Air Quality Analysis for the Coast Highway (Hill Street) Bridge over San Luis Rey River Replacement Oceanside, California

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Acronyms and Abbreviations

AAQS	Ambient Air Quality Standards
AB	Assembly Bill
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CFR	Code of Federal Regulations
City	City of Oceanside
CO	carbon monoxide
FTIPs	Federal Transportation Improvement Programs
FHWA	Federal Highway Administration
H&SC	Health & Safety Code
HBP	Highway Bridge Program
I-5	Interstate 5
MSL	mean sea level
NAAQS	national ambient air quality standards
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
Pb	lead
PM_{10}	10-micron particulate matter
$PM_{2.5}$	2.5-micron particulate matter
RAQS	Regional Air Quality Strategy
ROG	reactive organic gases
RTPs	Regional Transportation Plans
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SIP	State Implementation Plan
SO_2	sulfur dioxide
TAC	toxic air contaminant
TCM	Transportation Control Measures
U.S. EPA	United States Environmental Protection Agency
USC	United States Code

1.0 Introduction

The City of Oceanside (City) proposes to replace the existing structurally deficient Coast Highway (Hill Street) Bridge over the San Luis Rey River (Br. No. 57C-0322; Project Number BRLS-5079[030]). The bridge is located approximately 0.3 mile south of Harbor Drive, immediately west of and parallel to Interstate 5 (I-5), in the city of Oceanside, San Diego County, California (Figure 1). The general setting is a perennial river surrounded by commercial and residential development; Coast Highway (Hill Street) and includes roadways, curbs, and a sidewalk on the west side of the road and bridge.. The bridge currently carries vehicular, bicycle, and pedestrian traffic on Coast Highway over the San Luis Rey River. There is no curbside on-street parking allowed on the bridge or near the bridge on the approach roadways. The project vicinity is shown in Figure 2.

The project is funded by the federal-aid Highway Bridge Program (HBP) administered by the Federal Highway Administration (FHWA) through the California Department of Transportation (Caltrans) Local Assistance Program. The replacement bridge will meet current applicable City, American Association of State Highway and Transportation Officials, FHWA, and Caltrans design standards. Two build alignment alternatives are currently under consideration for the proposed project. Alternative 1 involves replacement of the existing bridge in nearly the same alignment as the existing bridge. Alternative 2 (proposed alignment) involves building the replacement bridge west of the existing alignment, and removing the existing bridge after the replacement bridge is open The bridge would be replaced close to the same location; just immediately west of the current bridge alignment to maintain service on the existing roadway and bridge during construction.

This air quality analysis has been prepared to address air emissions during the construction and operations of the project and the potential impacts to sensitive human receptors in the vicinity of the proposed project.

2.0 Project Purpose and Description

2.1 Purpose and Need

The proposed project is needed because the existing bridge was built in 1929 and is in poor structural condition. At 92 years old, the bridge is past its useful service life. The bridge is a "Fracture Critical" steel truss because it is structurally non-redundant and has steel members loaded in tension. If one of these members fractured, it would cause collapse of a span.

The purpose of this project is to remove the deteriorated, structurally deficient, fracture critical, and seismically vulnerable, existing structure and replace it with a new bridge designed to current structural and geometric standards while minimizing adverse impacts on the San Luis Rey River and the surrounding riparian area.

Project Location

FIGURE 1
Regional Location

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Image Source: Nearmap (flown September 2021)

0 Feet 300

Project Impact Area

Habitat Enhancement Area (Project Mitigation)

FIGURE 2

Project Location on Aerial Photograph

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2.2 Project Description

The Coast Highway runs from southeast to northwest at an approximate 30-degree angle to true north. For purposes of this Project Description, it is assumed that Coast Highway runs north to south and the San Luis Rey River flows from east to west.

2.2.1 Existing Bridge

The existing Coast Highway Bridge was constructed in 1929. It is a 950-foot-long five-span bridge with a cast-in-place concrete deck. The approach spans (Spans 1 and 5) are rolled steel girders. Spans 2, 3, and 4 are each 268-foot-long steel truss spans. The truss spans have a total depth of approximately 40 feet, constructed of dual simple span riveted steel trusses. Piers 3 and 4 are located in the main river and are supported on piles. Piers 2 and 5, located near the edges of the river, are supported on spread footings. The existing abutments are seat type concrete abutments on spread footings. The bridge was widened to the east in 1952. The widening was removed in 1971 when I-5 was built, and the bridge was restored to its original configuration. The bridge is a total of approximately 49 feet wide, with a curb-to-curb width of approximately 40 feet providing two 12-foot traffic lanes plus 8-foot shoulders. It has a raised sidewalk along the west edge of deck.

The following utilities are attached to the bridge:

- 12-inch gas line – attached to the lower portion of the truss along the east side of the bridge;
- 12-inch waterline – attached to the lower portion of the truss along the east side of the bridge;
- 10-inch waterline – attached to the lower portion of the truss along the west side of the bridge
- 14-inch sewer force main – attached to the lower portion of the truss along the west side of the bridge; and
- Electrical and telecommunications lines–attached under the top deck along the west side of the bridge.

There are also two sewer lines in the bridge vicinity. One runs down the center of Coast Highway, and terminates approximately 40 feet south of the bridge, and does not cross the San Luis Rey River. The second sewer line runs under the bridge, on the downstream side of the bridge.

The San Luis Rey River Trail runs along the southern riverbank and provides recreational and commuter uses for bicyclists and pedestrians. Access along this trail will be maintained during construction to the extent practical. Temporary closures and/or detours are anticipated to be needed during construction. After construction the trail will be returned to its pre-project condition or better.

On the north side of the river, there is a paved concrete pedestrian path near the top of the slope, which crosses under the I-5 bridges and under the existing Coast Highway Bridge, and provides

coastal access to the residential neighborhood to the east. This path will likely need to be modified to extend it under the new Coast Highway Bridge. Access along this trail will be maintained during construction to the extent practical. Temporary closures and/or detours are anticipated to be needed during construction. After construction the trail will be returned to its pre-project condition or better.

2.2.2 Replacement Bridge

Two build alignment alternatives are currently under consideration for the project. Alternative 1 involves removal of the existing bridge first, followed by construction of the replacement bridge in nearly the same alignment as the existing bridge. Alternative 2 involves keeping the existing bridge open during construction, building the replacement bridge west of the existing alignment, and removing the existing bridge after the replacement bridge is open. No additional traffic lanes are proposed in the project; the existing two-lane bridge will be replaced with another two-lane bridge. The preferred alternative is that the bridge would be replaced close to the same location, immediately west of the current bridge alignment to maintain service on the existing roadway and bridge during construction.

The deck width on the new bridge will match existing conditions with two 12-foot-wide travel lanes and two 8-foot-wide shoulders for a curb-to-curb width of 40 feet. This roadway section is consistent with City and American Association of State Highway and Transportation Officials standards for a facility of this type, and also matches the existing curb and gutter line along Coast Highway. The shoulders may be reduced to 4 feet if required by Caltrans for funding purposes.

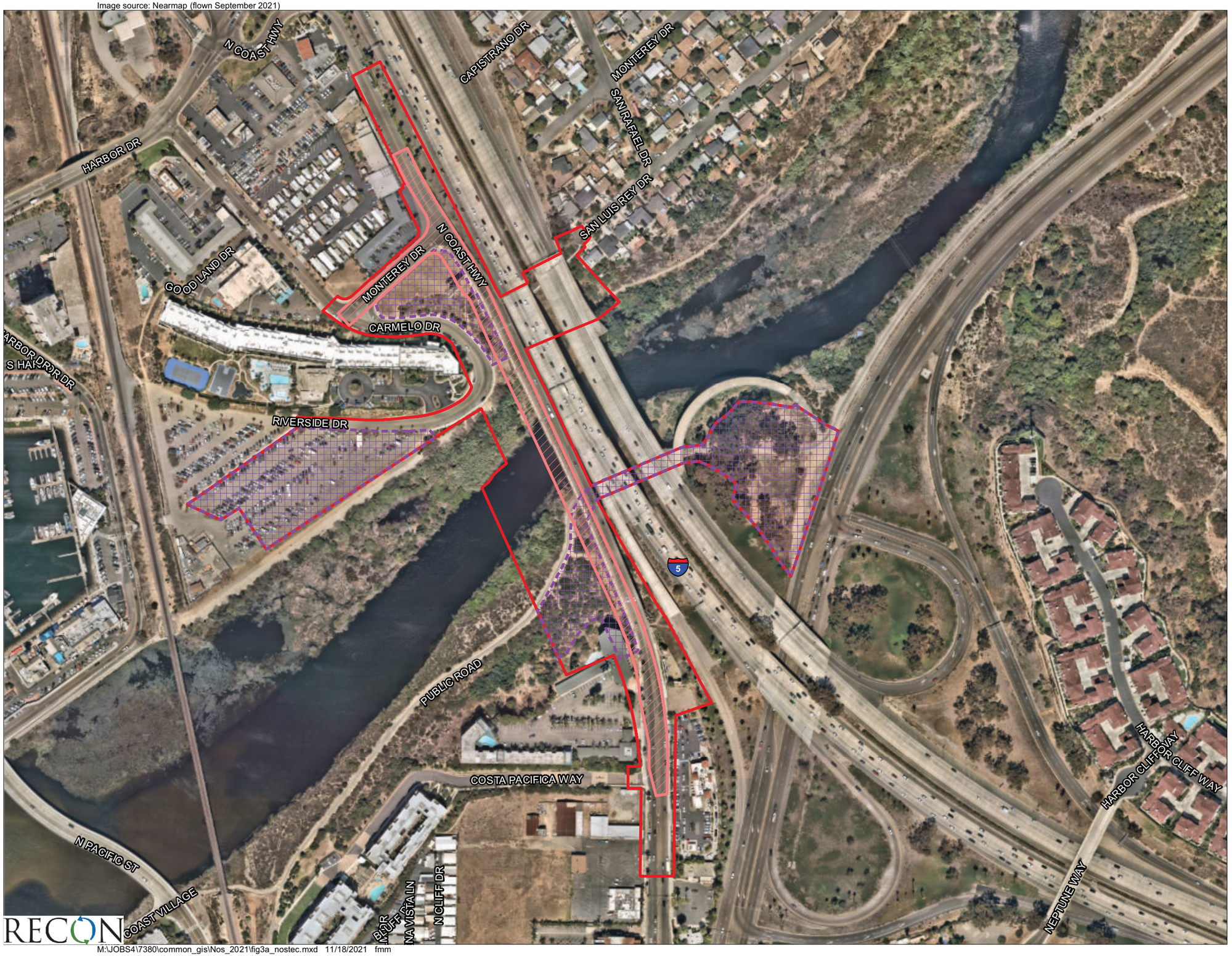
South of the bridge, there are sidewalks on each side of the street. However, north of the bridge there is only a sidewalk on the west side of the street. New bridges and streets constructed to the City standard would generally have 6-foot-wide sidewalks on each side, and the HBP program would generally participate in sidewalks where sidewalks currently exist. To provide the necessary pedestrian circulation, to align with the sidewalk north of the bridge, and to address the project objectives of improving the user experience for pedestrians and optimizing views of scenic resources, as well as maximize federal funding participation, a single 8-foot-wide sidewalk is proposed for the west side of the new bridge.

The bridge barriers and railings will meet current crash testing requirements for vehicular and pedestrian railings and will be aesthetically pleasing. Coastal views will be considered when selecting bridge and rail types.

The structure Type Selection is underway. The preferred alternative proposed is a cast-in-place post-tensioned concrete box girder bridge on column piers along a new alignment just west of the existing bridge. The final bridge type chosen during final design may have slight variations to the proposed preferred alternative identified in the on-going Type Selection; however, any modifications would not affect the overall environmental disturbance footprint studied in the technical studies and environmental documents. Bridge construction is anticipated to require construction of a temporary trestle adjacent to the existing bridge and along the new bridge to facilitate access. Cofferdams may be required to construct some of the bridge concrete piers and supports.

The alternative bridge alignments are shown on Figures 3a and 3b.

Image source: Nearmap (flown September 2021)



Project Impact Area

Alternative 1 Alignment

Staging Areas

0 Feet 250

FIGURE 3a

Alternative 1 Improvements on Aerial Photograph

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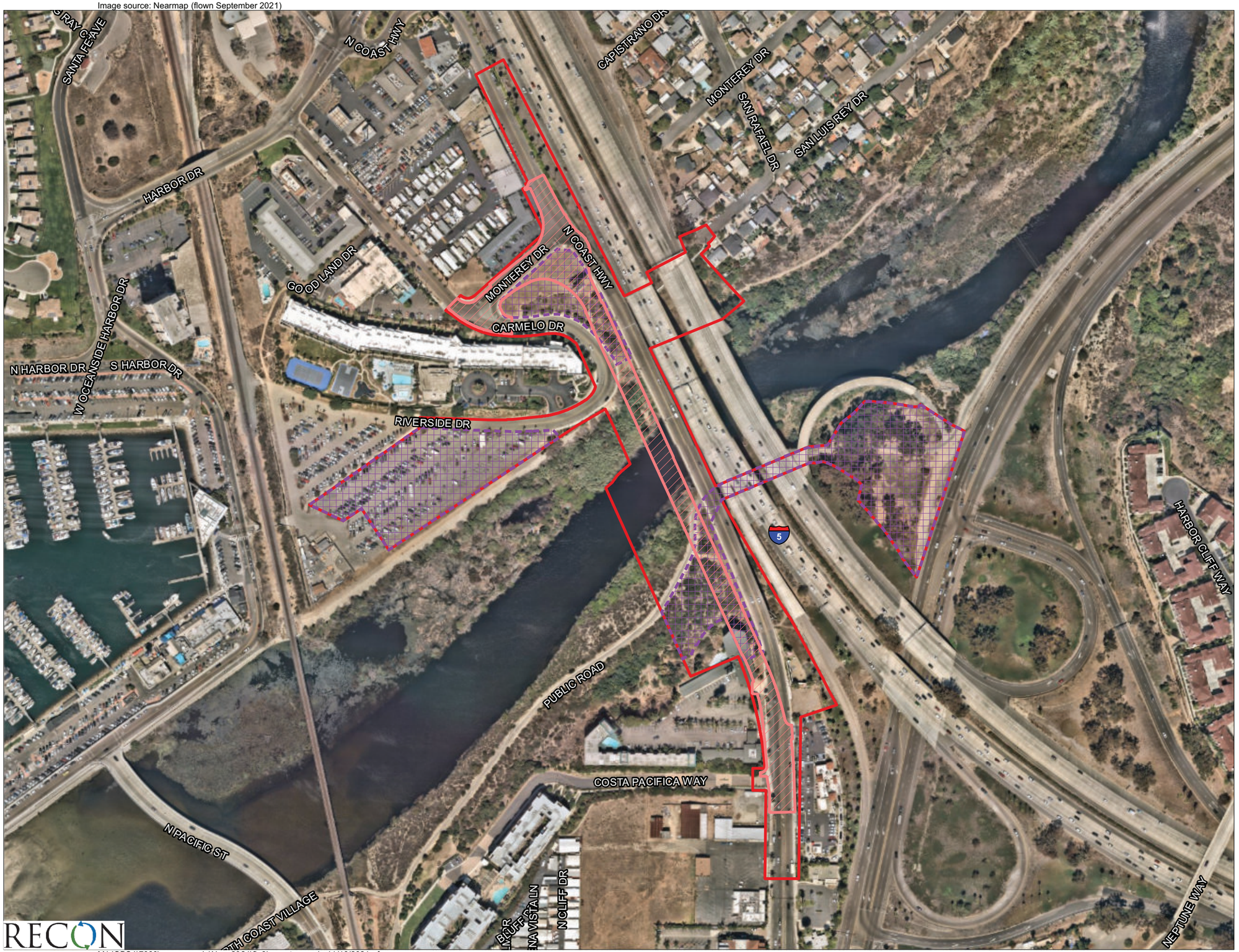
Image source: Nearmap (flown September 2021)



Project Impact Area

Alternative 2 Alignment

Staging Areas

0 Feet 250

FIGURE 3b

Alternative 2 Improvements on Aerial Photograph

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2.2.3 Roadway Approach Work

The project will include new pavement, curbs, gutters, and sidewalks adjacent to the replacement bridge. The project will conform back to the existing roadway as quickly as practical. The curb-to-curb clear width of the street will match the width of the existing street and bridge. The approaches will transition as necessary to conform to the width of the sidewalk and roadway clear width on the bridge.

2.2.4 Utility Relocation

The existing utilities currently supported by the existing bridge will be relocated onto the new bridge. These utilities will remain in service during construction. Once the new bridge is complete, the utilities will be relocated from the existing bridge to their final locations in the new bridge. Accommodations for other utilities and future utilities on the new bridge will be accommodated as practical.

2.2.5 Right-of-Way

The existing right-of-way for Coast Highway is approximately 75 feet at the bridge and widens both north and south of the existing bridge. Permanent right-of-way acquisition is anticipated. During construction, temporary construction easements and permits to enter and construct are anticipated to be required.

There are several areas identified as potential construction staging areas that may require temporary construction easements or encroachment permits from Caltrans (see Figures 2a and 2b). The following parcels are identified as potential staging areas:

- Assessor's Parcel Number (APN) 143-010-150,
- APN 143-040-450,
- APN 143-040-550,
- APN 143-090-180, and
- Portions of Caltrans Right-of-Way under I-5 bridges over the San Luis Rey River.

2.2.6 Traffic Handling

Since constructing the new bridge on a separate alignment just west of the existing bridge is the proposed alternative, traffic will remain on the existing bridge during construction. This will minimize traffic impacts during construction. Once the proposed bridge is constructed, traffic will be cutover from the existing bridge onto the new bridge. During the cutover traffic will be impacted with delays and short-term closures as necessary to make the transition. A traffic handling plan will be submitted by the contractor for approval prior to construction beginning. Once the traffic is fully transitioned onto the new bridge, the existing bridge will be demolished.

2.2.7 Demolition Activities

Demolition of the existing bridge will be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the demolition of the existing bridge will be removed from the project site and properly disposed of by the contractor. Prior to construction, the contractor is required to prepare a bridge demolition plan in conformance with environmental permits and the Caltrans Standard Specifications. Bridge demolition is anticipated to require construction of a temporary trestle adjacent to the existing bridge to facilitate demolition and provide temporary support during truss removal. Cofferdams and bubble curtains are anticipated to facilitate removal of the existing bridge concrete piers. Cofferdams will be installed along the banks of the river in order to demolish the piers and supports on land while bubble curtains will be used to demolish the piers and supports within the river. All demolition plans will be reviewed and approved by the Resident Engineer. Equipment used for demolition may include backhoes, excavators, hoe rams, hydraulic hammers, loaders, dump trucks, debris bins, flatbed trucks with cranes, forklifts, crawler cranes, air compressors, jackhammers, chipping guns, cutting torches, and saws.

2.2.8 Construction Activities

Construction will consist of the activities described in the following sections, which will be completed in the general order presented.

2.2.8.1 Clearing, Grubbing, and Tree Removals

Portions of existing roadway, sidewalks, curbs, gutters, hardscape, and landscaping in conflict with new construction would be removed. Areas around the corners of the new bridge would be cleared of vegetation, fencing, and planter beds to gain access for constructing the new bridge. Vegetation and trees in the river within the footprint of the new bridge would be removed as shown on the plans and allowed by the environmental permits.

2.2.8.2 Construction Staging Areas/Site Access

Contractor lay down areas will be in flat unused areas inside the project direct impact limits. Access to the project site south of the river could be achieved from State Route 76 (SR-76) east of the project site. A temporary access road could be cut into the slope at SR-76 and follow the San Luis Rey River Trail under the I-5 bridges. This path would provide good access from SR-76 and provide a relatively gradual slope for the access road. Access to the project site north of the river could be achieved from Monterey Drive and Riverside Drive.

2.2.8.3 Construction Access across the River

Stream flow in the San Luis Rey River will be maintained during construction. It is envisioned that a temporary construction trestle would be used to provide access over the river. Along the riverbanks, some temporary grading will be necessary to provide access for construction equipment. Work will be in conformance with City specifications as well as California Department of Fish and Wildlife,

Regional Water Quality Control Board, U.S. Fish and Wildlife Service, and National Marine Fisheries Service regulatory requirements. Materials to construct the trestles may consist of steel pilings, steel cap beams and stringers, and timber decking. All work will be contained within the approved project area of disturbance. Equipment used may include light trucks, track mounted cranes, pile driving equipment, forklifts, excavators, and loaders. The trestles would remain in place for the duration of construction which may include staying in place over at least one winter season.

2.2.8.4 New Bridge Foundations

Due to the scour and liquefaction potential of the soils at the project site, the foundations for the replacement bridge will be supported by large diameter piles. Cast-In-Drilled-Hole (CIDH) piles are recommended in the Preliminary Foundation Report for the project. These piles could be up to approximately 180 inches in diameter and over 200 feet deep. Groundwater will be encountered during drilling for the CIDH piles. The CIDH pile construction may require the use of high density drilling slurry and steel casings. Prior to construction, a pile installation plan will be prepared by the contractor for approval by the Resident Engineer, in conformance with applicable permits, project specifications, environmental measures and conditions. All drilling slurry from the CIDH pile construction will be contained and properly disposed of off-site.

Equipment used may include a crane- or excavator-mounted drill rig for the piles, a crane to set the rebar cages in the drilled holes, dump trucks, compaction equipment, and a truck-mounted concrete boom pump. If slurry is used, there will be mixing tanks, recirculating pumps, and holding tanks for the waste slurry to be trucked off-site.

2.2.8.5 New Bridge Construction

Cast-in-place concrete construction, which places concrete in-situ using temporary shoring called "falsework," is generally the preferred, most economical, and by far the most common construction method for highway bridges in California. It is feasible for this site, and was used for the I-5 bridges to the east, which were built in the early 1970s, and more recently for the Pacific Street Bridge to the west, which was completed in 2008. As such, cast-in-place is the anticipated construction method for this project. The basic construction sequence is described below.

The piers and abutments will be constructed on site by installing rebar, placing forms, and pouring concrete. Once the piers and abutments are complete, falsework will be constructed to support the wet concrete for the superstructure. As temporary works, the falsework is designed by the contractor. It generally consists of timber or steel posts, steel cap beams, and steel stringers. Timber joists and plywood forms are placed on top of the steel stringers. Falsework spans are typically 20 to 60 feet long; however, longer spans are possible. The active river channel is approximately 150 feet wide, so it is likely that falsework supports will be installed within the river. At these locations the falsework will be supported on piles, which are vibrated and driven into the ground. Falsework supports which are susceptible to flooding will be designed for stream flow and scour in case a flood event occurs during construction. Equipment used for the falsework construction may include light trucks, track-mounted cranes, pile driving equipment, forklifts, generators, excavators, and loaders.

Once the falsework is complete, the vast majority of the work commences from on top of the falsework. The girders are formed, rebar is placed, and the concrete is poured. Concrete is typically placed from the ends of the bridge using truck-mounted concrete boom pumps. Since this bridge will be approximately 980 feet long, concrete to the center of the bridge may need to be pumped using a concrete pump located on an access road or construction trestles below the bridge. For a multi-cell concrete box girder, the superstructure is placed in two pours, with the stem and soffit poured first and then the top deck placed in the second pour. Between the two concrete pours, utilities are installed in the cells. After the deck is complete and has reached the required strength, the superstructure is typically post-tensioned from abutment to abutment. Equipment used may include light trucks, small cranes to lift rebar and forms into place, concrete trucks, and truck-mounted concrete boom pumps.

After the bridge is pre-stressed, the falsework is removed, backfill is placed behind the abutments, and roadway base materials are placed along the roadway approaches. The roadway will be prepared for final surfacing, and the barriers and railings will be installed. Equipment used may include light trucks, small cranes and forklifts, loaders, dump trucks, pavers, and compaction equipment.

Excavations up to 30+ feet are necessary at the proposed bridge abutments and piers. Excavation for the approach roadway and utilities in the approach roadway may be up to 15+ feet.

The falsework would remain in place for the duration of the new bridge construction which may include staying in place over at least one winter season. The falsework could be removed before the existing bridge is demolished.

2.2.8.6 Landscaping

Below the bridge, the river will be restored to its existing condition, with minimal changes to slopes and grades. Some rock slope protection may be required along the slopes to protect the abutments. Areas that are disturbed during construction will be restored using local native upland or riparian, as appropriate, landscaping to revegetate the slopes and riverbanks. Minor landscaping improvements may occur within the street corridor along the reconstructed bridge approaches.

2.2.9 Construction Sequence/Schedule and Timing

Construction is currently scheduled to start in 2024 and take approximately 24 to 30 months to complete. An in-creek work window will be determined during the environmental permitting process with the resource agencies. Temporary works such as the trestles and falsework that would need to stay in place over at least one winter season will be coordinated with the environmental permitting agencies and the U.S. Army Corps of Engineers levee group. An in-creek work window of June 1 to October 31 is anticipated.

2.2.10 Mitigation Areas

For either project alternative, the majority of mitigation is planned to be accomplished on-site within suitable areas within the project impact area and on adjacent areas owned or managed by the City, referred to as the Habitat Enhancement Area (see Figure 2). Upon completion of construction, the

following revegetation efforts are proposed within temporary impact areas: creation and restoration of Diegan coastal sage scrub; re-establishment and restoration of freshwater marsh and southern riparian scrub; and restoration of open water. Vegetation within the Habitat Enhancement Area, located immediately west of the project impact area and north of the San Luis Rey River, will be enhanced through removal of non-native plant species and planting of native riparian plant species.

3.0 Fundamentals of Air Quality

Air quality impacts can result from the emission of pollutants associated with construction and operation of a project. Construction impacts are short-term and may result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts are long term and may result from equipment and processes used in the project (e.g., water heaters, engines, boilers, and paints or solvents), motor vehicle emissions associated with the project, regional impacts resulting from growth-inducing development, and local hot-spot effects stemming from sensitive receivers being placed close to highly congested roadways. Health effects can include the following:

- Increased respiratory infections,
- Increased discomfort,
- Missed days from work and school, and
- Increased mortality.

The analysis of air quality impacts is based on federal and state Ambient Air Quality Standards (AAQS). AAQS represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. AAQS have been established for six pollutants of key concern known as "criteria pollutants". The six criteria pollutants are found all over the United States, and each pose a threat to human health. Criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

3.1 Ozone

Ozone is the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of nitrogen oxides (NO_X) and reactive organic gases (ROG) (a.k.a. volatile organic chemicals or reactive organic compounds) in the presence of sunlight. The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthma sufferers and children, but healthy adults as well. Exposure to ozone has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Symptomatic responses include throat dryness, chest tightness, headache, and nausea. About half of smog-forming emissions come from automobiles.

3.2 Carbon Monoxide

Carbon monoxide is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (United States Environmental Protection Agency [U.S. EPA] 2014).

Small-scale, localized concentrations of CO above the federal and state AAQS may occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as "CO hotspots" and are a concern at congested intersections, where automobile engines burn fuel less efficiently and their exhaust contains more CO.

3.3 Nitrogen Dioxide

Nitrogen dioxide is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat.

3.4 Sulfur Dioxide

Sulfur dioxide is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The health effects of SO_2 include lung disease and breathing problems for people with asthma. SO_2 in the atmosphere contributes to the formation of acid rain.

3.5 Inhalable Coarse Particles

PM_{10} is particulate matter with an aerodynamic diameter of 10 microns or less. Ten microns is about one-seventh of the diameter of a human hair. Particulate matter is a complex mixture of very tiny solid or liquid particles composed of chemicals, soot, and dust. Under typical conditions (i.e., no wildfires) particles classified under the PM_{10} category are mainly emitted directly from activities that

disturb the soil including travel on roads and construction, mining, or agricultural operations. Other sources include windblown dust, salts, brake dust, and tire wear.

Health studies have shown a significant association between exposure to particulate matter and premature death in people with heart or lung diseases. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat (U.S. EPA 2014).

3.6 Inhalable Fine Particles

Airborne, inhalable particles with aerodynamic diameter of 2.5 microns or less have been recognized as an air quality concern requiring regular monitoring. Federal regulations required that $PM_{2.5}$ monitoring began January 1, 1999. Similar to PM_{10}, $PM_{2.5}$ is also inhaled into the lungs and causes serious health problems.

3.7 Lead

Lead is a metal found naturally in the environment as well as in manufactured products. At high levels of exposure, lead can have detrimental effects on the central nervous system. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions.

4.0 Environmental Setting

4.1 Geographic Setting

The project area is located within the western portion of the San Diego Air Basin (SDAB), which encompasses the entire County of San Diego. The westerly, coastal areas of the SDAB typically experience westerly winds which direct pollutants eastward, as described below. The eastern portion of the SDAB is surrounded by mountains to the north, east, and south. These mountains tend to restrict airflow and concentrate pollutants in the valleys and low-lying areas.

4.2 Climate

The project is located about 0.5 mile east of the Pacific Ocean and, like the rest of San Diego County's coastal areas, has a Mediterranean climate characterized by warm, dry summers and mild, wet winters. The mean annual temperature for the project area is 60 degrees Fahrenheit (°F). The average annual precipitation is 11 inches, falling primarily from November to April. Winter low temperatures in the project area average about 45°F, and summer high temperatures average about 71°F. The average relative humidity is 69 percent and is based on the yearly average humidity at Lindbergh Field (Western Regional Climate Center 2017).

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away

from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

Fluctuations in the strength and pattern of winds from the Pacific High Pressure Zone interacting with the daily local cycle produce periodic temperature inversions that influence the dispersal or containment of air pollutants in the SDAB. Beneath the inversion layer, pollutants become "trapped" as their ability to disperse diminishes. The mixing depth is the area under the inversion layer. Generally, the morning inversion layer is lower than the afternoon inversion layer. The greater the change between the morning and afternoon mixing depths, the greater the ability of the atmosphere to disperse pollutants.

Throughout the year, the height of the temperature inversion in the afternoon varies between approximately 1,500 and 2,500 feet above mean sea level (MSL). In winter, the morning inversion layer is about 800 feet above MSL. In summer, the morning inversion layer is about 1,100 feet above MSL. Therefore, air quality generally tends to be better in the winter than in the summer.

The prevailing westerly wind pattern is sometimes interrupted by regional "Santa Ana" conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada–Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

Strong Santa Anas tend to blow pollutants out over the ocean, producing clear days. However, at the onset or during breakdown of these conditions or if the Santa Ana is weak, local air quality may be adversely affected. In these cases, emissions from the South Coast Air Basin to the north are blown out over the ocean, and low pressure over Baja California, Mexico, draws this pollutant-laden air mass southward. As the high pressure weakens, prevailing northwesterly winds reassert themselves and send this cloud of contamination ashore in the SDAB. When this event does occur, the combination of transported and locally produced contaminants produce the worst air quality measurements recorded in the basin.

4.3 Existing Air Quality

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and throughout the basin. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by the California Air Resources Board (CARB) or federal standards set by the U.S. EPA (State of California 2014). The San Diego Air Pollution Control District (SDAPCD) maintains 11 air quality monitoring stations located throughout the greater San Diego metropolitan region.

The nearest air quality monitoring station to the project site is the Camp Pendleton monitoring station, located approximately 1 mile northwest of the site. The Camp Pendleton monitoring station measures ozone, $PM_{2.5,}$ and NO_2. Table 1 provides a summary of measurements collected at the Camp Pendleton monitoring station for the years 2016 through 2020.

Table 1 Summary of Air Quality Measurements Recorded at Camp Pendleton Monitoring Station					
Pollutant/Standard	2016	2017	2018	2019	2020
Ozone					
Federal Max 8-hr (ppm)	0.073	0.081	0.068	0.064	0.074
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	4	4	0	0	3
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	0	1	0	0	0
State Max 8-hr (ppm)	0.073	0.082	0.069	0.065	0.074
Days State 8-hour Standard Exceeded (0.07 ppm)	5	5	0	0	3
Max. 1-hour (ppm)	0.083	0.094	0.084	0.075	0.094
Days State 1-hour Standard Exceeded (0.09 ppm)	0	0	0	0	0
$PM_{2.5}$*					
Federal Max. Daily ($\mu g/m^3$)	--	--	--	--	--
Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	--	--	--	--	--
Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	--	--	--	--	--
Federal Annual Average ($\mu g/m^3$)	--	--	--	--	--
State Max. Daily ($\mu g/m^3$)	28.8	26.0	30.5	13.8	61.1
State Annual Average ($\mu g/m^3$)	--	--	--	--	--
NO_2					
Max 1-hour (ppm)	0.072	0.063	0.048	0.053	0.058
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppb)	0	0	0	0	0
Annual Average (ppm)	0.006	0.006	--	0.005	0.006

SOURCE: CARB 2021.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; -- = Not available.
*Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

5.0 Regulatory Framework

5.1 Federal Air Quality Regulations

The Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA [42 USC 7409], the U.S. EPA developed primary and secondary national ambient air quality standards (NAAQS). Six criteria pollutants of primary concern have been designated: ozone, CO, SO_2, NO_2, lead, and PM. The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" [42 USC 7409(b)(2)]. The U.S. EPA classifies specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant based on the comparison of measured data with the NAAQS. The SDAB is a nonattainment area for the federal ozone standard and a maintenance (former nonattainment) area for CO. States are required to adopt enforceable plans, known as a

State Implementation Plan (SIP), to achieve and maintain air quality meeting the NAAQS. State plans also must control emissions that drift across state lines and harm air quality in downwind states.

5.2 State Air Quality Regulations

5.2.1 California Ambient Air Quality Standards

The California Clean Air Act (CCAA) was enacted in 1988 (California Health & Safety Code (H&SC) §39000 et seq.). Under the CCAA the State has developed the California Ambient Air Quality Standards (CAAQS) which are generally more stringent than the NAAQS (Table 2). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (see Table 2). Similar to the federal CAA, the CCAA classifies specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The SDAB is a non-attainment area for the state ozone standards, the state PM_{10} standard, and the state $PM_{2.5}$ standard.

The state of California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. If an air basin is not in either federal or state attainment for a particular pollutant, the basin is classified as a nonattainment area for that pollutant. Under the federal CAA, once a nonattainment area has achieved the air quality standards for a particular pollutant, it may be redesignated to an attainment area for that pollutant. To be redesignated, the area must meet air quality standards and have a 10-year plan for continuing to meet and maintain air quality standards, as well as satisfy other requirements of the federal CAA. Areas that have been redesignated to attainment are called maintenance areas. The state does not have the maintenance requirement of the federal CAA.

Table 2 State and National Ambient Air Quality Standards						
		California Standards[1]		National Standards[2]		
Pollutant	Averaging Time	Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (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		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		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	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m^3)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (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	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[10]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[10]	–	
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 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chroma-tography			
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 Chroma-tography			

See footnotes on next page.

Table 2
State and National Ambient Air Quality Standards

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards 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 three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[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 Air Resources Board 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 $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standards of 15 µg/m^3. The existing 24-hour PM_{10} 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 standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards 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 one year after an area is designated for the 2010 standard, except that in areas designated nonattainment 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 parts per billion (ppb). California standards are in units of parts per million (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] The ARB 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/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment 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, the ARB 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 2016.

5.2.2 Toxic Air Contaminants

A toxic air contaminant (TAC) is any air pollutant which may cause or contribute to an increase in mortality or serious illness or which may pose a present or potential hazard to human health. The public's exposure to TACs is a significant public health issue in California. Diesel-exhaust particulate matter emissions have been established as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air quality monitoring network, and develop any additional air toxic control measures needed to protect children's health.

As an ongoing process, CARB continues to establish new programs and regulations for the control of diesel-particulate and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to diesel particulate matter will continue to decline.

5.2.3 State Implementation Plan

The SIP is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. The CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the *Federal Register*. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

As the regional air quality management district, the South Coast Air Quality Management District is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The air pollution control district for each county adopts rules, regulations, and programs to attain federal and state air quality standards, and appropriates money (including permit fees) to achieve these objectives.

5.3 Local Air Quality Regulations

5.3.1 San Diego Air Pollution Control District

The SDAPCD is the agency that regulates air quality in the SDAB. The SDAPCD prepared the Regional Air Quality Strategy (RAQS) to address state requirements, pursuant to the CCAA of 1988 (California H&SC §39000 et seq.). The CCAA requires areas that are designated nonattainment of state ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare and implement state plans to attain the standards by the earliest practicable date (H&SC §40911(a)). With the exception of state ozone standards, each of these standards has been attained in the SDAB (SDAPCD 2016).

Included in the RAQS are the Transportation Control Measures (TCM) prepared by the San Diego Association of Governments (SANDAG) that control emissions from mobile sources (SDAPCD 2016). The RAQS and TCM set forth the steps needed to accomplish attainment of CAAQS for ozone. The most recent update of the RAQS and corresponding Transportation Control Measures were adopted in 2016.

The SDAPCD has also established a set of rules and regulations initially adopted on January 1, 1969, and periodically reviewed and updated. These rules and regulations are available for review on the agency's website.

6.0 Thresholds of Significance

6.1 California Environmental Quality Act

The California Natural Resources Agency maintains State CEQA Guidelines to assist lead agencies in developing significance thresholds for assessing potentially significant environmental impacts. According to State CEQA Guidelines Appendix G Environmental Checklist, implementation of the project would have significant environmental impacts on air quality if it would:

1) Conflict or obstruct with the implementation of the applicable air quality plan.
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
3) Expose sensitive receptors to substantial pollutant concentration.
4) Result in other emissions (such as those leading to odors) affecting a substantial number of people.

As stated in the State CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form).

The State CEQA Guidelines encourage lead agencies to adopt regionally specific thresholds of significance. When adopting these thresholds, the amended Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence.

6.2 City of Oceanside

Emissions resulting from implementation of the project would be due primarily to construction. Oceanside has not published specific air pollution emission thresholds and relies on information from the SDAPCD. However, the SDAPCD does not provide specific numeric thresholds for determining the significance of air quality impacts under CEQA. The district does specify Air Quality Impact Analysis trigger levels for new or modified stationary sources (SDAPCD Rules 20.1, 20.2, and 20.3). Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels are used to evaluate the increased emissions that would be discharged to the SDAB if the proposed project were approved.

The SDAPCD thresholds are also utilized by the City as one of the considerations when determining the potential significance of air quality impacts for projects within the City. However, SDAPCD Rules 20.1, 20.2 and 20.3 do not specify thresholds for ROGs. The threshold for ROGs is based on the Environmental Protection Agency General Conformity Rule, which equates ROG and NO_X emissions under the CAA and applies the same limitation on ROG and NO_X emissions in ozone nonattainment areas (*Federal Register* 2010). The air quality thresholds used in this analysis are shown in Table 3.

Table 3
Air Quality Impact Screening Levels

Pollutant	Emission Rate		
	(lb/hr)	(lb/day)	(tons/yr)
NO_X	25	250	40
SO_X	25	250	40
CO	100	550	100
PM_{10}	--	100	15
Lead	--	3.2	0.6
ROG[1]	--	250	--
$PM_{2.5}$	--	67	--

SOURCE: SDAPCD Rule 20.1, 20.2, and 20.3, revised August 2016.
lb = pounds; hr = hour; yr = year; ROG = reactive organic gases; CO = carbon monoxide; SO_x = oxides of sulfur; NO_x = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns.

In addition to a comparison with the quantitative thresholds for regional emissions in Table 3; the project is evaluated for local air quality impacts, such as whether concentrations of carbon monoxide exceed the NAAQS or CAAQS; consistency with assumptions of the SDAPCD RAQS; and potential odor impacts.

7.0 Impact Analysis

7.1 Construction

Construction-related pollutants result from dust raised during demolition and grading, emissions from construction vehicles, and chemicals used during construction. Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust. Construction operations are subject to the requirements established in Regulation 4, Rules 52, 54, and 55, of the SDAPCD's rules and regulations.

Heavy-duty construction equipment is usually diesel powered. In general, emissions from diesel-powered equipment contain more nitrogen oxides, sulfur oxides, and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less carbon monoxide and less reactive organic gases than do gasoline-powered engines. Standard construction equipment includes but is not limited to dozers, rollers, scrapers, dewatering pumps, backhoes, loaders, paving equipment, delivery/haul trucks, jacking equipment, welding machines, and pile drivers.

Regardless of the alternative, the project is anticipated to begin in 2024 and would take up to 30 months to complete. Construction is anticipated to occur eight hours per day, Monday through Friday. For air quality assessment purposes, the alternatives were consolidated into one scenario since the construction equipment and schedules are the same.

Total demolition associated with the roadway bed and existing bridge is estimated to result in approximately 8,250 cubic yards[1] of demolition debris. At an average of 20 cubic yards per truck load, approximately 413 truck trips would be required to haul away this material. For purposes of calculating emissions, it is estimated that it would require a maximum of 15 two-way truck trips per day with an average travel distance of 30 miles per a round trip.

For modeling purposes, the total area to be disturbed was estimated to be 16 acres during the construction of the bridge based on the area of potential effect. Modeling included a disturbance area of 5 acres daily. Additionally, as a worst-case analysis, each scenario was assumed to have a total net import of 5,000 cubic yards of fill and road base.

This analysis assumes that standard dust and emission control during grading operations would be implemented to reduce potential nuisance impacts and to ensure compliance with SDAPCD rules and regulations. It was assumed watering would take place two times per day. Additionally, all construction equipment was assumed to be compliant with state in-use off-road equipment regulations and was modeled as Tier III equipment.

[1]This estimate is based the 1,650 foot length of the project, a width of 45 feet, and a depth of approximately 3 feet.

The following standard fugitive dust control measures required as part of grading are considered part of the project design and were taken into account for calculating construction emissions:

1. All unpaved construction areas shall be watered, or other acceptable SDAPCD dust control agents may be applied, two times per day to reduce dust emissions. Additional watering or acceptable SDAPCD dust control agents shall be applied during dry weather or windy days until dust emissions are not visible.
2. A 15-mile-per-hour speed limit on unpaved surfaces shall be enforced.
3. When visible, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt.
4. Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the City of Oceanside and/or SDAPCD to reduce dust generation.

The bridge design consultant provided a list of construction equipment that would be used during each phase. Table 4 summarizes the construction equipment by construction phase. Some of the phases in Table 4 were overlapped in order to create conservative scenarios for calculating maximum daily emissions. It was assumed that all equipment in a specific phase would operate simultaneously on any given day during the construction period.

Table 4
Potential Construction Equipment by Phase

Equipment	Activity
1 - 100-ton Crane w/Drill or Hammer Attachment	Installation of temporary steel pipe piles for falsework, trestle, and bridge.
1 - Cat 336 Track Excavator or similar	Excavation and Drainage Work
1 - Cat 450 Backhoe or similar	Excavation and Drainage Work
1 - Cat 966 Loader or similar	Drainage Work
1 - 100-ton Crane	Falsework and Bridge Construction
1 - 40-ton Crain	Miscellaneous Construction
1 - Truck-mounted Concrete Boom Pump	Concrete Placement for Bridge
1 - Forklift All Terrain	Bridge Construction
1 - Cat D10 Dozer	Roadway Embankment
1 - Cat 140M or similar Grader	Roadway Work (Embankment, Grading, Base)
1 - Pneumatic tired roller	Roadway Work (Embankment, Grading, Base)
1 - Asphalt Paver	Construct new road
2 - Skid Steer and Accessories	Miscellaneous Grading, Demo and Paving Work
1 - Sheepsfoot Roller	Roadway Foundation Work
1 - Tack Coat Distributor Truck	Tack Coat Spreader
1 - Cold Planer	Roadway Work
1 - 4,000-gallon Water Truck	Dust Control and Roadway Work

Table 5 summarizes the estimated criteria pollutant emissions due to construction activities. The Road Construction Emissions Model input and output are provided in Attachment 1.

The emissions summarized in Table 5 are the maximum daily emissions for all pollutants that may occur during each phase of construction. By overlapping various phases, these results represent a reasonable worst-case emissions scenario for purposes of assessing air quality impacts. For assessing the significance of the emissions generated during construction of the proposed project, the construction emissions were compared to the thresholds, as identified in Table 3.

As seen in Table 5, emissions would be less than the applicable thresholds for all criteria pollutants. Therefore, the project construction would result in a less than significant impact.

Table 5
Maximum Daily Construction Emissions
(pounds/day)

Pollutant	Construction Year: 2024	Threshold
ROG	5.24	250
NO_x	60.04	250
CO	39.09	550
SO_2	0.13	250
PM_{10}	52.37	100
$PM_{2.5}$	12.42	67

ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns.

7.2 Operation-related Emissions

The project proposes the replacement of the Coast Highway Bridge over the San Luis Rey River. The bridge would remain a two-lane bridge, and no additional capacity would be provided. Based on the type of project, it is anticipated traffic volumes would be the same for both alternatives as the existing condition. As implementation of the project would not result in an increase in mobile source air emissions, air quality impacts from project operations would be less than significant.

7.3 Conformance with Regional Plans and City Criteria

The RAQS and TCM plan developed by the SDAPCD and SANDAG set forth the steps needed to accomplish attainment of state AAQS. The SIP contains the state strategy for attainment of the NAAQS. The basis for these plans is the distribution of population in the region as projected by SANDAG. Growth forecasting is based in part on the land uses established by the San Diego General Plan. This project would consist of replacing the Coast Highway Bridge over the San Luis Rey River and would not result in an increase in growth. As such, the project would not conflict with the implementation of the local air quality plan. Impacts would be less than significant.

7.4 Odors

During construction, diesel equipment may generate some nuisance odors. Sensitive receptors near the project site include residential uses to the north and northeast; however, exposure to odors

associated with project construction would be short-term in nature. Construction odor impacts would be less than significant.

7.5 Transportation Conformity

The conformity requirement is based on federal CAA Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the 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 CO, NO_2, ozone, PM_{10} and $PM_{2.5}$, and in some areas (although not in California), SO_2. 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 federal CAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization, FHWA, and Federal Transit Administration, make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the federal CAA. 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 are the same as described in the RTP and the 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 FTIP and the project has a design concept and scope that has not changed significantly from those in the RTP and FTIP. If the design concept and scope have changed substantially from that used in the RTP conformity analysis, RTP and FTIP 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.

The SDAB is a non-attainment area for the federal ozone standard and a maintenance area for CO. Certain types of projects are exempt from conformity requirements; these project types are found by the U.S. EPA to be neutral from an air quality or emissions standpoint, and are listed in the

Conformity Regulations at 40 CFR 93.126, 40 CFR 92.127, and 40 CFR 92.128. 40 CFR 93.126 includes a list of exempt projects. This project is exempt from regional conformity requirements per 40 CFR 93.126 because it is a bridge reconstruction project with no additional travel lanes. Separate listing of the project in the RTP and FTIP, and their regional conformity analyses, is not necessary. The project will not interfere with timely implementation of TCMs identified in the applicable SIP and regional conformity analysis. The Transportation Air Quality Conformity Findings Checklist is included in Attachment 2.

8.0 Conclusion

Maximum daily construction emissions under both project alternatives are not projected to exceed the City's air quality emissions thresholds. All other emissions are projected to be less than the applicable thresholds.

No new mobile source emissions would be associated with the bridge replacement.

As mentioned in Section 7.3, the project conforms to the regional plans including the RAQS, the TCM, and the RTP. Regardless of this conformance, air quality impacts during construction of the proposed project would be temporary and less than significant.

9.0 References Cited

California Air Resources Board (CARB)

2016 Ambient Air Quality Standards. California Air Resources Board. October 1.

2021 California Air Quality Data Statistics. Available at http://www.arb.ca.gov/adam/welcome.html. Top 4 Summary and Hourly Listing. Accessed on November 22, 2021.

Federal Register

2010 Revisions to the General Conformity Regulations, Final rule, 75 FR 17253, pages 17253 - 17279, July 6. Document number EPA-HQ-OAR-2006-0669 FRL-9131-7.

San Diego Air Pollution Control District (SDAPCD)

2016 2016 Revision of the Regional Air Quality Strategy for San Diego County, Available at http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20 Planning/2016%20RAQS.pdf

U.S. Environmental Protection Agency

2014 U.S. Environmental Protection Agency Website Air and Radiation National Ambient Air Quality Standards (NAAQS). Available at www.epa.gov/criteria.html. Last updated October 21.

Western Regional Climate Center

2017 Western U.S. Climate Historical Summaries: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6377 and http://www.wrcc.dri.edu/cgi-bin/clilcd.pl?ca23188. Accessed April 10.

ATTACHMENTS

ATTACHMENT 1

Road Construction Emission Model

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Coast Highway - SLR Bridge

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.47	10.25	13.49	50.53	0.53	50.00	10.87	0.47	10.40	0.04	3,821.30	1.14	0.06	3,867.18
Grading/Excavation	5.24	39.09	60.04	52.37	2.37	50.00	12.42	2.02	10.40	0.13	13,047.14	2.95	0.60	13,299.64
Drainage/Utilities/Sub-Grade	2.10	20.99	17.36	50.70	0.70	50.00	11.02	0.62	10.40	0.06	6,462.05	0.93	0.08	6,509.62
Paving	1.50	18.50	15.96	0.62	0.62	0.00	0.52	0.52	0.00	0.05	5,373.57	1.37	0.19	5,463.29
Maximum (pounds/day)	5.24	39.09	60.04	52.37	2.37	50.00	12.42	2.02	10.40	0.13	13,047.14	2.95	0.60	13,299.64
Total (tons/construction project)	0.74	7.06	6.57	16.21	0.26	15.95	3.55	0.23	3.32	0.02	2,207.28	0.36	0.04	2,227.91

Notes:

Project Start Year ->	2024
Project Length (months) ->	30
Total Project Area (acres) ->	16
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	200	40
Grading/Excavation	540	0	810	0	1,120	40
Drainage/Utilities/Sub-Grade	0	0	0	0	720	40
Paving	0	122	0	210	320	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Coast Highway - SLR Bridge

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.03	0.23	0.30	1.11	0.01	1.10	0.24	0.01	0.23	0.00	84.07	0.02	0.00	77.18
Grading/Excavation	0.12	0.86	1.32	1.15	0.05	1.10	0.27	0.04	0.23	0.00	287.04	0.06	0.01	265.44
Drainage/Utilities/Sub-Grade	0.58	5.77	4.77	13.94	0.19	13.75	3.03	0.17	2.86	0.02	1,777.06	0.25	0.02	1,624.01
Paving	0.02	0.20	0.18	0.01	0.01	0.00	0.01	0.01	0.00	0.00	59.11	0.02	0.00	54.52
Maximum (tons/phase)	0.58	5.77	4.77	13.94	0.19	13.75	3.03	0.17	2.86	0.02	1777.06	0.25	0.02	1,624.01
Total (tons/construction project)	0.74	7.06	6.57	16.21	0.26	15.95	3.55	0.23	3.32	0.02	2207.28	0.36	0.04	2,021.15

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**
Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Coast Highway - SLR Bridge	
Construction Start Year	2024	Enter a Year between 2014 and 2040 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	30.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.50	miles
Total Project Area	16.48	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation			540.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving		122.00	

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	2.00	3.00		1/1/2024
Grading/Excavation	2.00	12.00		3/2/2024
Drainage/Utilities/Sub-Grade	25.00	10.50		5/2/2024
Paving	1.00	4.50		6/2/2026
Totals (Months)		30		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00	27	0	810.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,675.40	0.00	0.26	1,753.91
Paving (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.05	0.73	5.66	0.20	0.09	0.03	3,024.26	0.00	0.48	3,165.98
Tons per const. Period - Grading/Excavation	0.00	0.02	0.12	0.00	0.00	0.00	66.53	0.00	0.01	69.65
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.02	0.12	0.00	0.00	0.00	66.53	0.00	0.01	69.65

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00	7	0	210.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,675.40	0.00	0.26	1,753.91
Paving (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.01	0.19	1.50	0.05	0.02	0.01	765.05	0.00	0.12	800.90
Tons per const. Period - Paving	0.00	0.00	0.02	0.00	0.00	0.00	8.42	0.00	0.00	8.81
Total tons per construction project	0.00	0.00	0.02	0.00	0.00	0.00	8.42	0.00	0.00	8.81

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values		
Miles/ one-way trip		20		
One-way trips/day		2	Calculated Daily Trips	Calculated Daily VMT
No. of employees: Grubbing/Land Clearing		5	10	200.00
No. of employees: Grading/Excavation		28	56	1,120.00
No. of employees: Drainage/Utilities/Sub-Grade		18	36	720.00
No. of employees: Paving		8	16	320.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grading/Excavation (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.79	0.06	0.05	0.02	0.00	297.31	0.00	0.01	299.02
Paving (grams/mile)	0.01	0.72	0.05	0.05	0.02	0.00	285.85	0.00	0.01	287.41
Grubbing/Land Clearing (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Grading/Excavation (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Draining/Utilities/Sub-Grade (grams/trip)	0.93	2.58	0.25	0.00	0.00	0.00	64.02	0.06	0.03	74.14
Paving (grams/trip)	0.87	2.47	0.23	0.00	0.00	0.00	61.59	0.06	0.03	71.10
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.03	0.43	0.03	0.02	0.01	0.00	136.69	0.00	0.00	137.73
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	3.01	0.00	0.00	3.03
Pounds per day - Grading/Excavation	0.15	2.40	0.19	0.11	0.05	0.01	765.44	0.02	0.02	771.30
Tons per const. Period - Grading/Excavation	0.00	0.05	0.00	0.00	0.00	0.00	16.84	0.00	0.00	16.97
Pounds per day - Drainage/Utilities/Sub-Grade	0.09	1.45	0.11	0.07	0.03	0.00	477.00	0.01	0.01	480.52
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.03	0.40	0.03	0.02	0.01	0.00	131.18	0.00	0.00	132.14
Pounds per day - Paving	0.04	0.60	0.04	0.03	0.01	0.00	203.83	0.00	0.00	205.27
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	2.24	0.00	0.00	2.26
Total tons per construction project	0.03	0.47	0.04	0.02	0.01	0.00	153.27	0.00	0.00	154.40

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust		1		5	5		8.00	40.00
Grading/Excavation - Exhaust		1		5	5		8.00	40.00
Drainage/Utilities/Subgrade		1		5	5		8.00	40.00
Paving		1		5	5		8.00	40.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.06	0.11	0.05	0.02	1,675.40	0.00	0.26	1,753.91
Paving (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.32	0.01	0.00	0.00	149.35	0.00	0.02	156.34
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	3.29	0.00	0.00	3.44
Pounds per day - Grading/Excavation	0.00	0.04	0.32	0.01	0.00	0.00	149.35	0.00	0.02	156.34
Tons per const. Period - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	3.29	0.00	0.00	3.44
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.32	0.01	0.00	0.00	147.75	0.00	0.02	154.67
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.09	0.00	0.00	0.00	40.63	0.00	0.01	42.53
Pounds per day - Paving	0.00	0.04	0.32	0.01	0.00	0.00	145.72	0.00	0.02	152.55
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.00	0.00	1.68
Total tons per construction project	0.00	0.01	0.11	0.00	0.00	0.00	48.80	0.00	0.01	51.09

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		5.00	50.00	1.10	10.40	0.23
Fugitive Dust - Grading/Excavation		5.00	50.00	1.10	10.40	0.23
Fugitive Dust - Drainage/Utilities/Subgrade		5.00	50.00	13.75	10.40	2.86

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Crawler Tractors	0.42	2.20	4.75	0.18	0.17	0.01	758.65	0.25	0.01	766.83
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2		Model Default Tier	Excavators	0.24	2.12	1.67	0.06	0.05	0.01	944.41	0.31	0.01	954.60
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Other Construction Equipment	0.37	2.93	3.55	0.14	0.13	0.01	1,009.46	0.33	0.01	1,020.32
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rubber Tired Loaders	0.35	2.23	2.81	0.10	0.10	0.01	773.43	0.25	0.01	781.79
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day		1.44	9.78	13.14	0.50	0.46	0.04	3,535.26	1.13	0.03	3,573.11
Grubbing/Land Clearing	tons per phase		0.03	0.22	0.29	0.01	0.01	0.00	77.78	0.02	0.00	78.61

Grading/Excavation	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Cranes	0.33	1.77	3.50	0.15	0.13	0.01	558.81	0.18	0.01	564.83
1.00	2		Model Default Tier	Crawler Tractors	0.42	2.20	4.75	0.18	0.17	0.01	758.65	0.25	0.01	766.83
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	4		Model Default Tier	Excavators	0.24	2.12	1.67	0.06	0.05	0.01	944.41	0.31	0.01	954.60
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2		Model Default Tier	Graders	0.38	1.77	4.44	0.14	0.13	0.01	685.04	0.22	0.01	692.42
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Other Construction Equipment	0.37	2.93	3.55	0.14	0.13	0.01	1,009.46	0.33	0.01	1,020.32
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rubber Tired Dozers	1.80	10.99	22.58	0.83	0.76	0.02	2,002.20	0.65	0.02	2,023.78
1.00	3		Model Default Tier	Rubber Tired Loaders	0.35	2.23	2.81	0.10	0.10	0.01	773.43	0.25	0.01	781.79
1.00	4		Model Default Tier	Scrapers	0.76	5.97	7.70	0.30	0.28	0.02	1,469.10	0.48	0.01	1,484.93
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.32	5.64	2.52	0.13	0.12	0.01	857.69	0.28	0.01	866.95
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Grading/Excavation	pounds per day	5.03	35.93	53.88	2.05	1.88	0.09	9,108.09	2.93	0.08	9,206.02
	Grading/Excavation	tons per phase	0.11	0.79	1.19	0.05	0.04	0.00	200.38	0.06	0.00	202.53

Drainage/Utilities/Subgrade	Default Number of Vehicles	Override of	Mitigation Option Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Cranes	0.32	1.75	3.28	0.14	0.13	0.01	558.82	0.18	0.01	564.84
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Generator Sets	0.27	3.66	2.44	0.10	0.10	0.01	623.04	0.02	0.00	625.02
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Other Construction Equipment	0.36	2.89	3.37	0.13	0.12	0.01	1,009.19	0.33	0.01	1,020.04
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Pumps	0.72	4.53	4.58	0.14	0.14	0.02	2,595.98	0.06	0.02	2,603.40
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1		Model Default Tier	Rough Terrain Forklifts	0.11	3.39	1.04	0.04	0.04	0.01	565.47	0.18	0.01	571.57
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
2.00			Model Default Tier	Skid Steer Loaders	0.12	2.76	1.61	0.05	0.05	0.00	401.01	0.13	0.00	405.33
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade		pounds per day	2.01	19.50	16.93	0.62	0.59	0.06	5,837.30	0.92	0.05	5,874.43
	Drainage/Utilities/Sub-Grade		tons per phase	0.55	5.36	4.66	0.17	0.16	0.02	1,605.26	0.25	0.01	1,615.47

Paving	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Graders	0.33	1.70	3.70	0.12	0.11	0.01	684.75	0.22	0.01	692.13
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Other Construction Equipment	0.36	2.88	3.29	0.13	0.12	0.01	1,009.06	0.33	0.01	1,019.91
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Pavers	0.17	1.64	1.69	0.05	0.05	0.01	771.62	0.25	0.01	779.93
	1		Model Default Tier	Paving Equipment	0.15	2.55	1.26	0.06	0.06	0.00	394.32	0.13	0.00	398.57
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Rollers	0.25	5.85	2.21	0.10	0.09	0.01	948.95	0.31	0.01	959.18
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Signal Boards	0.06	0.30	0.36	0.01	0.01	0.00	49.31	0.01	0.00	49.56
2.00			Model Default Tier	Skid Steer Loaders	0.12	2.76	1.58	0.05	0.04	0.00	400.95	0.13	0.00	405.27
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving		pounds per day		1.44	17.67	14.09	0.52	0.48	0.04	4,258.96	1.37	0.04	4,304.56
Paving		tons per phase		0.02	0.19	0.16	0.01	0.01	0.00	46.85	0.02	0.00	47.35
Total Emissions all Phases (tons per construction period) =>				0.71	6.56	6.29	0.23	0.22	0.02	1,930.26	0.36	0.02	1,943.96

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators	300.00	158		8
Forklifts		89		8
Generator Sets		84		8
Graders	200.00	187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment	286.00	172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers	220.00	130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps	350.00	84		8
Rollers	150.00	80		8
Rough Terrain Forklifts	170.00	100		8
Rubber Tired Dozers	600.00	247		8
Rubber Tired Loaders	260.00	203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes	140.00	97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

ATTACHMENT 2

Transportation Air Quality Conformity Findings Checklist

Transportation Air Quality Conformity Findings Checklist

PROJECT INFORMATION

Project Name: Coast Highway (Hill Street) Bridge over San Luis Rey River Replacement
DIST-CO-RTE-PM: 11-SD
EA: **Federal Aid Number:** BRLS-5079(030)
Document Type: ☒ 23 USC 326 CE ☐ 23 USC 327 CE ☐ EA ☐ EIS

CHECKLIST

Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM2.5, or PM10 per EPA's Green Book listing of non-attainment areas?

☐ If no, go to Step 17. **Transportation conformity does not apply to the project.**

☒ If yes, go to Step 2.

Step 2. Is the project exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128?

☒ If yes, go to Step 17. **The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128)** (check one box below and identify the project type, if applicable).

- ☒ 40 CFR 93.126[1]
  Project type from Table 2: Widening narrow pavements or reconstructing bridges (no additional travel lanes)
- ☐ 40 CFR 93.128

☐ If no, **go** to Step 3.

Step 3. Is the project exempt from regional conformity per 40 CFR 93.127?

☐ If yes, go to Step 8. **The project is exempt from regional conformity requirements (40 CFR 93.127)** (identify the project type).
Project type: _____

☐ If no, go to Step 4.

Step 4. Is the project located in a region with a currently conforming RTP and TIP?

☐ If yes, t**he project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b])** Go to Step 8.

☐ If no and the project is located in an isolated rural area, go to Step 5.

☐ If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.

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[1] Please refer to Clarifications on Exempt Project Determinations to verify exempt project type from Table 2. Road diets, auxiliary lanes less than one-mile, and ramp metering may be exempt under "projects that correct, improve, or eliminate a hazardous location or feature."

Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?

☐ If yes, go to Step 6.

☐ If no, go to Step 8. **The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[e]).**

Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?

☐ If yes, go to Step 8. **The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[e]).**

☐ If no, go to Step 7.

Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.

☐ **Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[e] and 95.105).**[2] Go to Step 8.

Step 8. Is the project located in a CO nonattainment or maintenance area? (South Coast Air Basin only)

☐ If no, go to Step 9. **CO conformity analysis is not required.**

☐ If yes, **hot-spot analysis requirements for CO per the** CO Protocol (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors[3]) **have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)**[4]. Go to Step 9.

Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?

☐ If no, go to Step 13. **PM2.5/PM10 conformity analysis is not required.**

☐ If yes, go to Step 10.

[2] The analysis must support this conclusion before going to the next step.
[3] Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach. Use of CAL3QHCR must follow U.S. EPA's latest CO hot spot guidance, using EMFAC instead of MOVES; see: http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#co-hotspot.
[4] As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.

Step 10. Is the project considered to be a Project of Air Quality Concern (POAQC), as described in EPA's Transportation Conformity Guidance for PM 10 and PM 2.5?

☐ If no, **the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on _____**. Go to Step 12.

☐ If yes, go to Step 11.

Step 11. The project is a POAQC.

☐ **The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot-Spot Guidance. Interagency Consultation concurred with this determination on _____. Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards.** Go to Step 12.

Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures? [Control measures can be found in the applicable Federal Register notice at: https://www.epa.gov/state-and-local-transportation/conformity-adequacy-review-region-9#ca.]

☐ If yes, **a written commitment is made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).** Go to Step 14.

☐ If no, go to Step 13.

Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project's design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR

Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project's NEPA document? AND

Step 13c (applies only if Step 13a and/or 13b are answered "yes")**.** Has a written commitment been made as part of the air quality analysis to implement the identified measures?

☐ If yes to 13a and/or 13b and 13c, **a written commitment is made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project's NEPA document and/or as conditions of the RTP or TIP conformity determination (40 CFR 93.125(a)).** Go to Step 14.

☐ If no, go to Step 14.

Step 14. Does the project qualify for a Categorical Exclusion pursuant to 23 USC 326?

☐ If yes, go to step 15.

☐ If no, go to Step 16.

Step 15. Is any analysis required by steps 1-13 of this form?[5]

☐ If yes, then Caltrans prepares the appropriate analysis and documentation for the project file and makes the conformity determination through its signature on the CE form. No FHWA involvement is required. See the AQCA Annotated Outline. Go to Step 17.

☐ If no, then Caltrans makes the conformity determination through its signature on the CE form. No FHWA involvement is required. Go to Step 17.

Step 16. Does the project require preparation of a Categorical Exclusion, EA, or EIS pursuant to 23 USC 327?

☐ If yes, is the project located in a non-attainment/maintenance area for **ozone only** and considered not regionally significant/non-exempt?

☐ If yes, go to Step 17.[6]

☐ If no, then Caltrans submits a conformity determination request to FHWA for FHWA's conformity determination letter. **An AQCA is needed.** See the AQCA Annotated Outline.

Date of FHWA air quality conformity determination: _____

Step 17. STOP as all air quality conformity requirements have been met.

SIGNATURE

Jessica Fleming	Jessica Fleming	9/26/22
Senior Air Quality Analyst	Signature	Date

[5] Please note that not all projects that qualify for a categorical exclusion will be exempt from air quality conformity requirements. Many types of projects that may qualify for a CE (such as the addition of auxiliary lanes less than one-mile, weaving lanes less than one-mile, turning lanes less than one-mile, climbing lanes less than one-mile, parking, road diets, ramp metering, and even many bridge projects) MAY require some level of project level conformity analysis and may even require interagency consultation. Additionally, please note that for ALL projects the project file must include evidence that one of the three following situations apply: 1) Conformity does not apply to the project area; or 2) The project is exempt from all conformity analysis requirements; or 3) The project is subject to project-level conformity analysis (and possibly regional conformity analysis) and meets the criteria for a conformity determination. The project file must include all supporting documentation and this checklist.

[6] Project-level conformity analysis shows that the project will conform to the State Implementation Plan. Because the project area is Attainment/Unclassified for carbon monoxide (CO) and particulate matter (PM10 and PM2.5), no hot spot analysis is required for the project-level conformity determination by 40 CFR 93.116 and 93.123. The project comes from a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). Include documentation of interagency consultation review in the final CE/EA/EIS, if applicable.