Solid Waste Information System Sites
• Voluntary Cleanup Program
• Envirostor Cleanup Sites
• State and tribal registered storage tank lists
• EnviroStor Permitted and Corrective Action Sites

Database Search Results

The following were identified in the regulatory database search results as being within the project area:

- J&L Materials Landscape Supply or Valley Block, located at 43320 Jackson Street. A Underground Storage Tank (UST) removal and closure report was prepared for the J&L Materials Landscape Supply property. In 1986, one 550-gallon diesel tank and one 550-gallon gasoline tank were removed. It was determined the gasoline tank had a hole that resulted in a leak and soil contamination. A groundwater remediation system consisting of a pneumatic pulse pump was installed in one of the four wells. The remediation system pumped groundwater to a 550-gallon aboveground storage tank (AST) with a 12-hour retention time then to the local sewer system. The system was shut down in December 1991 after water samples gathered in October 1991 showed some remaining contamination. In October 1996, after consultation with the Riverside County Local Oversight Review Committee and the Colorado River Regional Water Quality Control Board, based on the Lawrence Livermore study, it was determined that the levels of residual contamination at the site were low enough to not pose a risk to people or the environment and the site could be closed once the monitoring wells were destroyed. Following monitoring well destruction, the site was determined to be “closed.”

- Dateland Moving & Storage located at 43-695 Jackson Street. One 1,000-gallon UST was installed in 1977 beneath the parcel and contained TPHg. The historical UST facility is listed as "Active" by the Statewide Environmental Evaluation and Planning System (SWEEPS) database, and no leaks have been reported.
- Kirkpatrick Landscaping, Inc., located at 43752 Jackson Street. This property is listed in the RCRA-generator database for generating small quantities of hazardous waste. The facility is listed as active, and no violations, or corrective actions have been associated with the operations on this parcel.

  None of these are currently experiencing any hazardous waste leaks or exhibit hazardous waste that could potentially create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions.

  Historical aerial photographs, historical topographic maps, oil and gas well information and city directories did not reveal any other possible hazardous waste concerns in the project area.

Adjacent Properties

Target Store #T2441 is located immediately north of the study area at 42625 Jackson Street and is listed three times on the RCRA – generator database. The Target Store is primarily listed as a RCRA – generator due to its generation of pharmaceutical wastes regulated under RCRA. Although the Target Store facilities identified above are listed as active hazardous waste generators, no violations, or corrective actions have been associated with the operations on this parcel. This Target Store site is not considered to contribute to environmental conditions on the project site.

The National Guard – Indio Armory is located immediately west of the study area at 43143 Jackson Street and is listed on the Hazardous Waste Tanner Summary (HWTS) and RCRA-Non Generator lists. The facility is listed as generating and disposing of oil-containing waste, organic solids, inorganic solid waste, liquids with pH less or equal to 2, and waste oil. The manifests were dated between 1993 through 1997. No violations were reported for the National Guard – Indio Armory and it maintains an active status per the Department of Toxic Substances Control (DTSC) EPA ID Profile dated July 29, 2020 (DTSC, 2020). This National Guard – Indio Armory site is not considered to contribute to environmental conditions on the project site.

Site Reconnaissance

A visual observation of readily accessible areas of the subject site and immediately adjoining properties was conducted on August 2, 2018 and on September 5, 2020. The study area is located at the I-10/Jackson Street Interchange in Indio, California. The project limits extend from approximately Post Mile (PM) R54.9 to PM R56.5 along I-10 and from Kenner Avenue (South of I-10) to Atlantic Avenue (North of I-10) along Jackson Street. The portion of the Study area that is located northeast of the I-10, consists of recently developed parcels occupied by the Indio Towne Center with The Home Depot, and numerous restaurants. The northwest quadrant features a Super Target and other big box stores. The Whitewater River runs parallel to I-10 immediately south of the interchange. North Jackson Park, Andrew Jackson Elementary School, J&L Materials Landscape Supply, and residential communities are located south of the Whitewater River.

One unidentified substance container was observed during site reconnaissance activities on the adjacent parcel occupied by J C Automobile repair. However, no evidence of spills, leaks, or staining was observed from the unidentified substance container, and no faulting, or cracks were observed in the asphalt underlying the container. No other hazardous substance containers or unidentified substance containers were observed at the adjacent property during the site reconnaissance.

An underground storage tank is known to exist at 43695 Jackson Street and is located adjacent to the project right-of-way. The historical UST facility is listed as "Active" by the SWEEPS database, and no leaks have been reported. Additionally, based on available information and site reconnaissance activities, there are no ASTs located on the property.

A utility line runs along the northbound portion of Jackson Street and includes two pole-mounted transformers, which have the potential to contain PCBs. If these pole-mounted transformers are disturbed during construction, the release of PCBs to the surrounding environment would potentially constitute an REC. However, no leaks or staining were observed from the identified transformers.

Other than miscellaneous roadside refuse that had been discarded along the study area, either intentionally or unintentionally (i.e., windblown), no significant accumulation of solid waste was observed at the study area during the site reconnaissance activities, with the exception of one sofa. No dumping grounds were observed. Based on available information, no portion of the study area is currently or previously designated as a solid waste disposal site including adjacent sites.

Lead-Based Paints

Lead is a hazardous substance. Its condition, handling and disposal are regulated by Federal, State, and local agencies. Lead-containing materials, LBP and LCP generally do not pose a health risk unless the material is disturbed or sufficiently deteriorated to produce dust, which may become airborne and inhaled or ingested.

Fieldwork in the project area occurred in May of 2018 to obtain samples for determining the presence of asbestos and lead based paint (LBP).

LBPs were commonly used in traffic striping materials before the discontinued use of lead chromate pigment in traffic striping/marking materials and hot-melt Thermoplastic stripe materials (discontinued in 1996 and 2004, respectively). A total of 13 paint-chip samples were collected and tested for lead content in accordance with the U.S. EPA Method 420 analytical protocol. Based on the results, none of the materials sampled meet the definition of lead-based paint or lead-containing paint.

Aerially Deposited Lead

Aerially deposited lead (ADL) from the historical use of leaded gasoline, exists along roadways throughout California. There is the likely presence of soils with elevated concentrations of lead as a result of ADL on the state highway system right-of-way within the limits of the project alternatives. Soil determined to contain lead concentrations exceeding stipulated thresholds must be managed under the July 1, 2016, ADL Agreement between the Department and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.

In April 2019, an ADL Report for the project was completed. As part of the report, a total of 168 soil samples were collected for total lead content testing. The results of the soil testing concluded that lead levels in the soil were below the threshold to be considered hazardous. The site-soils can be re-used on-site, and the excess soil may be released to the contractor for disposal in accordance with local, state and federal guidelines, laws and regulations. Contractors excavating, transporting, or stockpiling soil should prepare a Lead Compliance Plan in accordance with the Caltrans Code of Safety Practices, California Code of Regulations and CalOSHA standards addressing the presence of ADL in the soils within the project area.

Additionally, yellow thermoplastic traffic stripes were also tested. Based on the test results, the on-site soils and yellow thermoplastic traffic stripes are considered as non-hazardous.

Asbestos-Containing Material

Asbestos is a strong, incombustible, and corrosion resistant material, which was used in many commercial products since prior to the 1940s and up until the early 1970s. If inhaled, asbestos fibers can result in serious health problems. Asbestos containing materials (ACMs) are building materials containing more than 1 percent asbestos (some state and regional regulators impose a 0.1 percent threshold). Please note, in California, materials containing greater than 0.1 of 1 percent (>0.1 percent) asbestos are defined as asbestos-containing construction material (ACCM) and are regulated by the California Division of Occupational Safety and Health.

A total of 27 bulk asbestos samples were collected from the project area and analyzed by Polarized Light Microscopy (PLM) with dispersion staining. The results are in Table 2-33 below, Asbestos Survey Results. Materials identified as ACM or ACCM are denoted in **bold**.

Table 2-33 Asbestos Samples

Sample Number	Homogenous Material	Location	Approximate Quantity	Asbestos Content
1	Reflector Mastic, black	I-10 Bridge South end East	NA	ND
2	Reflector Mastic, black	I-10 Bridge South end West	NA	ND
3	Reflector Mastic, black	1-10 Bridge North end North	NA	ND
4	**Guard Rail Bracket Pad**	**1-10 Bridge North end North**	**90SF**	**60% Chrysotile**
5	**Guard Rail Bracket Pad**	**I-10 Bridge South end East**	**90SF**	**60% Chrysotile**
6	**Guard Rail Bracket Pad**	**I-10 Bridge South end West**	**90SF**	**50% Chrysotile**
7	Expansion Joint	1-10 Bridge North end North	NA	ND
8	Expansion Joint	I-10 Bridge South end East	NA	ND
9	Expansion Joint	I-10 Bridge South end West	NA	ND
10	Concrete	I-10 Bridge South end West	NA	ND
11	Concrete	I-10 Bridge South end East	NA	ND
12	Concrete	1-10 Bridge North end North	NA	ND
13	Asphalt	I-10 Bridge South end East	NA	ND
14	Asphalt	I-10 Bridge South end West	NA	ND
15	Asphalt	I-10 Bridge South end South	NA	ND
16	Reflector Mastic, black	Whitewater River Bridge North end East	NA	ND
17	Reflector Mastic, black	Whitewater River Bridge North end West	NA	ND
18	Reflector Mastic, black	Whitewater River Bridge South end South	NA	ND
19	**Guard Rail Bracket Pad**	**Whitewater River Bridge North end East**	**150 SF**	**60% Chrysotile**
20	**Guard Rail Bracket Pad**	**Whitewater River Bridge North end West**	**150 SF**	**60% Chrysotile**
21	**Guard Rail Bracket Pad**	**Whitewater River Bridge South end South**	**150 SF**	**50% Chrysotile**
22	Concrete	Whitewater River Bridge North end East	NA	ND
23	Concrete	Whitewater River Bridge North end West	NA	ND
24	Concrete	Whitewater River Bridge South end South	NA	ND
25	Asphalt	Whitewater River Bridge North end West	NA	ND
26	Asphalt	Whitewater River Bridge North end East	NA	ND
27	Asphalt	Whitewater River Bridge South end South	NA	ND

ND= None Detected
NA= Not Applicable
SF= Square Feet
Source: ATC Group Services LLC, 2019

Based on the survey results, asbestos was identified in the guard rail bracket pads and it should be assumed that it is present in all the guard rail bracket pads that will be removed during construction.

2.2.5.3 Environmental Consequences

Temporary

No-Build Alternative

Under the No-Build Alternative, no construction is proposed; therefore, no adverse effects under NEPA or significant impacts under CEQA would occur with respect to hazardous waste and materials.

Build Alternatives 2 and 4

The project footprint for both Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

During construction of the project, there would be a possibility of accidental release of hazardous substances. However, the level of risk associated with the accidental release of hazardous substances is not considered to be adverse due to the small volume and low concentration of hazardous materials utilized during construction.

Because asbestos was identified in the guard rail bracket pads, it should be assumed that asbestos is present in all the guard rail bracket pads. The Department's Standard Special Provisions (SSP) and Non-Standard Special Provisions (NSSP) will be followed that provide contractors with guidance on preparing submittals and handling affected materials. In addition, SSP 14-9.02 A and 14-11.16 (see Chapter 1) will be followed to ensure that asbestos containing materials are properly identified and removed during construction. Implementation of avoidance and minimization measures **HAZ-2** and **HAZ-3**, described below, will ensure that all asbestos will be removed properly and safely, without accidental release.

Although the on-site transformers have not resulted in a REC on the subject site, any transformer to be relocated/removed during site construction/demolition should be conducted under the purview of the local jurisdiction to identify property-handling procedures regarding Polychlorinated Biphenyls (PCBs) (refer to avoidance and minimization measure **HAZ-4**, described below).

Lastly, implementation of avoidance and minimization measures **HAZ-1** and **HAZ-5** below will ensure that all hazardous materials are identified prior to construction and will ensure that proper handling and disposal measures are followed. Thus, the impact to hazardous wastes would be less than significant under CEQA, and there would be no adverse impacts under NEPA.

Permanent

No-Build Alternative

Under the No-Build Alternative, no improvements would be made to the existing interchange; therefore, there would be no impacts for hazardous resources as a result of this alternative.

Build Alternatives 2 and 4

The project footprint for both Alternatives 2 and 4 are similar; therefore, the discussion of both Build Alternatives below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

Operation of either Build Alternative is not expected to result in the creation of any new health hazards or expose people to potential new health hazards. As such, the Build Alternatives would not result in adverse effects. No permanent impacts related to hazardous materials are anticipated as a result of either Build Alternative, since operation of the project would not generate hazardous waste.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

To ensure potential effects involving hazardous materials/waste during construction are avoided or reduced, the following avoidance, minimization, and/or mitigation measures will be implemented.

HAZ-1: A Phase II/Site Characterization Specialist shall conduct sampling in order to determine whether residual lead contamination exists within areas of proposed right-of-way acquisition for both build alternatives. Results of the sampling shall indicate soil management practices that will be employed, including the reuse of soils on-site, disposal of soils off-site, and worker safety precautions that may be necessary during construction.

HAZ-2: All on-site ACM shall be abated by a licensed asbestos abatement contractor prior to demolition/renovation activities. Any suspect materials found during future field activities that were not previously sampled shall be sampled prior to removal and abated as necessary.

HAZ-3: Applicable laws and regulations will be followed, including those provisions requiring notification to building occupants, renovation contractors, and workers of the presence of ACM and LBP.

HAZ-4: Although the on-site transformers have not resulted in a REC on the subject site, any transformer to be relocated/removed during site construction/demolition should be conducted under the purview of the local purveyor to identify property-handling procedures regarding PCBs.

HAZ-5: The contractor shall conduct work in compliance with the California Department of Transportation's (Caltrans) Unknown Hazards Procedures for Construction. In the event that suspect contamination is discovered during site disturbance/construction activities, work shall cease in the vicinity of the find and the contractor shall retain a qualified Phase II/Site Characterization Specialist to sample/test the suspect materials prior to removal from the site and subsequent disposal. The Specialist shall document the results and recommend further action if necessary, including contacting appropriate regulatory agencies.

2.2.6 Air Quality

2.2.6.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the U.S. EPA and the California Air Resources Board (CARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: \carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM)—which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$)—and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (PB), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the NEPA. In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM10 and PM2.5), and in some areas (although not in California), sulfur dioxide (SO2). California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the "open-to-traffic" schedule

of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the project has a design concept and scope[3] that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and U.S. EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.6.2 Affected Environment

The primary source used in the preparation of this section is the *Air Quality Report for the I--10/Jackson Street Interchange Improvement Project*, dated August 2019 (ESA 2019).

Environmental Setting

The project is centrally located within the City of Indio at the crossroad of I-10, Jackson Street, and the Coachella Valley Stormwater Channel. The project site lies within the northeastern portion of the Salton Sea Air Basin (Basin), which includes the Coachella Valley portion of Riverside County and all of Imperial County. The Basin is governed by the South Coast Air Quality Management District (SCAQMD) and is included in the local Metropolitan Planning Organization (MPO), the Southern California Association of Governments (SCAG).

Climate

The City of Indio is located in Riverside County, in the Coachella Valley (Valley) of Southern California's Colorado Desert region. The Coachella Valley is located in southeast Riverside County from the San Bernardino Mountains to the northern shore of the Salton Sea. The Valley is bounded on the southwest by the Santa Rosa Mountains, by the San Jacinto Mountains to the west, the Little San Bernardino Mountains to the east and San Gorgonio Mountain to the north. These mountains peak at around 11,000 feet and tend to average between 5,000 and 7,000 feet.

The Palm Springs Airport climatological station, maintained by the SCAQMD, is located near the project site and is representative of meteorological conditions near the project. The climate of the Coachella Valley is influenced by the surrounding geography. High mountain ranges on three sides contribute to its unique and year-round warm climate, with some of warmest winters west of the Rocky Mountains. The surrounding mountains create Thermal Belts in the immediate foothills of the Coachella Valley, leading to higher night-time temperatures in the winter months, and lower daytime temps during the summer months. The Valley is the northwestern extension of the Sonoran Desert to the southeast, and as such, is extremely arid. Most precipitation falls during the winter months from passing mid-latitude frontal systems from the north and west, nearly all of it as rain, but with snow atop the surrounding mountains. Rain also falls during the summer months as surges of moisture from both the Gulf of Mexico and the Gulf of California are drawn into the area by the desert monsoon. Occasionally, the remnants of a Pacific tropical cyclone can also affect the valley.

The City of Indio has a warm winters and hot summer climate. Average annual high temperature is 90 degrees Fahrenheit (°F) and average annual low is 62 °F. Summer highs above 108 °F are common and sometimes exceed 120 °F, while summer night lows often stay above 82 °F. Winters are warm with

[3] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

daytime highs often between 68–86 °F. Under 4 inches of annual rain are average, with over 348 days of sunshine per year.

Attainment Status

Regional air quality is monitored locally by SCAQMD in conjunction with CARB. The Clean Air Act (CAA) requires the U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria air contaminants: ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), and sulfur dioxide (SO_2). It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 2-34 documents the current federal and State air quality standards. The U.S. EPA determines regional air quality status based on data collected from permanent monitoring stations. An area is classified as “attainment" if the primary NAAQS have been achieved and "nonattainment" if the NAAQS are not achieved. Within the project area $PM_{2.5}$, SO_2, NO_2 and Pb are currently in attainment with federal and State standards. CO is designated as maintenance and O_3 and PM_{10} are currently in nonattainment. The Basin air quality status is summarized in Table 2-35.

Table 2-34 Ambient Air Quality Standards

Pollutant	Average Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
O_3[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
PM_{10}[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
$PM_{2.5}$[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12 µg/m^3	15 µg/m^3	
CO	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
NO_2[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
SO_2[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3(for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenunation and Transmittance through Filter Tape	No Federal Standards		
Sulfates (SO_4)	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Table 2-34 Ambient Air Quality Standards

Pollutant	Average Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]

Notes:

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms/per cubic meter (µg/m^3) is equal to or less than 1. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated non-attainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB, Ambient Air Quality Standards (5/4/16), Available online: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. Accessed August 2020

Table 2-35 State and Federal Attainment Status

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3)	Nonattainment	Nonattainment (Extreme)
Respirable Particulate Matter (PM_{10})	Nonattainment	Nonattainment (Serious)
Fine Particulate Matter ($PM_{2.5}$)	Attainment	Attainment/Unclassified
Carbon Monoxide (CO)	Attainment	Attainment – Maintenance (Serious)
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment – Unclassified
Lead (Pb)	Attainment	Attainment – Unclassified
Visibility-Reducing Particles	Unclassified	N/A
Sulfates	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Vinyl Chloride	Unclassified	N/A

Table 2-36 describes the status of the U.S. EPA-approved SIPs for the Salton Sea Air Basin that are relevant to the project.

Table 2-36 Status of SIPs Relevant to the Project Area

Name	Description
2012 Air Quality Management Plan	The 2012 AQMP includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. It highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria air pollutant standards within the timeframes allowed under the CAA.[4] The key undertaking of the 2012 AQMP is to bring the Air Basin into attainment with the NAAQS for the 24-hour $PM_{2.5}$ standard. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2024 8-hour O_3 standard deadline with new measures designed to reduce reliance on the CAA section 182(e)(5) long-term measures for NO_X and VOC reductions.
2016 Air Quality Management Plan	While the 2016 AQMP is the most recent and was adopted by SCAQMD and CARB, it has not received full U.S. EPA approval for inclusion in the SIP. Therefore, until such time as the 2016 AQMP is completely approved by the U.S. EPA, the 2012 AQMP remains the applicable AQMP. Key elements of the 2016 AQMP include implementing fair-share emissions reductions strategies at the federal, state, and local levels; establishing partnerships, funding, and incentives to accelerate deployment of ZE and near-zero-emissions (NZE) technologies; and taking credit from co-benefits from greenhouse gas, energy, transportation and other planning efforts.5 The strategies included in the 2016 AQMP are intended to demonstrate attainment of the NAAQS for the national non-attainment pollutants ozone and $PM_{2.5}$.[6]
2003 Coachella Valley PM10 State Implementation Plan	This plan includes control measures for the abatement of large particulates in Coachella Valley. These dust control measures target construction and earth movement activities, disturbed vacant lands, impaired roads and lots, paved road dust, and agriculture.

[4] South Coast Air Quality Management District, 2013. *Final 2012 Air Quality Management Plan*. February 2013.
[5] South Coast Air Quality Management District, 2017. *Final 2016 Air Quality Management Plan*. March 2017.
[6] South Coast Air Quality Management District, 2016. *NAAQS/CAAQS and Attainment Status for South Coast Air Basin*. 2016.

Transportation Conformity Rule

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming level—and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. The U.S. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California), sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP), and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA), make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project is the same as described in the RTP and the TIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP and the project has a design concept and scope[7] that has not changed significantly from those in the RTP and TIP. If the design concept and scope have changed substantially from that used in the RTP Conformity analysis, RTP and TIP amendments may be needed. Project-level conformity also needs to demonstrate that project analyses have used the latest planning assumptions and U.S. EPA-approved emissions models; the project complies with any control measures in the SIP in PM areas. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

Local Ambient Air Quality

The project area is in Source Receptor Area 30. The closest air monitoring station is the Jackson Street monitoring station (46-990 Jackson Street, Indio), which is approximately 1.6 miles south of the project site. This station monitors ambient concentrations of O_3, PM_{10}, and $PM_{2.5}$. The Palm Springs monitoring station (Fs-590 Racquet Club Ave, Palm Springs) is located approximately 19 miles northwest of the project site and monitors CO and NO_2. Both monitoring stations are shown in Figure 2-11. Monitored

[7] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

data presented in Tables 2.37 and 2.38 indicate that the maximum CO, NO_2, and $PM_{2.5}$ concentrations collected have not exceeded the federal standard over the past 5 years. PM_{10} and O_3 concentrations have exceeded the federal standard multiple times over the past 5 years.

Table 2-37 Air Quality Concentrations for the Past 5 Years Measured at Jackson Street Monitoring Station

Pollutant	Standard	2013	2014	2015	2016	2017	2018
Ozone							
Max 1-hr concentration		0.105	0.095	0.093	0.099	0.107	0.106
No. days exceeded:							
State	0.09 ppm	2	2	0	3	8	N/A
Max 8-hr concentration		0.087	0.091	0.086	0.090	0.094	0.091
No. days exceeded:							
State	0.070 ppm	38	30	12	29	47	NA
Federal	0.070 ppm	35	24	11	27	44	49
PM_{10}							
Max 24-hr concentration		159	299	382.0	261.2	143.1	123
No. days exceeded:							
State	50 µg/m^3	85	95	N/A	138	N/A	N/A
Federal	150 µg/m^3	3	6	N/A	N/A	1	0
Max annual concentration		38.6	44.8	N/A	48.8	N/A	N/A
No. days exceeded:							
State	20 µg/m^3	N/A	N/A	N/A	N/A	N/A	N/A
$PM_{2.5}$							
Max 24-hr concentration		25.8	18.3	24.6	25.8	18.8	28.7
No. days exceeded:							
Federal	35 µg/m^3	0	N/A	N/A	0	N/A	0
Max annual concentration		8.4	N/A	N/A	7.7	N/A	N/A
No. days exceeded:							
State	12 µg/m^3	N/A	N/A	N/A	N/A	N/A	N/A
Federal	12.0 µg/m^3	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

N/A - There was insufficient (or no) data available to determine the value.
hr – hour
No. – number

Source: CARB, https://www.arb.ca.gov/adam/index.html, Accessed January 2018.

Table 2-38 Air Quality Concentrations for the Past 5 Years Measured at Palm Springs Monitoring Station

Pollutant	Standard	2013	2014	2015	2016	2017	2018
Carbon Monoxide							
Max 1-hr concentration		3.2	2.2	2.0	3.1	1.0	1.1
No. days exceeded:							
State	20 ppm	0	0	0	0	0	N/A
Federal	35 ppm	0	0	0	0	0	0
Max 8-hr concentration		1.4	0.8	0.7	1.5	0.5	0.8
No. days exceeded:							
State	9 ppm	0	0	0	0	0	N/A
Federal	9 ppm	0	0	0	0	0	0
Nitrogen Dioxide							
Max 1-hr concentration		52	46	42	43	43	43
No. days exceeded:							
State	0.18 ppm	0	0	0	0	0	N/A
Federal	100 ppb	0	0	0	0	0	0
Max annual concentration		7	7	6	6	6	6.75
No. days exceeded:							
State	0.030 ppm	0	0	0	0	0	N/A
Federal	53 ppb	0	0	0	0	0	0

Notes:

N/A - There was insufficient (or no) data available to determine the value.
hr – hour
No. – number

Source: CARB, https://www.arb.ca.gov/adam/index.html, Accessed January 2018.

2.2.6.3 Sensitive Receptors

Generally, people that are more sensitive to air quality conditions are young children, the elderly, and people with immune deficiencies; therefore, land uses, such as schools, daycare facilities, hospitals, elderly care facilities, and other areas that are occupied by people susceptible to air quality pollutants, are considered sensitive air quality receptors. Residential land uses are also considered to be sensitive receptors.

The area surrounding the site supports a variety of land uses including outdoor recreational use areas (North Jackson Park), single-family residences, restaurants, commercial properties, a hotel (Fairfield Inn and Suites) and a school (Andrew Jackson Elementary School). Andrew Jackson Elementary school is located approximately 1,000 feet south of the I-10 and 270 feet west of Jackson Street. Some residential land uses are located approximately 600 feet from the edge of the I-10 travel lanes and 190 feet from improvements made to Jackson Street.

On the basis of research showing that the zone of greatest concern near roadways is within 500 feet (or 150 meters), sensitive receptors within 500 feet have been identified and are documented in Table 2-39. Given the large size of the project and its potential to influence receptors at greater distances, sensitive receptors within 2,000 feet are also listed in Table 2-39. The location of sensitive receptors within 2,000 feet of the project site are depicted in Figure 2-12.

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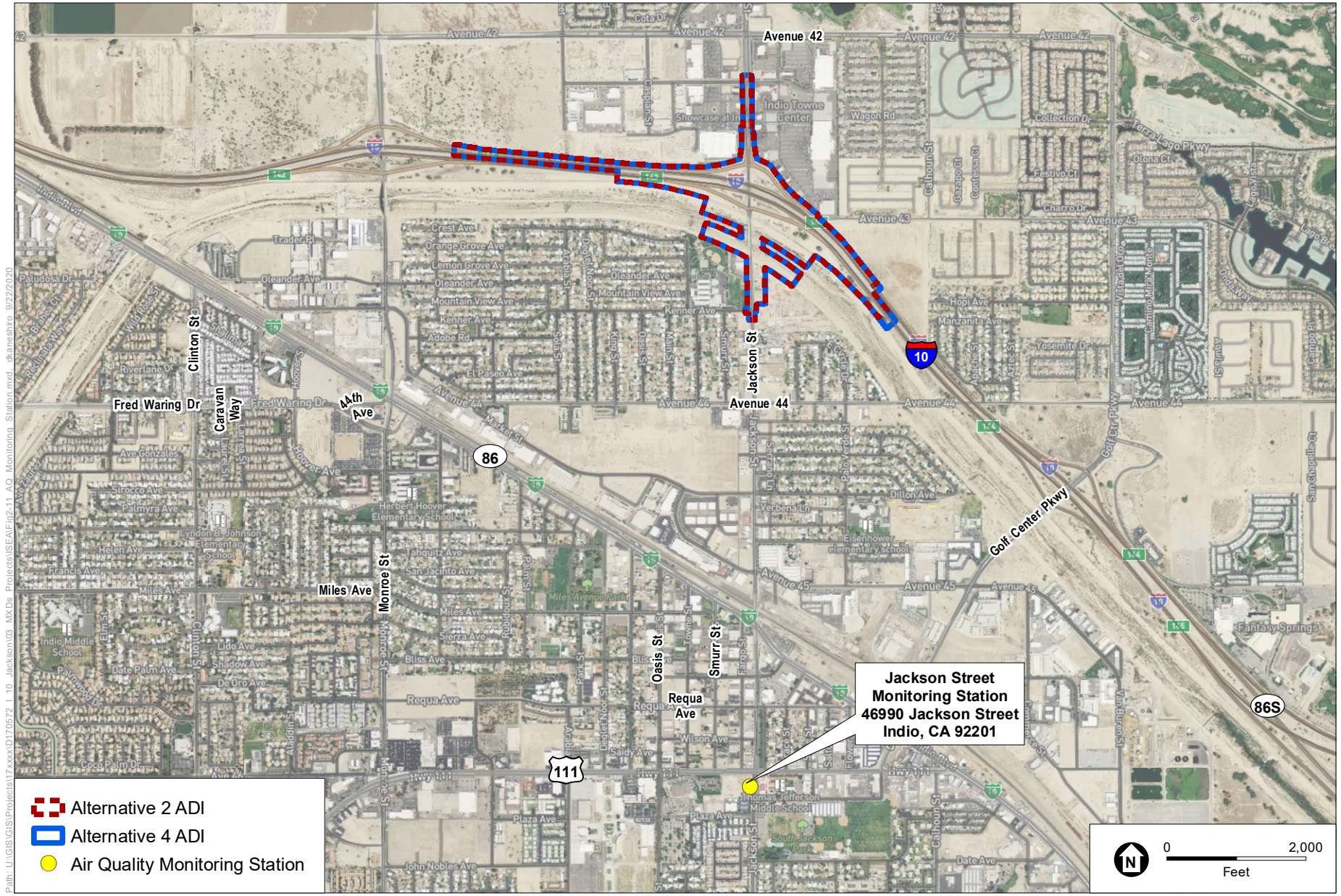

SOURCE: Riverside County GIS; ESRI.

I-10 / Jackson Street Interchange Project

Figure 2-11

Location of Indio-Jackson Air Quality Monitoring Station

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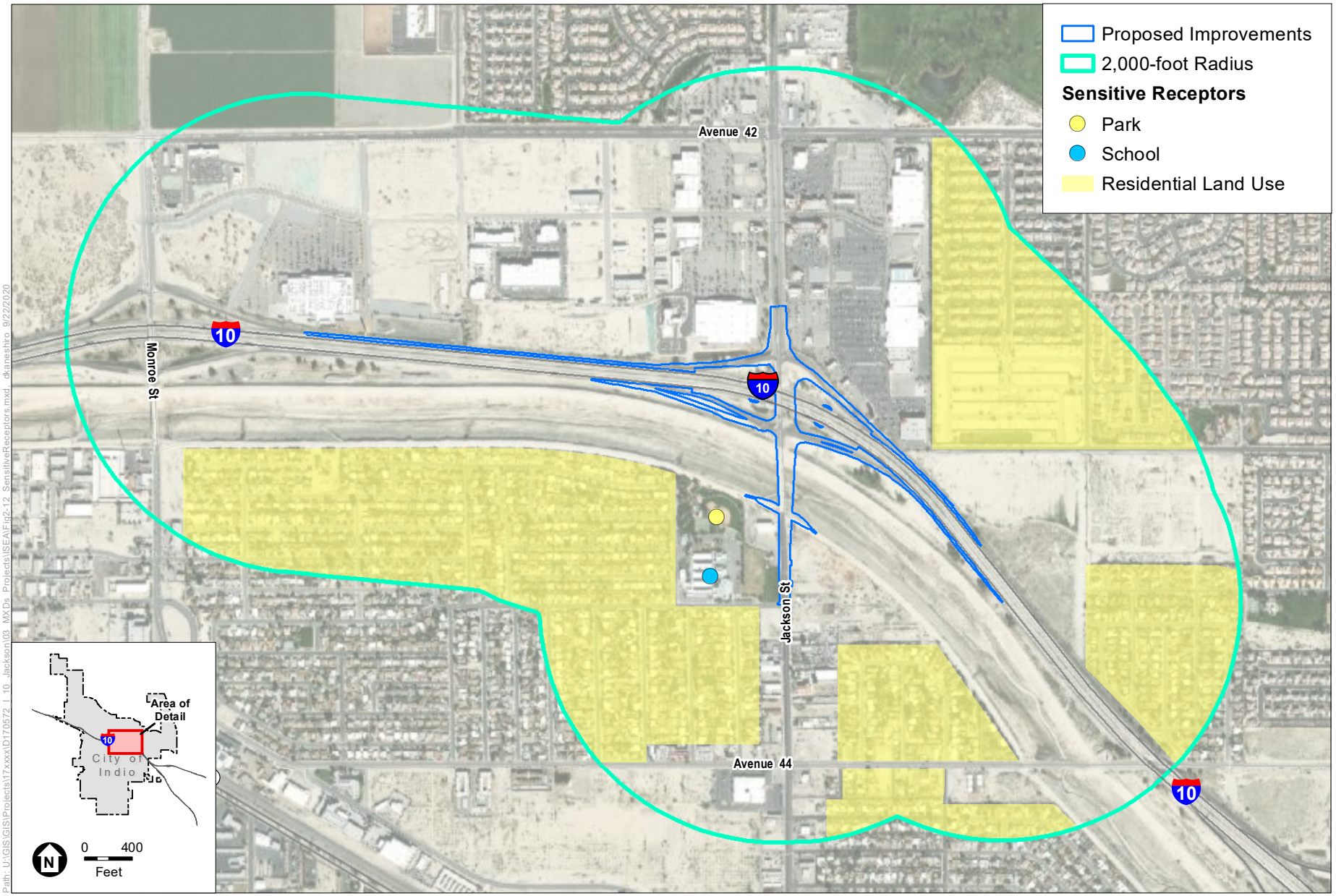

SOURCE: Riverside County GIS

I-10 / Jackson Street Interchange Project

Figure 2-12

Sensitive Receptors Located Near the Proposed Project

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Table 2-39 Sensitive Receptors Located within 2,000 Feet of the Project Site

Receptor	Description	Distance Between Receptor and Project (ft)
North Jackson Park	City park open to the public with playground, baseball fields, tennis courts, and a baseball court.	625 feet (I-10) 290 feet (Jackson Street)
Andrew Jackson Elementary School	Kindergarten through 5th grade public elementary school.	1,000 feet (I-10) 270 feet (Jackson Street)
Residential Properties	Community of single-family residences adjacent to the I-10 and Jackson Street.	600 feet (I-10) 190 feet (Jackson Street)

Mobile Source Air Toxics

The largest sources of mobile source air toxics (MSAT) in the project area are cars and trucks on I-10, Monroe Street, and other major thoroughfares in the project vicinity. Ambient MSAT data are available from CARB's website (http://www.arb.ca.gov/adam/toxics/toxics.html).

2.2.6.4 Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) is present in approximately 44 of California's 58 counties. Asbestos is often found in serpentine rock and ultramafic rock near fault zones. Asbestos is a human health hazard when airborne. Asbestos fibers can be inhaled into lungs, causing inflammation and respiratory ailments and cancers. The project, well within an established urban area, is not near any known major sources of NOA (California Department of Conservation, Division of Mines and Geology 2000).

2.2.6.5 Environmental Consequences

Temporary

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be constructed. Short-term impacts on air quality would not occur.

Build Alternatives 2 and 4

The project footprint for both Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

Site preparation and roadway construction will involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include CO, NOX, VOCs, directly emitted PM10 and PM2.5, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction activities are expected to increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

The construction period for the project is expected to occur over 2 stages for a total of approximately 24 months. Construction emissions are typically not considered in conformity analyses where construction

will last for 5 years or less. However, EO-B-30-15 requires construction impacts to be considered, including GHG emissions estimation, regardless of length of the construction period. Therefore, construction emissions were estimated using the latest SMAQMD's RCEM, Version 9.0.0.

Construction activities for both Build Alternative 2 and Build Alternative 4 would be the same; therefore, the estimated construction-related emissions provided in Table 2-40 would apply to both Build Alternatives. Construction emissions were estimated for both Build Alternatives using default equipment inventories provided in RCEM, project construction scheduling information provided by the project engineer, and emissions factors from the EMFAC 2017 and OFFROAD models. The emissions presented are the worst-case maximum daily construction emissions (pounds per day) for each activity that would be generated by both Build Alternatives.

Although construction emissions are anticipated to be below SCAQMD thresholds, contractors would be required to follow all applicable SCAQMD rules and regulations, including Rule 403 (Fugitive Dust) and Rule 431 (Diesel Equipment), to minimize air quality impacts. Contractors, for example, would water dusty areas and minimize the tracking of soil from unpaved dirt areas to paved roads.

Table 2-40 Construction Emissions for Phase 1 and Phase 2

Emissions Parameter	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Land Clearing/ Grubbing	1.19	11.39	10.97	0.03	20.50	4.60
Grading/Excavation	8.25	89.20	67.43	0.18	23.67	7.41
Drainage/Utilities/Sub-Grade	5.57	55.57	47.82	0.11	22.29	6.25
Paving	1.09	10.54	14.19	0.03	0.52	0.43
Maximum Daily	8.25	89.20	67.43	0.18	23.67	7.41
SCAQMD Construction Threshold (local emissions)	75	100	550	150	150	55
Exceed Threshold?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
SCAQMD LST, SRA #30 (local emissions)	N/A	425	5,331	N/A	67	19
Exceed Threshold?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

Notes:

lbs = pounds; N/A = not applicable

ROG – reactive organic compounds; NOx – nitrogen oxides; CO – carbon monoxide; SO_2 – sulfur dioxide; PM_{10} – particulates under 10 microns; $PM_{2.5}$ – particulates under 2.5 microns. lb – pound; NA – not applicable; SCAQMD – South Coast Air Quality Management District; LST – Localized Significance Threshold; SRA – Source Receptor Area. Project emissions of ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ were estimated using the Road Construction Emissions Model, Version 9.0.0. SO_2 emissions estimated based on fuel consumption and use of ultra-low sulfur fuel (15 parts per million).

Local Significance Threshold

SCAQMD developed the Localized Significance Threshold (LST) methods to assist CEQA lead agencies in analyzing local air quality impacts from simple projects. The LST methods allow users to determine, without dispersion modeling, if a project would cause or contribute to an exceedance of the applicable ambient air quality standard. The LST methods are based on the maximum daily allowable on-site emissions, the total area of the emissions source, the ambient air quality in each Source Receptor Area (SRA) in which the emission source is located, and the distance to the nearest exposed individual. The LST includes look-up tables for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$. If project emissions are less than the LST values, then the proposed activity is considered not to violate or substantially contribute to an existing or projected air quality standard.

SCAQMD's LST methods were used in this analysis to evaluate ambient air quality impacts from project construction. The LST guidance indicates that the methods are appropriate for small construction sites. The LST analysis assumed a 5-acre site because that is the largest area that would be disturbed at any given time. Distance to the nearest sensitive receptor was assumed to be 100 meters due to the size of the site and the distances to the nearest residential areas.

Project emissions were compared to the project-specific LST values in Table 2-40 to determine the significance of project impacts. Table 2-40 shows that emissions from project construction would not exceed any applicable LST, and, therefore, could not result in a violation of an air quality standard.

Toxic Air Contaminant Emissions

During the construction period, which is scheduled to last approximately 30 months, short-term generation of pollutants from construction vehicles and equipment would occur. However, the construction period is much shorter than the assumed 30-year exposure period used to estimate lifetime cancer risks, as recommended by the California Office of Environmental Health Hazard Assessment. Furthermore, given the linear nature of the project, sensitive receptors would be exposed to pollutants for a small portion of the total construction period because equipment would not be operated at any one location along the alignment for an extended period of time. The diesel particulate matter generated from construction equipment would be sporadic, transitory, and short term in nature. Therefore, the project would not expose receptors to acute and/or chronically hazardous TAC pollutants.

It is also important to note that there is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime, as cancer potency factors are based on animal lifetime studies where there is long-term exposure.

Odors

The project would not be a significant source of odors. The project would modify an existing transportation facility, and any odors generated by the project would be similar in nature to odors generated from the existing facility. Construction activities, such as paving, would potentially introduce odors to the surrounding project area. However, these odors would be temporary and short-term and would stop upon the completion of construction. Therefore, the project is not anticipated to generate significant odors.

Furthermore, construction of the project would not create substantial levels of odors in the surrounding area. Exhaust emissions from construction vehicles and equipment and fugitive emissions from other construction activities would be tightly controlled. The minor amounts of odors generated by on-site construction activities would be substantially dispersed and diluted to negligible levels in adjacent off-site areas.

Aerially Deposited Lead

Lead is normally not an air quality issue for transportation projects unless the project involves disturbance of soils containing high levels of aerially deposited lead (ADL) or painting or modification of structures with lead-based coatings. ADL is common in the immediate vicinity of freeways and highways due to lead from gasoline engine emissions.

Naturally Occurring Asbestos

Asbestos is a known carcinogen and can be released from these rocks when they are broken and crushed or by weathering and erosion. When NOA is disturbed by construction, grading and other surface activities, asbestos fibers can become airborne. Such activities are regulated by CARB to reduce dust emissions during construction-related activities. Structural asbestos (demolition) is regulated by federal

and related state/air district regulations (federal regulations include National Emission Standards for Hazardous Air Pollutants [NESHAP], www.epa.gov/ttn/atw/asbes/asbespg.html), whereas naturally occurring asbestos (NOA) is regulated by CARB and worker-safety programs (www.arb.ca.gov/toxics/asbestos/asbestos.htm).

State and federal health officials consider all types of asbestos to be hazardous. No safe asbestos exposure level has been established for residential areas. The risk of disease depends upon the intensity and duration of exposure. Exposure to low levels of asbestos for short periods of time poses minimal risk. Asbestos fibers can penetrate body tissues and remain in the lungs and the tissue lining of the lungs and abdominal cavity. The fibers that remain in the body are thought to be responsible for asbestos-related diseases. The illness caused by asbestos may not be observed for twenty or more years. The most common serious diseases caused by asbestos are asbestosis, lung cancer, and mesothelioma.

The project is located in the City of Indio in Riverside County, which is not specifically listed as containing naturally occurring asbestos (Governor's Office of Planning and Research (OPR), October 26, 2000). Therefore, the impact from naturally occurring asbestos (NOA) during construction of the project would be minimal to none. However, the project requires the reconfiguration of the existing overcrossing and ramps. Prior to the reconfiguration of the structures, NESHAP requirements will be followed to identify the potential presence of asbestos. If removal of asbestos is needed, asbestos-certified contractors will be utilized to remove and properly dispose of the asbestos.

Permanent

No-Build Alternative

Under the No-Build Alternative, neither bridge modifications nor replacement would occur. Effects on air quality would not occur.

Build Alternatives 2 and 4

The project footprint for both Alternatives 2 and 4 are similar; therefore, the discussion of Alternatives 2 and 4 below is combined into a single discussion of Build Alternatives, since implementation of either Build Alternative would result in similar impacts.

The project would not create new sources of motor vehicle traffic but could induce some motorists to alter their existing routes. Air pollutant emissions would not increase overall due to operation of the project—and could decrease if project improvements resulted in more efficient traffic operations—but could be marginally higher along Jackson Street if vehicle volumes increased. Operational impacts would be negligible, and no mitigation measures are required.

Regional Conformity

This project is not exempt from regional (40 CFR 93.127) conformity requirements. Therefore, separate listing of the project in the Regional Transportation Plan and Transportation Improvement Program, and their regional conformity analyses, is necessary. The project will not interfere with timely implementation of Transportation Control Measures identified in the applicable SIP and regional conformity analysis.

The proposed project is listed in the Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) financially constrained Regional Transportation Plan, which was found to conform by SCAG's Regional Council on April 7, 2016, and FHWA and FTA made a regional conformity determination finding in June 2016. The project is also included in SCAG's financially constrained 2019 Federal Transportation Improvement Program (FTIP). The 2019 Federal Transportation Improvement Program was determined to conform by FHWA and FTA on December 17, 2018. The

design concept and scope of the proposed project is consistent with the project description in the 2016 RTP, 2019 FTIP, and the "open to traffic" assumptions of SCAG's regional emissions analysis.

Project-Level Conformity

The pollutants of primary concern when assessing project-level impacts of transportation projects are CO, PM_{10}, and $PM_{2.5}$. Elevated concentrations of these pollutants tend to accumulate near areas of heavy traffic congestion where average vehicle speeds are low. Tailpipe emissions are of concern when assessing localized impacts of CO, PM_{10}, and $PM_{2.5}$ along paved roads. The project is located in the South Coast Air Basin and is in nonattainment for ozone and PM_{10} and characterized as a maintenance area for CO, thus a project-level conformity analysis for both CO and PM_{10} is required under 40 CFR 93.109. MSATs will also be assessed on a project-level basis.

The *Particulate Matter Hot-Spot Analysis* and *Carbon Monoxide Protocol* are followed to determine if the proposed project demonstrates project-level conformity with the SIP. The SSAB is in nonattainment status for the federal PM_{10} standards and in attainment status for the federal CO standard. Therefore, a project-level hot-spot analysis is required for PM_{10} but not for CO under 40 CFR 93.109.

On March 10, 2006, U.S. EPA published amendments to the Transportation Conformity Rule that establish conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts. These amendments update the requirements for the analysis of project-level air quality impacts in PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas.

Sections 3 and 4 of the CO Protocol describe the methods to determine whether a CO hot-spot analysis is required. The Protocol provides two conformity decision flowcharts designed to assist project sponsors in evaluating the requirements that apply to their project. The CO Protocol was followed for this project and determined that a quantitative analysis is not necessary.

Particulate Matter Hot-Spot Analysis

In November 2015, the U.S. EPA released an updated version of Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The U.S. EPA originally released the quantitative guidance in December 2010, and released a revised version in November 2013 to reflect the approval of EMFAC 2011 and U.S. EPA's 2012 PM NAAQS final rule. CT-EMFAC2014 was used to calculate operational emissions, based on the Traffic Operations Report (TOAR) (Fehr & Peers, 2019) developed for this project. CT-EMFAC2014 is a California-specific project-level analysis tool for modeling emissions of criteria pollutants, MSATs, and carbon dioxide from on-road vehicles.

Because of the nonattainment status of PM10, the project was required to undergo interagency consultation with SCAG's Transportation Conformity Working Group (TCWG). On March 26, 2019, the TCWG provided concurrence that the project was not a POAQC based on the $PM_{2.5}$ and PM_{10} report form that was submitted, as shown in Appendix E. Also provided in Appendix E is the TCWG's confirmation that the project in not a POAQC and does not require a hot-spot analysis to be performed. The PM hot-spot analysis and documentation of concurrence are provided in Chapter 4 of this IS/EA.

Emissions Analysis

Existing (2018) emissions in the project corridor were estimated using CT-EMFAC2014 emission factors, for comparison to the No-Build and two Build Alternatives. The conditions under the No-Build Alternative would provide no interchange improvements to the I-10/Jackson Street interchange. Congestion within the project corridor would continue to increase and contribute to decreased air quality,

specifically for PM_{10} and $PM_{2.5}$, within the project corridor and region, as shown Table 2-41. The future opening year (2025) and design year (2045) for No-Build and both Build Alternative emissions would be approximately the same due to AADT and VMT volumes remaining the same between the No-Build and both Build scenarios. CO and NO_x emissions would be slightly lower for Build Alternative 4, due to a slight decrease in delay times. Both Build Alternative emissions would be less than existing for CO and NO_2. This decrease is due to the decrease in delays on the I-10 travel lanes and local roadway intersections, which generally result in lower emission rates.

Table 2-41 Summary of Comparative Emissions Analysis

Scenario/ Analysis Year	CO (tons/day)	PM_{10} (tons/day)	$PM_{2.5}$ (tons/day)	NOx (surrogate for NO_2) (tons/day)
Baseline (Existing Conditions) 2018	2.229	0.202	0.060	0.598
No-Build 2025	1.432	0.222	0.062	0.331
Build Alternative 2 2025	1.432	0.222	0.062	0.331
Build Alternative 4 2025	1.430	0.222	0.062	0.330
No-Build 2045	1.383	0.294	0.081	0.240
Build Alternative 2 2045	1.380	0.294	0.081	0.239
Build Alternative 4 2045	1.376	0.294	0.081	0.238

Notes:
CO = carbon monoxide
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
NOx = oxides of nitrogen
NO_2 = nitrogen dioxide

Carbon Monoxide

A hot-spot analysis is required in nonattainment and maintenance areas for CO, PM_{10}, and $PM_{2.5}$. In California, the procedures of the local analysis for CO are modified pursuant to 40 CFR 93.123(a)(1) of the Transportation Conformity Rule. As discussed in the Air Quality Report, the CO hot-spot analysis demonstrates that future predicted CO concentrations would generally be lower than existing concentrations due to the decrease in per-vehicle emissions resulting from improved technology and lower background concentrations. The project would not create or contribute to a violation of state or national ambient CO standards; therefore, local CO project level transportation conformity requirements are satisfied.

Mobile Source Air Toxics Analysis

In October 2016, the FHWA updated the interim guidance on how MSATs should be addressed in NEPA documents for highway projects. FHWA developed a tiered approach for analyzing MSATs in NEPA documents. Depending on the specific project circumstances, FHWA has identified three levels of analysis:

1. No analysis for exempt projects with no potential for meaningful MSAT effects: for example, projects qualifying as a categorical exclusion under 23 CFR 771.117(c), projects exempt under the CAA conformity rule under 40 CFR 93.126, or other projects with no meaningful impacts on traffic volumes or vehicle mix.

2. Qualitative analysis for projects with low potential MSAT effects: for example, minor widening projects, new interchanges, projects that improve operations of highways, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT: projects that would be in this category must:
    - Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of DPM in a single location; or
    - Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and
    - Propose to be located in proximity to populated areas or in rural areas in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

Upon review of the traffic data from the project's traffic study and the FHWA guidance categories described above, the project could potentially have a high MSAT effect. The project is located in a populated area and AADT in the future design year conditions (2045) is not estimated to be greater than 140,000. However, the project will be located in proximity to populated areas; therefore, a quantitative analysis is appropriate for assessing air quality impacts from operation of the project. The future AADT volumes remain the same between future No-Build and Build conditions; however, AADT volumes increase from Existing (2018) conditions to future design year (2045) by nearly 50,000 vehicles.

Traffic activity data were estimated for each different period of a representative day in the baseline (2018), opening (2025), and design (2045) years. Appendix A includes traffic activity data. The results of the comparative MSAT emissions analysis are provided in Table 2-42. The result of the comparative MSAT emission analysis show that future toxic emissions will decrease from Existing (baseline) conditions. Toxic emissions will remain the same between future No-Build and both Build Alternative conditions. Operation of the project will not worsen air quality within the Basin.

Table 2-42 Summary of Comparative MSAT Emissions Analysis

Scenario/ Analysis Year	1,3-butadiene (lbs/day)	Acetaldehyde (lbs/day)	Acrolein (lbs/day)	Benzene (lbs/day)	Diesel PM (lbs/day)	Ethylbenzene (lbs/day)	Formaldehyde (lbs/day)	Naphthalene (lbs/day)	Polycyclic Organic Matter (lbs/day)	Diesel Exhaust Organic Gas (lbs/day)	Black Carbon (lbs/day)
Baseline (Existing Conditions) 2018	1.04	3.27	0.22	4.97	11.46	1.96	8.18	0.15	0.23	34.74	3.65
No-Build 2025	0.60	1.64	0.13	2.82	3.99	1.14	4.21	0.09	0.12	16.35	2.17
Build Alternative 2 2025	0.60	1.64	0.13	2.82	3.99	1.14	4.21	0.09	0.12	16.35	2.17
Build Alternative 4 2025	0.60	1.63	0.13	2.81	3.98	1.13	4.19	0.09	0.12	16.26	2.16
No-Build 2045	0.58	2.12	0.12	2.78	3.29	1.10	5.08	0.10	0.10	22.53	1.59
Build Alternative 2 2045	0.58	2.11	0.12	2.77	3.28	1.09	5.06	0.10	0.10	22.40	1.59
Build Alternative 4 2045	0.58	2.09	0.12	2.75	3.28	1.08	5.01	0.10	0.10	22.14	1.58

2.2.6.6 Avoidance, Minimization, and/or Mitigation Measures

The Department's Standard Specifications pertaining to dust control and dust palliative requirements are required to be part of all construction contracts and should effectively reduce and control emission impacts during construction. Implementation of the following avoidance and minimization measures would reduce fugitive dust air quality emissions resulting from construction activities:

AQ-1: The construction contractor must comply with Caltrans Standard Specifications in Section 14-9 (Caltrans, 2018):

- Section 14-9.02 includes specifications relating to compliance with air pollution control rules, regulations, ordinances, and statutes of the local ordinances and air quality management district.
- Section 14-9.03 includes specifications relating to preventing and alleviating dust by applying water, dust palliative, or both and by covering active and inactive stockpiles.

AQ-2: The construction contractor must comply with the SCAQMD Rule 403 (Fugitive Dust) specifies actions or control measures to prevent or reduce PM emissions generated from construction, demolition, excavation, extraction, and other earthmoving activities.

AQ-3: Water or dust palliative will be applied to the site and equipment as frequently as necessary to control fugitive dust emissions.

AQ-4: Soil binder will be spread on any unpaved roads used for construction purposes and all project construction parking areas.

AQ-5: Trucks will be washed off as they leave the ROW as necessary to control fugitive dust emissions.

AQ-6: Construction equipment and vehicles shall be properly tuned and maintained. Low-sulfur fuel shall be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.

AQ-7: Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.

AQ-8: Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.

AQ-9: Cover all transported loads of soils and wet materials prior to transport or provide adequate freeboard (i.e., space from the top of the material to the top of the truck) to reduce PM_{10} and deposition of particulate during transportation.

AQ-10: Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease PM.

Climate Change

Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the California Environmental Quality Act (CEQA) chapter of this document. The CEQA analysis may be used to inform the National Environmental Policy Act (NEPA) determination for the project.

2.2.7 Noise

2.2.7.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/23 Code of Federal Regulations Part 772 (23 CFR 772) noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with the Federal Highway Administration (FHWA) involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 Code of Federal Regulations [CFR] 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2-43 lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

Table 2-43 Activity Categories and Noise Abatement Criteria (Title 23 CFR 772)

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.
[1] Includes undeveloped lands permitted for this activity category.		

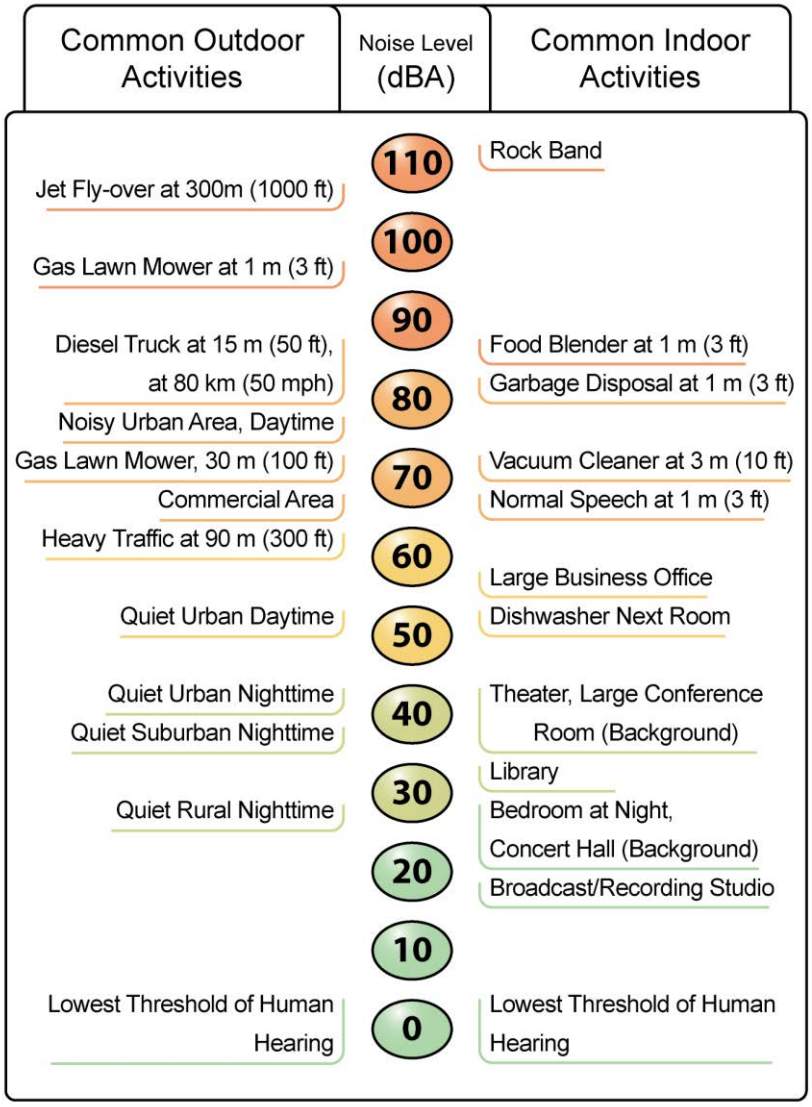
Figure 2-13 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

According to the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (May 2011), a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: (1) the noise reduction design goal of 7 dB at one or more impacted receptors; (2) the cost of noise abatement; and (3) the viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

Figure 2-13 Noise Levels of Common Activities



2.2.7.2 Affected Environment

The primary source used in the preparation of this section is the *I-10/Jackson Street Interchange Improvement Project Noise Study Report* (NSR), dated June 2020 (California Department of Transportation 2020). A thorough field investigation was conducted to identify areas of frequent human use that could be subject to traffic noise impacts and to consider the physical setting of the highway alignment relative to those areas. Land uses in the project area were categorized by land use type; activity category, as defined in Table 2-43; noise abatement criteria; and the extent of frequent human use. As stated in the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, the impact analysis focuses on locations with defined outdoor use areas, which include residential backyards of homes, a park, the interior and exterior of an elementary school, the pool area of two hotels, and an outdoor eating area at a restaurant. In addition, generalized receptors were also included for unpermitted lands within the study area. Generalized receptors are positioned no closer than 100 feet from the edge of the outside traffic lane in the area that best represents the highest expected traffic noise level.

Land uses in the project area have been grouped into a series of lettered analysis areas that are identified in Figure 2-12. Each of these analysis areas is considered to be acoustically equivalent.

Area A: Area A is located on the north side of the I-10, directly east of Monroe Street. A Walmart is located in this area; however, no frequently used outdoor area was identified during the field investigation. This area also contains undeveloped, unpermitted land (Activity Category G). This area is generally flat and no noise barrier is located or topographic shielding occurs between the roadways and the land.

Area B: Area B is located north of the I-10 and west of Jackson Street. This area contains two hotels (Activity Category E), the Hampton Inn & Suites and the Fairfield Inn & Suites. There are also commercial land uses, there were no frequently used outdoor areas at these locations. This area is generally flat and no noise barrier is located or topographic shielding occurs between the roadways and the land.

Area C: Area C is located north of the I-10 and east of Jackson Street. This area contains commercial land uses and restaurants. A frequently used outdoor area was located at the Panda Inn restaurant (Activity Category E). This area is lower in elevation than the adjacent Jackson Street westbound off-ramp. The area is generally flat and no noise barrier is located or topographic shielding occurs between the roadways and the land.

Area D: Area D is located northeast of the I-10 mainline and east of Jackson Street. This area contains single-family residences (Activity Category B) and undeveloped land permitted for single-family residences (Activity Category B). There is also undeveloped, unpermitted land (Activity Category G) located in this area. This area is lower in elevation than the I-10 mainline. The area is generally flat and no noise barrier is located or topographic shielding occurs between the roadways and the land.

Area E: Area E is located south of the I-10 and east of Monroe Street. This area contains single-family residences (Activity Category B). This area is generally flat and no noise barrier is located between the roadway and the land. There are however berms on either side of the stormwater channel that provides topographic shielding between I-10 and the residential properties.

Area F: Area F is located south of the I-10 and west of Jackson Street. This area contains the North Jackson Park (Activity Category C) and the Andrew Jackson Elementary School (Activity Category C and Activity Category D) and commercial properties with no frequently used outdoor areas. This area is generally flat and no noise barrier is located between the roadway and the land. There are however berms on either side of the stormwater channel that provides topographic shielding between I-10 and the park and school.

Area G: Area G is located south of the I-10, directly south of Kenner Avenue and west of Jackson Street. This area contains single-family residences (Activity Category B), undeveloped (unpermitted) land (Activity Category G), and commercial land uses that do not have frequently used outdoor areas. This area is generally flat, the residences have wooden fences between the local roads (Jackson Street and Kenner Avenue).

Area H: Area H is located south of the I-10 and east of the Jackson Street. This area contains single-family residences (Activity Category B) and commercial land uses that do not have frequently used outdoor areas. This area is generally flat and no noise barrier is located between the roadway and the land. There are however berms on either side of the stormwater channel that provides topographic shielding between I-10 and single-family residences.

2.2.7.3 Environmental Consequences

Pursuant to the Department's *Traffic Noise Analysis Protocol* (May 2011), and associated guidance provided in 23 CFR 772, a Type I project is a project that involves any of the following:

1. The construction of a highway on a new location.
2. The physical alteration of an existing highway that would involve either of the following:
    a. Substantial horizontal alteration: a project that halves the distance between the traffic noise source and the closest receptor between the existing condition and the future build condition.
    b. Substantial vertical alteration: a project that removes shielding thereby exposing the line-of-sight between the receptor and the traffic noise source. This is done by altering either the vertical alignment of the highway or the topography between the highway traffic noise source and the receptor.
3. The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high occupancy vehicle lane, high-occupancy toll lane, bus lane, or truck climbing lane.
4. The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane.
5. The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange.
6. Restriping existing pavement for the purpose of adding a through- traffic lane or an auxiliary lane.
7. The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

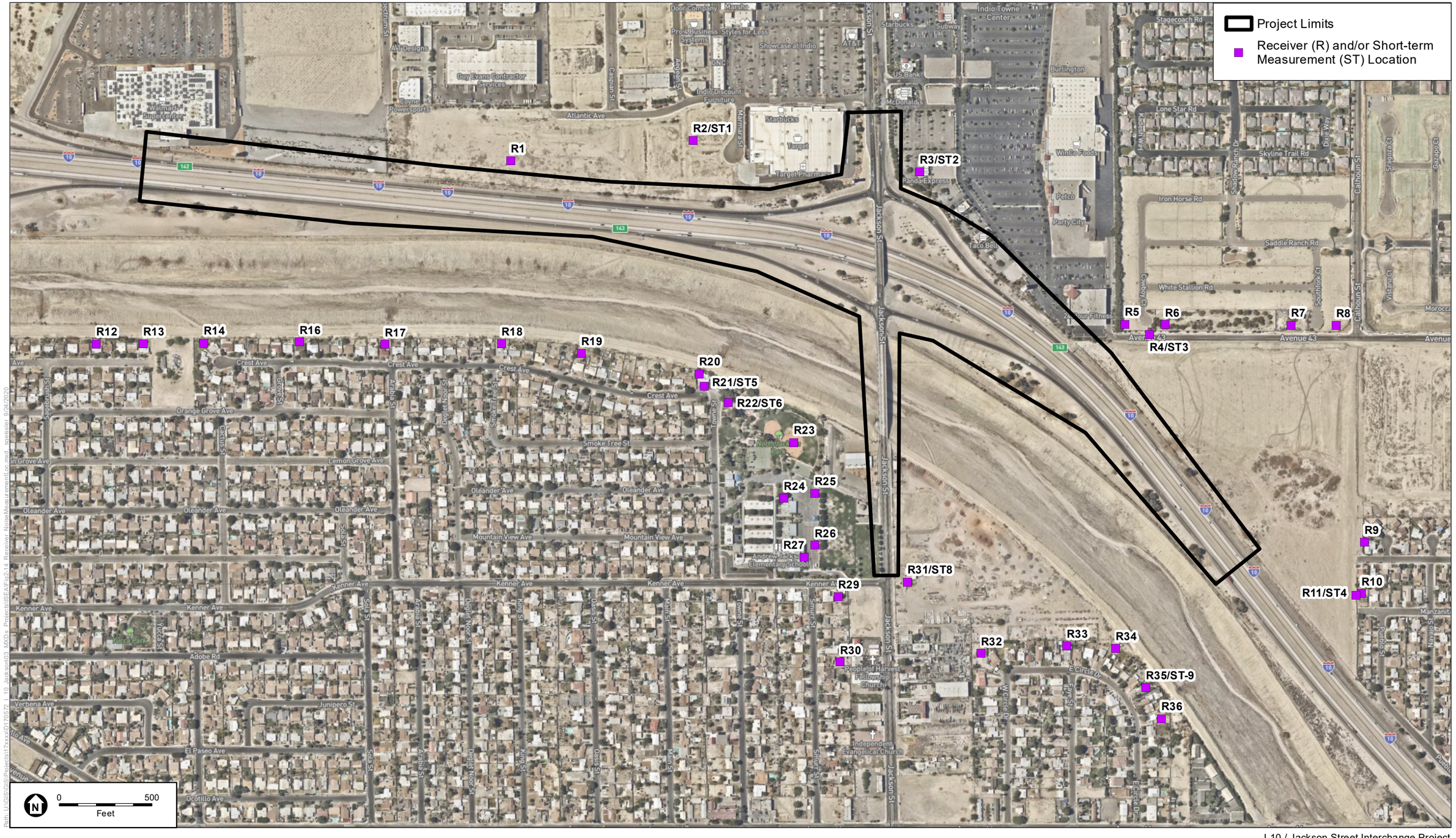
The project is considered a Type 1 project because it would alter the vertical and horizontal alignment of I-10 as a result of constructing the interchange at Jackson Street.

Noise Measurement Sites

Twelve short-term (including three from the I-10/Monroe Street Interchange Improvement project, ST-10, ST-11, and ST-12) and one long-term (LT-1) outdoor noise measurements were taken throughout the project study area to calibrate the Traffic Noise Model (TNM) version 2.5 computer noise model. Specific measurement sites were chosen to be representative of acoustically distinct areas, based on their relationship to the I-10 and Jackson Street facilities and the varying topographic features between the areas and the roadways. All measurement sites were selected so that unusual noise from sources such as barking dogs, air-conditioners, pool pumps, or car alarms would not affect the measurement.

Short-term noise measurements were conducted on Tuesday, June 26, 2018; Wednesday, June 27, 2018; and January 14, 2020, using Larson Davis (LD) Model LxT1 Precision Type 1 sound level meters at nine sites on multiple days for two consecutive 10-minute intervals for a total duration of 20 minutes each. Additionally, three short-term (calibration) sites from the Noise Study Report that was developed for the I-10/Monroe Street Interchange Improvement Project are used in this noise study.[8] These short-term measurement sites are labeled, ST10, ST11, and ST12. Short-term monitoring was conducted at Activity Category B, C, E, and G land uses when traffic was free-flowing. The short-term measurement locations are identified in Figure 2-13. Table 2-44 summarizes the short-term noise measurement results. Sound level meters were attended by field staff to record observations concurrent with the measurements.

[8] Parsons Corporation. Noise Study Report for the Interstate 10/Monroe Street Interchange Improvement Project. October 2019.



SOURCE: Open Street Map, 2019.

I-10 / Jackson Street Interchange Project

Figure 2-14

Receiver and Noise Measurement Locations

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The equivalent sound level (Leq) values collected during each measurement period (10 minutes in duration) were automatically recorded with digital integrating sound-level meters and subsequently logged manually on field data sheets for each measurement location. The short-term measurements were repeated to ensure consistency per the guidance provided in the Caltrans Technical Noise Supplement (TeNS). Dominant noise sources observed and other relevant measurement conditions were identified and logged manually on the field data sheets. The calibration of the meter was checked before and after the measurement using Larson-Davis model CA250 calibrators.

Temperature, wind speed, and humidity were recorded manually during the short-term monitoring session. During the short-term measurements, wind speeds typically ranged from 3 to 7 miles per hour (mph). Temperatures ranged from 80–110°F, with relative humidity typically 17–23 percent.

One long-term noise level measurement was conducted at 83510 Avenue 44 for a period of 24 consecutive hours. The long-term noise measurement site is identified in Figure 2-14. The purpose of the long-term measurement was to identify variations in sound levels throughout the day, rather than absolute sound levels at a specific receiver of concern. The long-term sound level data was collected beginning Tuesday, June 26, 2018, at 9:00 AM. The average loudest-hour sound level measured was 67.7 dBA $L_{eq(h)}$ during the 9:00 PM hour on Tuesday, June 26, 2018. Table 2-45 summarizes the results of the long-term monitoring.

A total of twelve short-term measurements, ST1 through ST12 (including three from the I-10/Monroe Street Interchange Improvement project, ST-10, ST-11, and ST-12), were conducted for the purpose of calibrating the TNM 2.5 computer noise model. The traffic volumes were recorded through the use of a video camera and traffic speeds were recorded with a radar gun. The traffic counts were tabulated according to five vehicle types: automobiles, medium trucks (two axles with six tires), heavy trucks (three or more axles), buses, and motorcycles.

As a general rule, the noise model is considered to be calibrated if the field measured noise levels versus the modeled noise levels (using field-collected traffic data) agree less than 3.0 dB of each other. If differences are 3.0 dB or higher, refinement of the noise model is performed until there is agreement between the two values. If, after thorough re-evaluation, calibration still cannot be achieved due to complex topography or other unusual circumstances, then a calibration constant is added such that the measured versus modeled values agree before any predictions can be made with the model.

Table 2-46 shows the representative modeled receiver locations, measured existing noise level, the modeled noise levels using traffic counts and measured vehicle speeds during noise measurements, and the K-factor at each of the monitoring locations. Three of the modeled noise levels deviate more than 3.0 dB from the measured noise levels; therefore, after refinements to the noise model and thorough re-evaluation, calibration constants, or “K” constants, have been applied to the noise model results for these two areas acoustically represented by measurement sites ST3, ST9, and ST11.

Table 2-44 Summary of Short-Term Measurements

Position	Address	Area	Land Uses[b]	Activity Category and NAC	Meter Location	Measurement Dates	Start Time[c]	Measured L_{eq}, dBA
ST1	42655 Marmara Street, Indio	B	HOT	E (72)	Pool Area	6/26/2018	10:05 AM	63.8
							10:15 AM	63.5
ST2	42550 Jackson Street, Indio	C	RES	E (72)	Outdoor Dining Area	1/14/2020	9:05 AM	58.7
							9:15 AM	57.6
ST3	Sidewalk, Avenue 43, Indio	D	--	--	Sidewalk	6/27/2018	7:00 AM	67.0
							7:10 AM	65.9
ST4	83510 Manzanita Avenue, Indio	D	SFR	B (67)	Side fence	6/26/2018	10:05 AM	63.1
							10:15 AM	62.9
ST5	82798 Crest Avenue, Indio	E	SFR	B (67)	Sidewalk	1/14/2020	9:50 AM	55.0
							10:00 AM	53.5
ST6	43200 Towne Street, Indio	F	REC	C (72)	Park Bench	1/14/2020	9:50 AM	51.0
							10:00 AM	53.4
ST7	Empty Lot, Indio	G	UND	G (--)	Open Area	6/27/2018	7:50 AM	64.0
							8:00 AM	63.5
ST8	43486 Jackson Street, Indio	H	SFR	B (67)	Side yard	6/27/2018	7:50 AM	63.6
							8:00 AM	62.9
ST9	83172 E Circle Drive, Indio	H	SFR	B (67)	Sidewalk	1/14/2020	9:05 AM	50.5
							9:15 AM	51.1
ST10[d]	82156 Crest Ave, Indio	E	SFR	B (67)	Backyard	6/19/2018	11:00 AM	45.6
							11:10 AM	45.7
ST11[d]	82378 Orange Grove Avenue, Indio	E	SFR	B (67)	Backyard	6/19/2018	11:00 AM	48.1
ST12[d]	Empty Lot, Indio	B	UND	G (--)	Open Area	6/20/2018	12:00 PM	65.8
							12:10 PM	65.2

Note: Refer to Figure 2-10 for measurement locations and boundaries of each area.

a) ST - Short-Term Measurements

b) Land Use: SFR - single-family residence; HOT - hotel; REC - recreational; RES - restaurant; SCH - educational center; UND - undeveloped land

c) Short-term measured noise levels were measured for a total of 20 minutes.

d) Noise measurement and calibration data was obtained from the Interstate 10/Monroe Street Interchange Noise Study Report. Short-term measurement ST10 is the same as short-term measurement ST5, ST11 is the same as LT2, and ST12 is the same as ST7 in the Interstate 10/Monroe Street Interchange Noise Study Report (EA 0K730) (Parsons, October 2019).

Table 2-45 Summary of Long-Term Monitoring at Location LT1

Hour Beginning	L_{eq}[h], dBA	Difference from Loudest Hour (dB)
9:00 AM	63.4	-4.3
10:00 AM	63.7	-4.0
11:00 AM	63.5	-4.2
12:00 PM	64.1	-3.6
1:00 PM	64.4	-3.3
2:00 PM	64.5	-3.2
3:00 PM	64.8	-2.9
4:00 PM	64.4	-3.3
5:00 PM	64.0	-3.7
6:00 PM	63.5	-4.2
7:00 PM	64.3	-3.4
8:00 PM	67.4	-0.3
9:00 PM	**67.7**	**0.0**
10:00 PM	67.1	-0.6
11:00 PM	67.4	-0.3
12:00 AM	65.8	-1.9
1:00 AM	65.9	-1.8
2:00 AM	64.8	-2.9
3:00 AM	63.8	-3.9
4:00 AM	65.1	-2.6
5:00 AM	66.4	-1.3
6:00 AM	66.9	-0.8
7:00 AM	66.2	-1.5
8:00 AM	63.9	-3.8
9:00 AM	63.8	-3.9
Note: Noisiest hour noise level is bolded.		

Table 2-46 Comparison of Measured to Predicted Sound Levels in the TNM Model

Site	Measured Noise Level (L_{eq} dBA)	Modeled Noise Level (L_{eq} dBA)	Difference (Measured minus Modeled)[b]	Average Difference Difference Divided by 2	K-factors
ST1	63.8	62.1	1.7	1.7	--
	63.5	61.8	1.7		
ST2	58.7	55.7	3	2.1	--
	57.6	56.4	1.2		
ST3	67	63.3	3.7	3.8	+3.8
	65.9	62	3.9		
ST4	63.1	65	-1.9	-1.9	--
	62.9	64.7	-1.8		
ST5	55	52.8	2.2	0.9	--
	53.5	54	-0.5		
ST-6	51	51.5	-0.5	0.1	--
	53.4	52.6	0.8		
ST7	64	63	1	1.1	--
	63.5	62.4	1.1		
ST8	63.6	64.2	-0.6	-0.8	--
	62.9	63.8	-0.9		
ST9	50.5	54.8	-4.3	-3.9	-3.9
	51.1	54.5	-3.4		
ST10[a]	45.6	48	-2.4	--	--
ST11[a]	48.1	51.8	-3.7	--	-3.7
ST12[a]	65.8	66.4	-0.6	--	--

Notes:

[a] Noise measurement and calibration data was obtained from the Interstate 10/Monroe Street Interchange Noise Study Report. Short-term measurements ST-10, ST11 and ST12. are the same as short-term measurement ST5, LT2, and ST7, respectively in the Interstate 10/Monroe Street Interchange Noise Study Report, dated October 2019.

[b] The difference—calibration constant, K-constant, or K—is defined as measured noise level M minus calculated noise level C, or K = M – C. (Source: page 4-8 of the Caltrans TeNS Manual (September 2013).

Tables 2-47 and 2-48 summarize predicted traffic noise levels for both the existing and design year with project conditions for Build Alternative 2 and Build Alternative 4, respectively. Predicted design-year traffic noise levels with the project are compared to the existing conditions to identify any "substantial" traffic noise impacts under 23 CFR 772 and to indicate the direct effects of noise resulting from the project. As stated in the TeNS, modeling results are rounded to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between sound levels of 64.4 and 64.5 dBA. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB.

Table 2-47 Predicted Future Noise Levels – Build Alternative 2

Receiver ID	Land Use[2]	Activity Category	Existing Noise Level Leq(h), dBA[1]	Design Year No-Build Noise Level Leq(h), dBA[1]	Design Year Build Noise Level Leq(h), dBA1	Design Year No-Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No-Build Conditions Leq(h), dBA	Impact Type[3]	Noise Impact Requiring Abatement Consideration
R1/ST12	UND	G (--)	67	69	72	2	3	None	No
R2/ST1	HOT	E (72)	54	57	58	3	1	None	No
R3/ST2	RES	E (72)	58	60	59	2	-1	None	No
R4/ST3 [K1]	--[4]	--	66	68	68	2	0	--	No
R5 [K1]	SFR	B (67)	63	65	65	2	0	None	No
R6 [K1]	SFR	B (67)	63	65	65	2	0	None	No
R7 [K1]	SFR	B (67)	58	60	60	2	0	None	No
R8 [K1]	SFR	B (67)	57	59	59	2	0	None	No
R9	SFR	B (67)	57	59	59	2	0	None	No
R10	SFR	B (67)	62	65	65	3	0	None	No
R11/ST4	--[4]	--	64	67	66	3	-1	--	No
R12	SFR	B (67)	51	53	53	2	0	None	No
R13	SFR	B (67)	51	53	53	2	0	None	No
R14 [K2]	SFR	B (67)	48	50	50	2	0	None	No
R15/ST11 [K2]	SFR	B (67)	49	51	51	2	0	None	No
R16 [K2]	SFR	B (67)	49	51	51	2	0	None	No
R17 [K2]	SFR	B (67)	48	51	51	3	0	None	No
R18	SFR	B (67)	52	54	54	2	0	None	No
R19	SFR	B (67)	52	55	55	3	0	None	No
R20	SFR	B (67)	52	55	54	3	-1	None	No
R21/ST5	--[4]	--	52	55	55	3	0	--	No
R22.1/ST6	REC	C (67)	52	54	54	2	0	None	No
R22.2	REC	C (67)	52	54	54	2	0	None	No
R22.3	REC	C (67)	52	55	55	3	0	None	No
R23.1	REC	C (67)	53	56	55	3	-1	None	No
R23.2	REC	C (67)	52	55	55	3	0	None	No
R24	REC	C (67)	54	57	57	3	0	None	No
R25.1	SCH	C (67)	55	57	57	2	0	None	No
R25.2	SCH	C (67)	55	58	58	3	0	None	No
R26-1	SCH	C (67)	55	57	58	2	1	None	No

Table 2-47 Predicted Future Noise Levels – Build Alternative 2

Receiver ID	Land Use[2]	Activity Category	Existing Noise Level Leq(h), dBA[1]	Design Year No-Build Noise Level Leq(h), dBA[1]	Design Year Build Noise Level Leq(h), dBA1	Design Year No-Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No-Build Conditions Leq(h), dBA	Impact Type[3]	Noise Impact Requiring Abatement Consideration
R26-2[INT]	SCH	D (52)	35	37	38	2	1	None	No
R27	SCH	C (67)	56	58	58	2	0	None	No
R28	SFR	B (67)	60	62	62	2	0	None	No
R29/ST7	UND	G (--)	64	67	67	3	0	None	No
R30	SFR	B (67)	53	56	56	3	0	None	No
R31.1/ST8	--[4]	--	64	67	67	3	0	--	No
R31.2	SFR	B (67)	59	62	62	3	0	None	No
R32 [K3]	SFR	B (67)	51	54	53	3	-1	None	No
R33 [K3]	SFR	B (67)	52	54	53	2	-1	None	No
R34 [K3]	SFR	B (67)	51	53	53	2	0	None	No
R35.1/ST9 [K3]	--[4]	--	51	53	53	2	0	--	No
R35.2 [K3]	SFR	B (67)	44	46	46	2	0	None	No
R36	SFR	B (67)	55	57	57	2	0	None	No
R37/ST10	SFR	B (67)	49	51	51	2	0	None	No
R38	HOT	E (72)	55	57	58	2	1	None	No

Notes:
1) Leq(h) are A-weighted, peak hour noise levels in decibels.
2) Land Use: SFR - single-family residence; HOT - hotel; REC - recreational; RES - restaurant; SCH - educational center; UND - undeveloped land
3) S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4) This noise measurement site was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
STxx - measurement site number.
Int - An assumed 20 dB reduction has been applied to exterior noise levels based on buildings having single-pane windows.
K1 - A calibration constant of +3.8 dB is applied for this receiver, based on noise model calibration results.
K2 - A calibration constant of -3.7 dB is applied for this receiver, based on noise model calibration results.
K3 - A calibration constant of -3.9 dB is applied for this receiver, based on noise model calibration results.

Table 2-48 Predicted Future Noise Levels – Build Alternative 4

Receiver ID	Land Use[2]	Activity Category	Existing Noise Level Leq(h), dBA[1]	Design Year No-Build Noise Level Leq(h), dBA[1]	Design Year Build Noise Level Leq(h), dBA1	Design Year No-Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No-Build Conditions Leq(h), dBA	Impact Type[3]	Noise Impact Requiring Abatement Consideration
R1/ST12	UND	G (--)	67	69	72	2	3	None	No
R2/ST1	HOT	E (72)	54	57	58	3	1	None	No
R3/ST2	RES	E (72)	58	60	58	2	-2	None	No
R4/ST3 [K1]	--[4]	--	66	68	68	2	0	--	No
R5 [K1]	SFR	B (67)	63	65	65	2	0	None	No
R6 [K1]	SFR	B (67)	63	65	65	2	0	None	No
R7 [K1]	SFR	B (67)	58	60	60	2	0	None	No
R8 [K1]	SFR	B (67)	57	59	59	2	0	None	No
R9	SFR	B (67)	57	59	59	2	0	None	No
R10	SFR	B (67)	62	65	64	3	-1	None	No
R11/ST4	--[4]	--	64	67	66	3	-1	--	No
R12	SFR	B (67)	51	53	53	2	0	None	No
R13	SFR	B (67)	51	53	53	2	0	None	No
R14 [K2]	SFR	B (67)	48	50	50	2	0	None	No
R15/ST11 [K2]	SFR	B (67)	49	51	51	2	0	None	No
R16 [K2]	SFR	B (67)	49	51	51	2	0	None	No
R17 [K2]	SFR	B (67)	48	51	51	3	0	None	No
R18	SFR	B (67)	52	54	54	2	0	None	No
R19	SFR	B (67)	52	55	54	3	-1	None	No
R20	SFR	B (67)	52	55	54	3	-1	None	No
R21/ST5	--[4]	--	52	55	54	3	-1	--	No
R22.1/ST6	REC	C (67)	52	54	54	2	0	None	No
R22.2	REC	C (67)	52	54	54	2	0	None	No
R22.3	REC	C (67)	52	55	54	3	-1	None	No
R23.1	REC	C (67)	53	56	55	3	-1	None	No
R23.2	REC	C (67)	52	55	55	3	0	None	No
R24	REC	C (67)	54	57	57	3	0	None	No
R25.1	SCH	C (67)	55	57	58	2	1	None	No

Table 2-48 Predicted Future Noise Levels – Build Alternative 4

Receiver ID	Land Use[2]	Activity Category	Existing Noise Level Leq(h), dBA[1]	Design Year No-Build Noise Level Leq(h), dBA[1]	Design Year Build Noise Level Leq(h), dBA1	Design Year No-Build Noise Level Minus Existing Conditions Leq(h), dBA	Design Year Build Noise Level Minus No-Build Conditions Leq(h), dBA	Impact Type[3]	Noise Impact Requiring Abatement Consideration
R25.2	SCH	C (67)	55	58	58	3	0	None	No
R26-1	SCH	C (67)	55	57	58	2	1	None	No
R26-2[INT]	SCH	D (52)	35	37	38	2	1	None	No
R27	SCH	C (67)	56	58	58	2	0	None	No
R28	SFR	B (67)	60	62	62	2	0	None	No
R29/ST7	UND	G (--)	64	67	67	3	0	None	No
R30	SFR	B (67)	53	56	56	3	0	None	No
R31.1/ST8	--[4]	--	64	67	67	3	0	--	No
R31.2	SFR	B (67)	59	62	61	3	-1	None	No
R32 [K3]	SFR	B (67)	51	54	54	3	0	None	No
R33 [K3]	SFR	B (67)	52	54	54	2	0	None	No
R34 [K3]	SFR	B (67)	51	53	53	2	0	None	No
R35.1/ST9 [K3]	--[4]	--	51	53	53	2	0	--	No
R35.2 [K3]	SFR	B (67)	44	46	46	2	0	None	No
R36	SFR	B (67)	55	57	57	2	0	None	No
R37/ST10	SFR	B (67)	49	51	53	2	2	None	No
R38	HOT	E (72)	55	57	59	2	2	None	No

Notes:

[1] Leq(h) are A-weighted, peak hour noise levels in decibels.

[2] Land Use: SFR - single-family residence; HOT - hotel; REC - recreational; RES - restaurant; SCH - educational center; UND - undeveloped land

[3] S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.

[4] This noise measurement site was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.

STxx - measurement site number.

INT - An assumed 20 dB reduction has been applied to exterior noise levels based on buildings having single-pane windows.

K1 - A calibration constant of +3.8 dB is applied for this receiver, based on noise model calibration results.

K2 - A calibration constant of -3.7 dB is applied for this receiver, based on noise model calibration results.

K3 - A calibration constant of -3.9 dB is applied for this receiver, based on noise model calibration results.

No-Build Alternative

Under the No-Build Alternative, no reconstruction or improvements would be made to the existing I-10/Jackson Street interchange other than routine maintenance. Design-Year No-Build noise levels are shown in Tables 2-47 and 2-48. As shown in both tables, no long-term noise impacts are anticipated.

Build Alternative 2

Under this build alternative, the existing I-10/Jackson Street interchange would maintain the compact diamond configuration and reconstruct Jackson Street, I-10 bridge overcrossing, Whitewater River Bridge, and the I-10 on- and off-ramps. Jackson Street at the I-10 bridge crossing would be reconstructed from one lane to two lanes in each direction, and include two left-turn lanes at each ramp intersection for access to eastbound and westbound I-10 on-ramps. The existing Jackson Street bridge at the Whitewater River Bridge would be widened to increase the number of through lanes from one lane to two lanes in each direction. This alternative would include reconstruction and restriping of Jackson Street to transition the additional travel lanes to the existing lane configurations north and south of the interchange. The I-10 westbound (WB) and eastbound (EB) on-ramps would be widened to two lanes and transition to a single lane merging to I-10. Interchange off-ramps would be widened, realigned and restriped to accommodate additional turn lanes to Jackson Street. Auxiliary lanes would be constructed at the I-10 WB and EB ramps to enhance merging and diverging traffic to I-10.

The traffic noise modeling results in Table 2-47 indicate traffic noise levels within the boundaries of the project area are predicted to be in the range of 38 to 72 dBA Leq(h) in the design year under Build Alternative 2. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 3 dB. None of the evaluated receivers would exceed the respective NACs, nor would the project result in a substantial increase in noise from existing conditions; therefore, no traffic noise impacts are predicted to occur.

Build Alternative 4

Under this build alternative, the existing I-10/Jackson Street interchange would be reconstructed to a DDI configuration utilizing a twin-bridge layout spanning over the I-10 freeway and the Whitewater River. Two new parallel bridge structures over the Whitewater River and Jackson Street overcrossing would be constructed to accommodate two lanes, shoulders, and sidewalks. The existing bridges along Jackson Street will be evaluated as to whether it could accommodate two travel lanes and may be reconstructed. The crossover intersections would gradually transition traffic from the right side of the road to the left side of the road while providing free right- and left-turn movements to the I-10 on-ramps before crossing over back to the right-side of the road for through traffic. The DDI configuration requires two cross-over intersections with two-phase traffic signal operation within the interchange; inbound and outbound freeway traffic would cross one intersection compared to two intersections for the diamond interchange configuration. In addition, Alternative 4 would include reconstruction and restriping of Jackson Street to transition the additional travel lanes to the existing lane configurations north and south of the interchange. The I-10 westbound and eastbound on-ramps would be widened to two lanes and transition to a single lane merging to the I-10 freeway. Interchange off-ramps would be widened, realigned and restriped to accommodate additional turn lanes to Jackson Street. Auxiliary lanes would be constructed at the I-10 WB and eastbound EB ramps to enhance merging and diverging traffic to I-10.

The traffic noise modeling results in Table 2-48 indicate traffic noise levels within the boundaries of the project area are predicted to be in the range of 38 to 72 dBA Leq(h) in the design year under Alternative 4. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 3 dB. None of the evaluated receivers would exceed the respective NACs, nor would the project result in a substantial increase in noise from existing conditions; therefore, no traffic noise impacts are predicted to occur.

2.2.7.4 Avoidance, Minimization, and/or Mitigation Measures

No-Build Alternative

Under the No-Build Alternative, no construction activities would occur; therefore, there would be no short-term noise impacts.

Build Alternatives 2 and 4

During the construction phases within the project area, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 2-49 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 dB per doubling of distance.

Table 2-49 Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82
Source: Federal Transit Administration, 2006. See also: http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm	

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Construction will be conducted in accordance with Section 14-8.02, "Noise Control," of the Department's 2018 SSP (refer to measure **NOI-3** below). In addition, any local noise ordinances that are more restrictive than the requirements stated in SSP-14-8.02 will be followed during construction. SSP-14-8.02 will be edited specifically for this project during the PS&E phase.

Construction noise would be short-term, intermittent, and overshadowed by local traffic noise. Furthermore, implementation of the measures listed below would further minimize the temporary noise impacts from construction.

The project would not result in any operational noise impacts, and therefore abatement measures are not necessary for operational noise. The contractor will adhere to the following minimization measures.

NOI-1: To minimize potential construction noise effects, the construction contractor will adhere to BMPs to minimize construction noise levels, including the following:

a) All equipment will have sound-control devices no less effective than those provided on the original equipment. Each internal combustion engine used for any purpose on the job or related to the job will be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the job site without an appropriate muffler.

b) Construction methods or equipment that will provide the lowest level of noise impact (e.g., avoid impact pile driving near residences and consider alternative methods that are also suitable for the soil condition) should be used to the greatest possible extent.

c) Idling equipment will be turned off.

d) Truck loading, unloading, and hauling operations will be restricted so that noise and vibration are kept to a minimum through residential neighborhoods to the greatest possible extent.

e) Temporary noise barriers will be used and relocated, as needed, to protect sensitive receivers against excessive noise from construction activities involving large equipment and by small items such as compressors, generators, pneumatic tools, and jackhammers. Noise barriers can be made of heavy plywood, moveable insulated sound blankets, or other best available control techniques.

f) Newer equipment with improved noise muffling will be used, and all equipment items will have the manufacturer recommended noise-abatement measures (e.g., mufflers, engine covers, and engine vibration isolators) intact and operational. Newer equipment will generally be quieter in operation than older equipment. All construction equipment will be inspected at periodic intervals to ensure proper maintenance and presence of noise-control devices (e.g., mufflers and shrouding).

g) Construction activities will be minimized in residential areas during evening, nighttime, weekend, and holiday periods. Noise impacts are typically minimized when construction activities are performed during daytime hours; however, nighttime construction may be desirable (e.g., in commercial areas where businesses may be disrupted during daytime hours) or necessary to avoid major traffic disruption. Coordination with the City of Indio will occur before construction can be performed in noise-sensitive areas. Per Section 95C.09 of the City of Indio's Municipal Code, construction noise is exempted from the Noise Control provisions of the City of Indio's Municipal Code (City of Indio 2018a).

h) Construction lay-down or staging areas will be selected in industrially zoned districts. If industrially zoned areas are not available, commercially zoned areas may be used, or locations that are at least 100 feet from any noise-sensitive land use (e.g., residences).

NOI-2: It is possible that certain construction activities could cause intermittent localized concern from vibration in the project area. Processes such as earth moving with bulldozers, the use of vibratory compaction rollers, impact pile driving, demolitions, or pavement braking may cause construction-related vibration impacts such as human annoyance or, in some cases, building damage. There are cases where it may be necessary to use this type of equipment in proximity to residential buildings. The following are some procedures that will be used to minimize the potential impacts from construction vibration:

a) Restrict the hours of vibration-intensive equipment or activities such as vibratory rollers so that impacts on residents are minimal (e.g., weekdays during daytime hours only when as many residents as possible are away from home).

b) For a building within 50 feet of a construction vibration source where damage to that structure due to vibration is possible, provide the owner with a preconstruction building inspection to document the preconstruction condition of that structure.

c) Conduct vibration monitoring during vibration-intensive activities.

NOI-3: The project will comply with sound control provisions as included in Section 14- 8.02, "Noise Control," of the Department's Standard Specifications and Special Provisions. The contractor will not exceed 86 dBA at 50 feet from the job site from 9:00 p.m. to 6:00 a.m.

2.2.8 Energy

2.2.8.1 Regulatory Setting

National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

California Environmental Quality (CEQA) Guidelines Section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

2.2.8.2 Affected Environment

The primary source used in the preparation of this section is the *Energy Analysis Report for the I-10/Jackson Street Interchange Improvement Project*, dated February 2020 (ESA 2020).

Existing Project Area Conditions

The project area includes lighting along the interchange, but does not currently include any transportation management systems elements. Additional details regarding existing conditions in the project area that affect energy usage, such as existing traffic conditions, vehicle mix, and pavement surfaces, are included below.

Existing Traffic Conditions

Existing (baseline) conditions traffic data used for this energy analysis was obtained from the project's traffic study, Interstate 10/Jackson Street Interchange Traffic Operations Report (TOR, Fehr & Peers, 2019). Existing traffic volumes were collected in 2018 from various sources including: Caltrans' Freeway Performance Measurement System (PeMS), and field data. The intersection turning movement counts were collected from the field in February 2018 to account for increased travel in the Coachella Valley region during the winter months. Traffic volumes on the freeway mainline were obtained from PeMS and used the most recent available data. In addition, Average Daily Traffic (ADT) and classification counts were collected on the Jackson Street overcrossing to determine vehicle fleet mix and truck percentages along the corridor. Traffic volume and vehicle classification for mainline I-10 was also obtained from Caltrans' PeMS and the Department's Census Database. Table 2-50 shows the existing daily vehicle-miles traveled (VMT), annual VMT, and vehicle breakdown at the project site.

Table 2-50 Existing Daily VMT, Annual VMT, and Vehicle Mix

Scenario	Daily VMT (mi)	Annual VMT (mi)	Vehicle Mix		
			Trucks 1	Trucks 2	Non-Trucks
Existing (2018)	829, 870	302,902,55	4.2%	27.0%	68.8%

Notes:
mi = miles
Trucks1= EMFAC2014 categories LHDT1/LHDT2
Trucks 2= EMFAC20014 categories HHDT/MHD
Non-Trucks = EMFAC2014 categories LDA/LDT1/LDT2/MCY/MDV/MH/SBUS/UBUS/OBUS
Source: Fehr & Peers, 2018

Existing Pavement Conditions

Existing pavement conditions are fair to good with some aging and cracking roadways along Jackson Street approaching the interchange. The interchange and overpass pavement condition is good with not

many visible signs of serious wear. On- and off-ramps are in good condition and well-paved with clear lane markers.

Energy Resources

California contains abundant sources of renewable and non-renewable energy. The primary energy resources within California are described in the following sections.

Non-Renewable Energy

Non-renewable energy resources include petroleum, natural gas, and coal. These energy resources are considered fossil fuels because they were formed when large quantities of dead organisms, usually zooplankton (microscopic organisms drifting in water bodies), algae, and other vegetation, were buried beneath sedimentary rock and exposed to intense heat and pressure over thousands of years. Fossil fuels are considered non-renewable resources because they cannot be replenished on a meaningful human timeframe. These resources will eventually run out because they cannot be renewed at a sufficient rate for sustainable economic extraction.

Renewable Energy

Renewable energy is generally defined as energy that comes from resources that are naturally replenished on a human timescale. Sources of renewable energy include the wind, sun, waves, and the heat of the Earth (i.e., geothermal heat). In addition, organic matter (also referred to as biomass), such as crops, animal waste, and municipal solid waste, can serve as sources of renewable energy, called biofuels. Renewable energy resources are continually replenished through natural processes.

2.2.8.3 Environmental Consequences

The energy analysis is based on the methodology described in the *Caltrans Standard Environmental Reference*, Volume 1, Chapter 13 – Energy, as well as guidance provided by the Department regarding CEQA Updates, effective April 27, 2019. The energy analysis addresses both direct and indirect energy consumption, which are defined as follows:

Direct Energy

In the context of transportation, direct energy involves all energy consumed by vehicle propulsion (e.g., automobiles, trains, airplanes). This energy consumption is a function of traffic characteristics, such as VMT, speed, vehicle mix, and thermal value of fuel being used. Additionally, direct energy also includes the one-time energy expenditure involved in construction of the project. Therefore, analysis of direct energy use includes the following factors:

- **Direct Energy (Mobile Sources):** The energy consumed by vehicle propulsion within the facility during operation of the project.
- **Direct Energy (Construction):** The energy consumed by construction vehicles and equipment during construction of the project.
- **Indirect Energy:** Indirect energy includes maintenance activities that would result in long-term indirect energy consumption by equipment required to operate and maintain the roadway.

Direct energy consumption from mobile sources associated with the project was estimated using traffic model forecasts for VMT from the *Traffic Operations Analysis Report* (California Department of Transportation 2019a) and the *EMFAC2017* air quality model, which provides estimated fuel consumption rates for baseline year 2018, opening year 2025, and design year 2045. Estimated energy consumption in 2045 is considered to be the most conservative (i.e., highest) because population and employment are projected to be higher in that year than in any earlier year. Therefore, the energy

consumption of the proposed project is compared to the projected 2045 baseline conditions, which assumes that limited baseline transportation improvements have occurred, and that the proposed project improvements were not implemented. The EMFAC2017 model incorporates energy and conservation measures that were adopted as of December 2017, such as the federal Phase 2 Greenhouse Gas Standards, but it does not consider policies that are not yet adopted. EMFAC2017 uses average values of energy consumption for various vehicle types based on available data, and using the number of vehicle miles of travel, it is possible to calculate the energy consumption per vehicle miles of travel, and ultimately per day or per year.

To assess indirect energy use from the maintenance of the project facility, and the maintenance of vehicles using the facility, energy use factors were obtained from the Department's Energy and Transportation Systems Handbook, Appendix C. The I-10/Jackson Street interchange resource study area for the potential energy impacts is a subarea of the overall SCAG region and was defined by comparing year 2040 Regional Travel Demand Model forecasts of daily traffic volumes using the highway network under the No-Build Alternative (Alternative 1) and one set of traffic volumes for future year scenarios.

The 2016–2040 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals, with a specific goal of achieving an 8 percent reduction in passenger vehicle GHG emissions on a per capita basis by 2020, 18 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level. Although the RTP/SCS is not technically an energy efficiency plan, consistency with the RTP/SCS has energy implications, including the reduction of VMT which reduces GHG emissions and has the co-benefit of reducing fossil fuel consumption from travel to and from the Project Site. Since the Project would not result in an increase in trips or fuel usage over the baseline, it would be consistent with SCAG's RTP/SCS.

Implementation of the project would affect the use of energy resources in the study area during short-term construction and long-term operations.

Project construction would also include various resource conservation measures, including the use of reclaimed water and energy-efficient lighting, such as light-emitting diode (LED) traffic signals.

Project operations would include implementation of intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

The analysis of project impacts is at the regional level and is, therefore, by its nature, an analysis of cumulative impacts. The following analysis discusses the direct and indirect energy use impacts for each of the project alternatives.

Temporary

No-Build Alternative

The No-Build Alternative would not require construction in the project area as a result of the project. Therefore, energy consumption for project construction activities would not be required.

Build Alternatives 2 and 4

Direct Energy (Construction)

During construction of the project, energy would be consumed in the form of petroleum-based fuels associated with the use of off-road construction vehicles and equipment on the project site, construction

workers traveling to and from the project site, and water and haul truck trips (e.g., hauling of demolition material to off-site reuse and disposal facilities). Electricity and natural gas would not be used during project construction. Table 2-51 provides a summary of the annual gasoline fuel and diesel fuel estimated to be consumed during project construction.

Table 2-51 Summary of Annual Fuel Estimated to Be Consumed during Project Construction

Energy Type	Annual Average Quantity During Construction	
Gasoline		
On-Road Construction Vehicle Trips	13,447	gallons
Off-Road Construction Equipment	0	gallons
Total Gasoline	**13,447**	gallons
Diesel		
On-Road Construction Vehicle Trips	32,252	gallons
Off-Road Construction Equipment	178,349	gallons
Total Diesel	**210,600**	gallons

Notes:
Detailed calculations are provided in Appendix B of the energy report prepared for this project.
Source: ESA, 2020; EMFAC, 2014; OFFROAD, 2017

Table 2-51 reports the amount of petroleum-based transportation energy that could potentially be consumed during project construction based on the conservative set of assumptions. During project construction, on- and off-road vehicles would consume an estimated annual average of approximately 13,447 gallons of gasoline and 210,600 gallons of diesel.

Transportation fuels (gasoline and diesel) are produced from crude oil, which can be domestic or imported from various regions around the world. Based on current proven reserves, crude oil production would be sufficient to meet over 50 years of worldwide consumption (BP Global, 2018). The project would comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption) during project construction. Project-related vehicle trips would also comply with Pavley and Low Carbon Fuel Standards which are designed to reduce vehicle GHG emissions, but would also result in fuel savings in addition to compliance with CAFE standards.

Construction of the project would use fuel-efficient equipment consistent with state and federal regulations, such as fuel efficiency regulations in accordance with the CARB Pavley Phase II standards, the anti-idling regulation in accordance with section 2485 in CCR Title 13, and fuel requirements for stationary equipment in accordance with section 93115 (concerning Airborne Toxic Control Measures) in CCR Title 17. The project would also comply with State measures to reduce the inefficient, wasteful, and unnecessary consumption of energy, such as petroleum-based transportation fuels. While these regulations are intended to reduce construction emissions, compliance with the anti-idling and emissions regulations discussed above would also result in fuel savings from the use of more fuel-efficient engines.

Based on the analysis above, construction would utilize energy only necessary for on-site activities, construction worker travel, and to transport construction materials and demolition debris. Idling restrictions and the use of cleaner, energy-efficient equipment would result in less fuel combustion and energy consumption, thus minimizing the project construction-related energy use. Therefore, construction of the project would not result in the wasteful, inefficient, and unnecessary consumption of energy. The impact would be less than significant.

Permanent

No-Build Alternative

Under the No-Build Alternative, the increase in forecasted traffic volumes would result in worsening of traffic congestion, slower traffic speeds, and increases in traffic delays. Without the improvements proposed by the Build Alternatives, congested traffic conditions and limitations on mobility would be more prevalent throughout the study area. These conditions would contribute to inefficient energy consumption, as vehicles would use extra fuel while idling in stop-and-go traffic or moving at slow speeds through congested roadways.

Build Alternatives 2 and 4

Direct Energy (Operation)

Operation of the project would result in a slight increase in electricity from traffic signals, ramp metering, and streetlights, but would not result in an increase in natural gas, therefore, energy consumption from natural gas was excluded from the analysis. Table 2-52 summarizes the estimated electricity consumption from Existing, No-Build, Build Alternative 2, and Build Alternative 4 for the buildout year (2025) and future year (2045). The Build Alternatives include ramp metering that is not a part of the existing or No-Build designs. Further, the Build Alternatives use more efficient streetlighting than the existing and No-Build scenarios.

Table 2-52 Operational Electricity Consumption by Build Scenario

Scenario	Annual Electricity Use (kWh)	% Change from No-Build
Existing (2018)	20,488	0%
No-Build (2025)	20,488	-
Build Alternative 2 (2025)	22,629	10%
Build Alternative 4 (2025)	22,629	10%
No-Build (2045)	20,488	-
Build Alternative 2 (2045)	22,629	10%
Build Alternative 4 (2045)	22,629	10%

Notes:
Detailed calculations are provided in Appendix B of the energy report prepared for this project.
Source: ESA, 2020; HNTB, 2020

As shown in Table 2-52, both Build Alternatives would result in slightly higher electricity use than the existing conditions and the No-Build scenario. This is primarily due to the addition of ramp metering and from increasing the total number of streetlights from 17 to 39 fixtures. However, the Build Alternative streetlights would use more efficient 85-watt bulbs compared to the existing and No-Build scenarios which use a mixture of 250-watt and 85-watt bulbs. Overall, the increase in electricity consumption is negligible and would contribute to greater energy efficiency through use of more efficient lighting and fuel efficiency with the inclusion of ramp metering to monitor the flow of traffic and limit the idling time of mobile sources.

During operation, vehicle use associated with use of the interchange would result in the consumption of petroleum-based fuels related to vehicular travel to and from the project site. Annual trips for the project were estimated using trip rates provided in Appendix A of the *Energy Analysis Report for the I-10/Jackson Street Interchange Improvement Project*, dated February 2020 (ESA 2020). Note that the VMT for the No-Build, Build Alternative 2, and Build Alternative 4 scenarios are the same for each year analyzed, therefore the fuel consumption is the same for each scenario. Table 2-53 estimates the gasoline

and diesel fuel consumption from vehicles using the interchange in the existing, buildout (2025), and future (2045) scenarios.

As reported in Table 2-53, the project would not result in a net increase of fossil fuel usage for Build Alternative 2 and Build Alternative 4 when compared to the No-Build scenario for both buildout (2025) and future (2045) years. As stated earlier, the project is an infrastructure improvement that would not attract an increase in vehicular volume and is only designed to streamline entrance and exit from the freeway. The increased efficiency of the interchange may also result in less idling time that would further reduce fuel consumption for the Build Alternatives. Further, since the project would not result in an increase in trips or fuel usage over the baseline, it would be consistent with SCAG's RTP/SCS.

Table 2-53 Operational Fuel Consumption by Build Scenario

Scenario	Annual VMT	Vehicle Mix			Fuel Use (Gallons)	
		Trucks 1	Trucks 2	Non-Trucks	Gasoline	Diesel
Existing (2018)	302,902,550	4.2%	27.0%	68.8%	9,491,241	12,471,848
No-Build (2025)	344,045,350	4.2%	27.0%	68.8%	8,630,054	13,240,062
Build Alternative 2 (2025)	344,045,350	4.2%	27.0%	68.8%	8,630,054	13,240,062
Build Alternative 4 (2025)	344,045,350	4.2%	27.0%	68.8%	8,630,054	13,240,062
No-Build (2045)	461,593,600	4.2%	27.0%	68.8%	11,473,206	17,820,063
Build Alternative 2 (2045)	461,593,600	4.2%	27.0%	68.8%	11,473,206	17,820,063
Build Alternative 4 (2045)	461,593,600	4.2%	27.0%	68.8%	11,473,206	17,820,063

Notes:
Detailed calculations are provided in Appendix B of the energy report prepared for this project.
Source: ESA, 2020; EMFAC, 2014; Fehr & Peers, 2018

The project would also promote and facilitate: (1) connectivity between communities and businesses and (2) pedestrian, bicycle and low-speed electric vehicle (LSEV) use. While not quantified, the improvement in bicycle paths and pedestrian walkways and to LSEV access could result in a decrease in non-renewable fuel sources and would result in more efficient use of energy resources.

For the reasons described above, the project would not increase operational transportation fuel demand consistent with and not in conflict with State, regional, and City goals. Therefore, operation of the project would not result in the wasteful, inefficient, and unnecessary consumption of energy under either scenario.

Indirect Energy (Operation)

Maintenance of the project would include general upkeep of the traffic signals, street sweeping, ramp metering, street lighting, and pavement. As stated above, the analysis assumes that general maintenance would require two workers, twice a month. Additionally, the analysis assumes repaving/roadway maintenance would occur 5 days per year and require pavers, paving equipment, rollers, signal boards, one haul truck, and six workers.

The analysis assumes that general maintenance for the Build Alternatives would require four workers, twice a month. Additionally, the analysis assumes repaving/roadway maintenance would occur ten days per year and require pavers, paving equipment, rollers, signal boards, one haul truck, and twelve workers. Table 2-54 summarizes the fuel consumption associated with maintenance for each scenario.

Table 2-54 Maintenance Fuel Consumption by Build Scenario

Scenario	Fuel Use	
	Gasoline	Diesel
Existing (2018)	129	369
No-Build (2025)	129	369
Build Alternative 2 (2025)	257	693
Build Alternative 4 (2025)	257	693
No-Build (2045)	129	369
Build Alternative 2 (2045)	257	693
Build Alternative 4 (2045)	257	693

Notes:
Detailed calculations are provided in Appendix B of the energy report prepared for this project.
Source: ESA, 2020; EMFAC, 2014; OFFROAD, 2017

As shown in Table 2-54, maintenance activities would increase over the No-Build Alternative under both Build Alternative 2 and Build Alternative 4. The increase in fuel use is due to the increase in paved surface area from adding new lanes and widening shoulders. Like construction, the project would comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels (lower consumption) during project maintenance. Project-related vehicle trips would also comply with Pavley and Low Carbon Fuel Standards which are designed to reduce vehicle GHG emissions, but would also result in fuel savings in addition to compliance with CAFE standards. Therefore, maintenance of the project would not result in wasteful, inefficient, and unnecessary consumption of energy, and the impact would be less than significant in nature.

2.2.8.4 Avoidance, Minimization, and/or Mitigation Measures

All project components would be designed in accordance with standard engineering practices and Department standard specifications. No avoidance, minimization, and/or mitigation measures are required because the project would not result in any substantial adverse effects under NEPA or significant impacts under CEQA.