



Appendix A

Air Quality Assessment

Air Quality Assessment

Kanan Road/Agoura Road Ultimate Intersection
Improvements Project

City of Agoura Hills, California



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Appendix A: Air Quality Modeling Data

LIST OF ABBREVIATED TERMS

AQMP	air quality management plan
AB	Assembly Bill
ADT	average daily traffic
AQMD	Air Quality Management District
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
cy	cubic yards
DPM	diesel particulate matter
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
H ₂ S	hydrogen sulfide
Pb	lead
LST	localized significance threshold
µg/m ³	micrograms per cubic meter
mg/m ³	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
O ₃	ozone
PM ₁₀	particulate matter less than 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
ppm	parts per million
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SRA	source receptor area
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
sf	square foot
SO ₄₋₂	sulfates
SO ₂	sulfur dioxide
TAC	toxic air contaminant
C ₂ H ₃ Cl	vinyl chloride
VOC	volatile organic compound

1 INTRODUCTION

This report documents the results of an Air Quality Assessment completed for the Kanan Road/Agoura Road Ultimate Intersection Improvements Project (Proposed Project). The purpose of this Air Quality Assessment is to evaluate the potential Proposed Project construction and operational emissions and determine the level of impact the Project would have on the environment.

1.1 Project Location

The Project site is in the City of Agoura Hills (City), which is located along the U.S. Route 101 (US 101 or Ventura Freeway). Exhibit 1: Regional Vicinity Map, depicts the Project site in a regional context.

Exhibit 2: Local Vicinity Map, depicts the Project site in a local context and indicates the Project site is generally comprised of three discontinuous areas:

- Kanan Road/Agoura Road intersection - this comprises most of the Project site, with the south leg extending to Cornell Way;
- Agoura Road/Whizin Market Square access driveway intersection (approximately 605 feet east of Cornell Road) – this is the proposed east pilasters location; and
- Agoura Road/Roadside Drive intersection (approximately 1,585 feet west of Kanan Road) – this is the proposed west pilasters location.

The Kanan Road/Agoura Road intersection is in the City's southern portion, approximately 600 feet south of the Kanan Road/U.S. Highway 101 interchange. The Project site is within the Agoura Village Specific Plan (AVSP) area, except the proposed west pilasters location, which is at the Agoura Road/Roadside Drive intersection, adjacent and west of the AVSP area.

1.2 Project Description

The Agoura Hills City Council adopted the Agoura Village Specific Plan (AVSP) and certified the accompanying updated Final Revised and Recirculated Program EIR (Certified PEIR) (State Clearinghouse [SCH] No. 2003111051) in accordance with CEQA on November 19, 2008 (Resolution 19-1915). One of the AVSP proposed components was a roundabout at Kanan Road/Agoura Road intersection, at ultimate buildout of the AVSP area. The proposed roundabout was included in the Certified PEIR Project Description and evaluated throughout the Certified PEIR as the Preferred Alternative.¹ In September 2014, the City Council voted to not proceed with the Kanan Road/Agoura Road roundabout as the Preferred Alternative because of the large amount of property outside of the existing right-of-way (ROW) which would need to be acquired from property owners to construct the roundabout, and instead authorized the design of a widened standard four-leg signalized intersection, as the ultimate configuration (i.e., the Proposed Project). This altered design limits ROW acquisitions.

The Proposed Project proposes improvements to enhance traffic capacity and improve mobility, safety, and access within the City. The intersection's high use and visibility make the Proposed Project a challenging and sensitive priority for the City.

¹ City of Agoura Hills. Agoura Village Specific Plan: Updated Final Revised and Recirculated Environmental Impact Report. August 2008.

The Proposed Project proposes improvements that include widening the intersection, providing pilasters and monument signs, and undergrounding overhead power/telecommunication lines, among others, as depicted on Exhibit 3A: Proposed Kanan Road/Agoura Road Intersection, and described below. Exhibit 3B: Proposed Kanan Road/Agoura Road Intersection Improvements provides a close-up view of the proposed improvements by segment. Although the pilasters and monument signs will be constructed at a later date by others, the environmental impacts from the pilasters and monument signs will be analyzed herein, including for construction, to provide a conservative analysis.

Intersection and Roadway Improvements

Modified road alignments, including elevations and widths, are proposed to accommodate a widened intersection with a configuration of turn pockets and adequate room for additional queuing capacity at all intersection approaches. The through lanes would vary between 10 and 13 feet wide. The proposed widened pavement improvements would generally match the existing Kanan Road and Agoura Road pavement structural sections, as further detailed below.

- a. **North Leg:** Improvements on the north leg would occur within the 100-foot ROW and would extend from the Kanan Road/Agoura Road intersection to approximately 50 to 60 feet north. Improvements would be limited to new pedestrian curb ramps, relocation of traffic signals, landscape buffers, full-depth asphalt replacement, and a new terraced plaza at the northwest corner of the Kanan Road/Agoura Road intersection. The existing lane geometry would remain, with two northbound through lanes and five southbound lanes including two left-turn pockets, two through lanes, and one right-turn pocket lane.
- b. **South Leg:** Improvements on the south leg would extend from the Kanan Road/Agoura Road intersection to approximately 250 feet south. Improvements include full depth asphalt replacement, asphalt mill and overlay, creation of a new right-turn pocket lane, relocation of existing utilities and traffic signals, and new pedestrian curb ramps and 12-foot sidewalk along northbound lanes. The northbound geometry would include a 12-foot left turn lane, two through lanes ranging from 12 to 13 feet, and a new right turn pocket lane measuring 13 feet. The existing ROW would be relocated further east to accommodate the proposed improvements. The two existing 15-foot southbound though lanes would remain.
- c. **East Leg:** Improvements on the east leg would extend from the Kanan Road/Agoura Road intersection to approximately 530 feet east, terminating at the existing landscaped median on Agoura Road, near the vacant lot at 29125 Agoura Road. The existing eastbound and westbound 6-foot Class II bike lane would remain. Improvements include full depth asphalt replacement, asphalt mill and overlay, new green conflict striping, relocation of traffic signals and utilities, new pedestrian curb ramps, relocation of ROW by 10 feet to the south to allow for the bike lane and sidewalk to each be widened by 1 foot, and new landscape buffers. A Southern California Edison (SCE) transformer would need to be relocated to the south to avoid the newly widened sidewalk. A striped median ranging from 10 to 21 feet is also proposed. Left-turn access to the Speedway Gas Station would be maintained. Eastbound lanes would maintain two through lanes measuring 11 feet, eventually merging into one through lane until the Proposed Project terminus. Westbound lanes geometry would remain the same. One westbound through lane would expand into one 14-foot right turn pocket lane and 11-foot through lane, with the existing 6-foot bike lane with new green conflict striping in between. The westbound lane would terminate at the Kanan

Road/Agoura Road intersection with the 12-foot right turn pocket lane, the existing 6-foot bike lane with new green conflict striping, the existing 11-foot through lane, and the existing 11-foot left turn pocket at the Kanan Road/Agoura Road intersection.

- d. **West Leg:** Improvements on the west leg would extend from the Kanan Road/Agoura Road intersection to approximately 400 feet west, terminating just west of the existing AT&T driveway located west of the Tavern Tomoko & Ladyface Brewery and the existing driveways for the Agoura Pointe Shopping Center. Improvements include full depth asphalt replacement, asphalt mill and overlay, new green conflict striping for existing eastbound bike lane, relocation of traffic signals and utilities, new pedestrian curb ramps, relocation of ROW by 7 feet to the south to accommodate new 11-foot right turn pocket lane. Eastbound lanes would feature two 11-foot left turn pocket lanes, one 11-foot through lane, 6-foot Class II bike lane, and new 12-foot right turn pocket lane. Westbound lanes would feature a 11 foot through lane with 7 foot Class II bike lane. Approximately 190 feet west of the Kanan Road/Agoura Road intersection, a set of stairs will be created to connect the westbound sidewalk to the Agoura Pointe Shopping Center parking lot. The development of the stairway connection would remove the existing parking spot and would open into the parking lot. The parking spot would be replaced with a landing zone and would be surrounded by a landscape buffer to the west and the existing island with an oak tree on the east. Three mature oak trees, two of which are located north of Agoura Road and one which is located south of Agoura Road, would be protected and remain in place as part of the Proposed Project.

Ancillary improvements such as minor utility modifications/relocations would be required to accommodate the above improvements; see also *Underground Utility Improvements* Section below. Existing pedestrian and street lighting would also be relocated; however, no new pedestrian or street lighting would be added.

Monument Signage Improvements

The Proposed Project includes entryway and statement signage (i.e., pilasters and monuments) on Kanan Road and Agoura Road. The new signage would adhere to AVSP Design Guidelines (Chapter 5), as applicable. The sign improvements are comprised of pilasters and monument signs. In total, six pilasters are proposed, as described below. The pilasters would be up to approximately 10 feet tall, and up to approximately 10 feet wide by 10 feet long. A 15-foot landscaped buffer would be provided surrounding the base of the pilasters. Thus, the total base footprint of the pilasters with the landscaped buffer would be approximately 1,600 square feet each. The monuments would be up to approximately 15 feet tall, and up to approximately 24 feet wide by 24 feet long. A 5-foot landscaped buffer would be provided surrounding the base of the monuments. Thus, the total base footprint of the monuments with the landscaped buffer would be approximately 1,156 square feet each.

- Agoura Road East and West Pilasters: Four pilasters are proposed on Agoura Road at the two locations depicted on [Exhibit 3A](#) (two pilasters for each location, offset from each other on either side of the road). These pilasters are intended to establish the character of the AVSP area;
- Kanan Road South Pilasters: Two pilasters are proposed on Kanan Road at the location depicted on [Exhibit 3A](#) (two pilasters for this location, offset from each other on either side of the road) to establish the AVSP area's southern boundary. The proposed locations would be approximate with the conceptual driveway locations of the proposed developments east and west of Kanan Road; and

- Kanan Road Monuments: Two monuments are proposed on Kanan Road at the location depicted on [Exhibit 3A](#), near the Kanan Road/Cornell Road intersection. The monuments are intended to approximately establish the City's southern limit.

The new signage, along with other aesthetic improvements from new landscaping islands, activated pedestrian corners, and street furnishings are intended to contribute and define a unique "gateway for the City." Minor lighting would be provided at the pilasters and monuments for illumination and safety purposes.

Underground Utility Improvements

The Proposed Project proposes undergrounding two existing overhead power/telecommunication lines on the south leg along the east side of Kanan Road, for approximately 1,105 linear feet, from approximately 160 feet south of Agoura Road to Cornell Way; see [Exhibit 3A](#) and [Exhibit 3B](#).

The lighting poles that include luminaires will remain in place, and all other utility poles, excluding one located on northbound Kanan Road, will also remain in place. Utility poles may be installed/upgraded at the utility district's boundary where determined necessary for the transition from the existing overhead system to the proposed underground system. The final utility pole locations will be determined during final engineering design.

Further details concerning undergrounding the utilities is provided under the *Construction and Phasing* Section below.

Drainage and Water Quality

Under existing conditions within the Project area, surface flows are directed to two inlets on the northeast and southeast corners of the Kanan Road/Agoura Road intersection. Under Proposed Project conditions, these inlets would be relocated to accommodate the widening of Agoura Road. The associated drain lines would be extended; however, flows would remain generally unchanged.

Construction and Phasing

The Proposed Project improvements are proposed to occur in a single phase.² Prior to the start of construction, the City will need to purchase the ROW and coordinate temporary construction easements. This process will be approximately 6 to 9 months. After the purchase and receipt of the easements, construction will start and is anticipated to occur over approximately 12 months, beginning as early as 2023 and ending as early as 2024. The proposed improvements would be located mostly within existing City ROW but would require partial permanent acquisitions and temporary construction easements (TCE) from adjacent properties; see [Table 1: Proposed Right-of-Way](#). As indicated in [Table 1](#), approximately 0.18-acre of permanent property acquisitions and approximately 6.04-acre of temporary construction easements are required for the Proposed Project. The pilasters and monument signs would be located in approximate areas within the marked areas in [Exhibit 3B](#); therefore, the areas for improvements are approximate. It should be noted that the Proposed Project would not result in acquisitions or TCE for the

² For purposes of the analysis, it is conservatively assumed that the construction activities would occur in a single phase to present the most conservative (e.g., highest) daily maximum construction emissions.

pilasters; if and when the properties that are identified for the monument signs are developed, then the ROW.

Table 1: Proposed Right-of-Way		
Parcel	Required Permanent Property Acquisitions	Required Temporary Construction Easements (TCE)
City Right of Way	--	5.33
2061-032-021	0.04	--
2061-031-020	0.14	0.16
2061-004-034	--	0.2
2061-032-022	--	0.02
2061-032-028	--	0.11
2061-007-905	--	0.07
2061-029-004	--	0.02
2061-004-046	--	0.04
2061-032-025	--	0.09
Source: Kimley-Horn, 2022.		

To underground the two existing overhead power/telecommunication lines on the south leg along the east side of Kanan Road, the Proposed Project would require approximately 1,105 linear feet of trenching approximately 4.5 feet deep and 2.5 feet wide, generally between Agoura Road and Cornell Road. The lighting poles that include luminaires will remain in place, and all other utility poles, excluding one located on northbound Kanan Road, will also remain in place. Undergrounding the power lines would involve removing the existing overhead utility lines and one pole located on northern Kanan Road approximately 150 feet south of the Kanan Road/Agoura Road intersection, installing conduit and substructures (e.g., transformers on concrete pads), installing cable through the conduits, and backfilling.

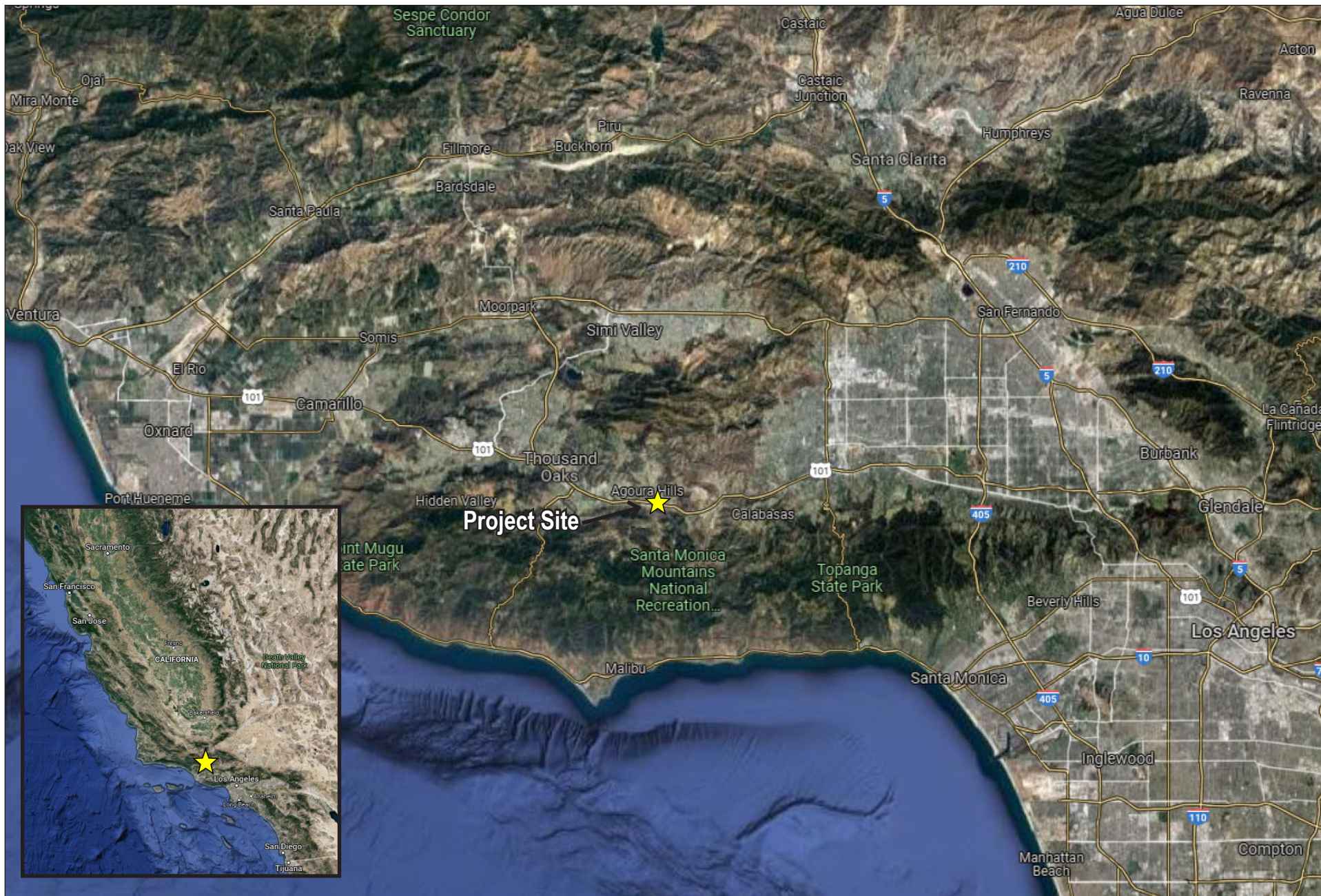


EXHIBIT 1: REGIONAL VICINITY MAP

Kanan Road/Agoura Road Ultimate Intersection Improvements Project



EXHIBIT 2: LOCAL VICINITY MAP

Kanan Road/Agoura Road Ultimate Intersection Improvements Project



LEGEND

(*) - APPROXIMATE LOCATION. WILL BE DETERMINED WHEN DRIVEWAYS ARE APPROVED.

EXHIBIT 3A: PROPOSED KANAN ROAD/AGOURA ROAD INTERSECTION

Kanan Road/Agoura Road Ultimate Intersection Improvements Project

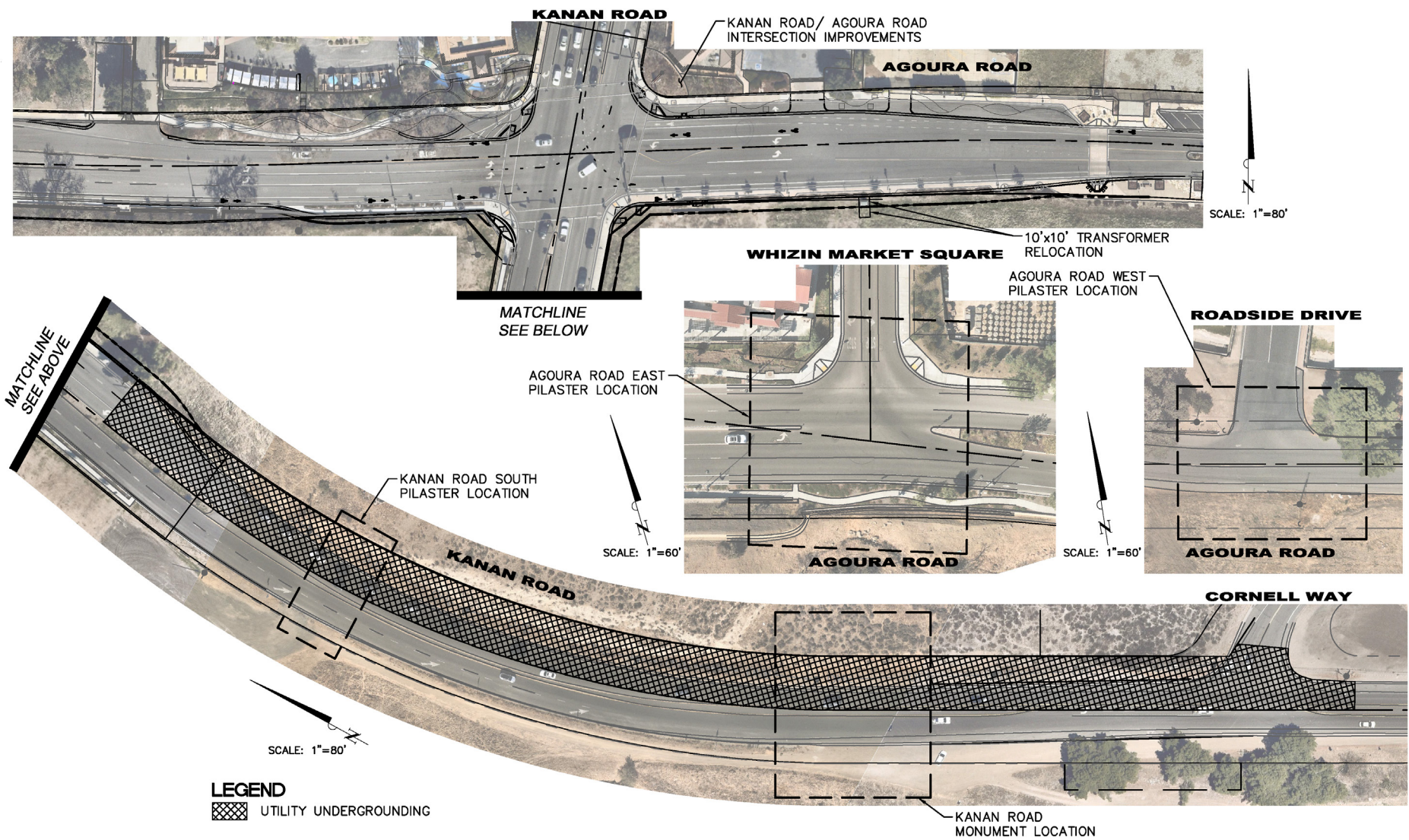


EXHIBIT 3B: PROPOSED KANAN ROAD/AGOURA ROAD INTERSECTION IMPROVEMENTS
 Kanan Road/Agoura Road Ultimate Intersection Improvements Project

2 ENVIRONMENTAL SETTING

2.1 Climate and Meteorology

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The Project site is located within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, as well as all of Orange County. The SCAB is on a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean on the southwest and high mountains forming the remainder of the perimeter.³ Air quality in this area is determined by natural factors such as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

The SCAB is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. This usually mild weather pattern is occasionally interrupted by periods of extreme heat, winter storms, and Santa Ana winds. The annual average temperature throughout the 6,645-square-mile SCAB ranges from low 60 to high 80 degrees Fahrenheit with little variance. With more oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas.

Contrasting the steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rainfall occurs between the months of November and April. Summer rainfall is reduced to widely scattered thundershowers near the coast, with slightly heavier activity in the east and over the mountains.

Although the SCAB has a semiarid climate, the air closer to the Earth's surface is typically moist because of the presence of a shallow marine layer. Except for occasional periods when dry, continental air is brought into the SCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog are frequent and low clouds known as high fog are characteristic climatic features, especially along the coast. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SCAB.

Wind patterns across the SCAB are characterized by westerly or southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is typically higher during the dry summer months than during the rainy winter. Between periods of wind, air stagnation may occur in both the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During winter and fall, surface high-pressure systems over the SCAB, combined with other meteorological conditions, result in very strong, downslope Santa Ana winds. These winds normally continue for a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. Air quality in the SCAB generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

In addition to the characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which air pollutants are mixed. These inversions are the marine inversion and the radiation inversion. The height of

³ South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.

the base of the inversion at any given time is called the “mixing height.” The combination of winds and inversions is a critical determinant leading to highly degraded air quality for the SCAB in the summer and generally good air quality in the winter.

2.2 Air Pollutants of Concern

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by State and federal laws. These regulated air pollutants are known as “criteria air pollutants” and are categorized into primary and secondary pollutants.

Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_x), sulfur dioxide (SO₂), coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and lead are primary air pollutants. Of these, CO, NO_x, SO₂, PM₁₀, and PM_{2.5} are primary criteria pollutants. ROG and NO_x are criteria pollutant precursors and form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O₃) is formed by a chemical reaction between ROG and NO_x in the presence of sunlight. O₃ and nitrogen dioxide (NO₂) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in Table 2: Air Contaminants and Associated Public Health Concerns.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (i.e., chronic, carcinogenic or cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

CARB identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Table 2: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM ₁₀ and PM _{2.5})	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O ₃)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC) ¹ and nitrogen oxides (NO _x) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO ₂)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO ₂)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to O ₃ . Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.
Notes: 1. Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROG and VOCs. Both ROG and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation). Source: California Air Pollution Control Officers Association (CAPCOA), <i>Health Effects</i>, http://www.capcoa.org/health-effects/, Accessed January 27, 2022.		

Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. These stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Existing ambient air quality levels, historical trends, and projections near the Project site are documented by measurements made by the South Coast Air Quality Management District (South Coast AQMD), the air pollution regulatory agency in the SCAB that maintains air quality monitoring stations which process ambient air quality measurements.

Pollutants of concern in the SCAB are O₃, PM₁₀, and PM_{2.5}. The air monitoring station nearest the Project site that monitors ambient concentrations of these pollutants is the Reseda Monitoring Station (located approximately 16 miles to the northeast). Local air quality data for this Station from 2018 to 2020 are provided in [Table 3: Ambient Air Quality Data](#), which lists the monitored maximum concentrations and number of exceedances of California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS) for each year.

Table 3: Ambient Air Quality Data			
Criteria Pollutant	2018	2019	2020
Ozone (O₃)¹			
1-hour Maximum Concentration (ppm)	0.120	0.122	0.142
8-hour Maximum Concentration (ppm)	0.101	0.094	0.116
<i>Number of Days Standard Exceeded</i>			
CAAQS 1-hour (>0.070 ppm)	14	14	33
NAAQS 8-hour (>0.070 ppm)	49	34	62
Carbon Monoxide (CO)¹			
1-hour Maximum Concentration (ppm)	3.37	2.56	2.04
<i>Number of Days Standard Exceeded</i>			
NAAQS 1-hour (>35 ppm)	0	0	0
CAAQS 1-hour (>20 ppm)	0	0	0
Nitrogen Dioxide (NO₂)¹			
1-hour Maximum Concentration (ppm)	0.0572	0.0644	0.0499
<i>Number of Days Standard Exceeded</i>			
NAAQS 1-hour (>0.100 ppm)	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter Less Than 10 Microns (PM₁₀)¹			
National 24-hour Maximum Concentration	45.3	62.1	55.6
State 24-hour Maximum Concentration	45.1	61.8	55.5
State Annual Average Concentration (CAAQS=20 µg/m ³)	—	19.5	—
<i>Number of Days Standard Exceeded</i>			
NAAQS 24-hour (>150 µg/m ³)	0	0	0
CAAQS 24-hour (>50 µg/m ³)	0	2	1
Particulate Matter Less Than 2.5 Microns (PM_{2.5})¹			
National 24-hour Maximum Concentration	38.9	30	73.8
State 24-hour Maximum Concentration	63.7	120.9	80.1
<i>Number of Days Standard Exceeded</i>			
NAAQS 24-hour (>35 µg/m ³)	1	0	3
NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million. µg/m ³ = micrograms per cubic meter; — = not measured			
1. Measurements taken at the Reseda Monitoring Station at 18330 Gault Street, Reseda, CA 91702 (CARB# 70074)			
Source: All pollutant measurements are from the CARB Aerometric Data Analysis and Management system database (https://www.arb.ca.gov/adam) except for CO, which were retrieved from the CARB Air Quality and Meteorological Information System (https://www.arb.ca.gov/aqmis2/aqdselect.php).			

2.3 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive receptors that are in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Table 4: Sensitive Receptors lists the sensitive receptors nearest the Project site, which are residential uses. As shown in Table 4, the sensitive receptors nearest the Project site are located approximately 1,800 feet southeast of the proposed construction boundary.

Table 4: Sensitive Receptors	
Receptor Description	Distance and Direction from the Proposed Project
Single Family Homes	1,800 feet to the southeast
Source: Google Maps	

3 REGULATORY SETTING

3.1 Federal

Federal Clean Air Act

Air quality is federally protected by the Federal Clean Air Act (FCAA) and its amendments. Under the FCAA, the United States Environmental Protection Agency (EPA) developed the primary and secondary NAAQS for the criteria air pollutants including O₃, NO₂, CO, SO₂, PM₁₀, PM_{2.5}, and lead. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires each state to prepare a State Implementation Plan to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the FCAA. If a state fails to correct these planning deficiencies within two years of Federal notification, the EPA is required to develop a Federal implementation plan for the identified nonattainment area or areas. The provisions of 40 Code of Federal Regulations Parts 51 and 93 apply in all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan. The EPA has designated enforcement of air pollution control regulations to the individual states. Applicable NAAQS are summarized in [Table 5: State and Federal Ambient Air Quality Standards](#).

3.2 State of California

California Air Resources Board

CARB administers the air quality policy in California. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in [Table 5](#), are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the State Implementation Plan for meeting NAAQS for the State of California. Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The applicable CAAQS are summarized in [Table 5](#).

Table 5: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards ¹	Federal Standards ²
Ozone (O ₃) ^{2, 5, 7}	8 Hour	0.070 ppm (137 µg/m ³)	0.070 ppm
	1 Hour	0.09 ppm (180 µg/m ³)	NA
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)
Nitrogen Dioxide (NO ₂)	1 Hour	0.18 ppm (339 µg/m ³)	0.10 ppm ¹¹
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)
Sulfur Dioxide (SO ₂) ⁸	24 Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)
	Annual Arithmetic Mean	NA	0.03 ppm (80 µg/m ³)
Particulate Matter (PM ₁₀) ^{1, 3, 6}	24-Hour	50 µg/m ³	150 µg/m ³
	Annual Arithmetic Mean	20 µg/m ³	NA
Fine Particulate Matter (PM _{2.5}) ^{3, 4, 6, 9}	24-Hour	NA	35 µg/m ³
	Annual Arithmetic Mean	12 µg/m ³	12 µg/m ³
Sulfates (SO ₄₋₂)	24 Hour	25 µg/m ³	NA
Lead (Pb) ^{10, 11}	30-Day Average	1.5 µg/m ³	NA
	Calendar Quarter	NA	1.5 µg/m ³
	Rolling 3-Month Average	NA	0.15 µg/m ³
Hydrogen Sulfide (H ₂ S)	1 Hour	0.03 ppm (42 µg/m ³)	NA
Vinyl Chloride (C ₂ H ₃ Cl) ¹⁰	24 Hour	0.01 ppm (26 µg/m ³)	NA

Notes:

ppm = parts per million; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; – = no information available.

- California standards for O₃, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM₁₀, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), then some measurements may be excluded. Measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe carbon monoxide standard is 6.0 ppm, a level one-half the national standard and two-thirds the State standard.
- National standards shown are the "primary standards" designed to protect public health. National standards other than for O₃, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour O₃ standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour O₃ standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm or less. The 24-hour PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.
- Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM₁₀ is met if the 3-year average falls below the standard at every site. The annual PM_{2.5} standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard. NAAQS are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.
- On October 1, 2015, the national 8-hour O₃ primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour O₃ concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the O₃ level in the area.
- The national 1-hour O₃ standard was revoked by the EPA on June 15, 2005.
- In June 2002, CARB established new annual standards for PM_{2.5} and PM₁₀.
- The 8-hour California O₃ standard was approved by the CARB on April 28, 2005 and became effective on May 17, 2006.
- On June 2, 2010, the EPA established a new 1-hour SO₂ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO₂ NAAQS however must continue to be used until one year following EPA initial designations of the new 1-hour SO₂ NAAQS.
- In December 2012, EPA strengthened the annual PM_{2.5} NAAQS from 15.0 to 12.0 µg/m³. In December 2014, the EPA issued final area designations for the 2012 primary annual PM_{2.5} NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.
- CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
- National lead standards, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2016; California Air Resources Board, *Ambient Air Quality Standards*, May 6, 2016.

Heavy-Duty and Off-Road Vehicle Idling Emission Reduction

Section 2485 and Section 2449 of Title 13 of the California Code of Regulations limits diesel-fueled motor vehicle idling to no more than five minutes. Specifically, Section 2485 limits idling for diesel-fueled commercial motor vehicles with gross vehicle weight ratings of greater than 10,000 pounds that are or must be licensed to operate on publicly maintained highways and streets within California. Section 2449 limits idling for off-road diesel-fueled fleets.

3.3 Regional

South Coast Air Quality Management District

The South Coast AQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The agency's primary responsibility is ensuring that CAAQS and NAAQS are attained and maintained in the SCAB. The South Coast AQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, and many other activities. All projects are subject to South Coast AQMD rules and regulations in effect at the time of construction.

The South Coast AQMD is also the lead agency in charge of developing the AQMP, with input from the Southern California Association of Governments (SCAG) and CARB. The AQMP is a comprehensive plan that includes control strategies for stationary and area sources, as well as for on-road and off-road mobile sources. SCAG has the primary responsibility for providing future growth projections and the development and implementation of transportation control measures. CARB, in coordination with federal agencies, provides the control element for mobile sources.

The 2016 AQMP was adopted by the South Coast AQMD Governing Board on March 3, 2017. The purpose of the AQMP is to set forth a comprehensive and integrated program that would lead the SCAB into compliance with the federal 24-hour PM_{2.5} air quality standard, and to provide an update to the South Coast AQMD's commitments towards meeting the NAAQS for 8-hour O₃. The AQMP incorporates the latest scientific and technological information and planning assumptions, including the *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) and updated emission inventory methodologies for various source categories. As part of its air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide and the Connect SoCal – The 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS was determined to conform to the federally mandated state implementation plan (SIP) for the attainment and maintenance of the NAAQS. The 2020-2045 RTP/SCS will be incorporated into the forthcoming 2022 AQMP. Both the Regional Comprehensive Plan and AQMP are based, in part, on projections originating with county and city general plans.

The South Coast AQMD has published the *CEQA Air Quality Handbook* (approved by the South Coast AQMD Governing Board in 1993 and augmented with guidance for Local Significance Thresholds [LST] in 2008). The South Coast AQMD guidance helps local government agencies and consultants to develop environmental documents required by California Environmental Quality Act (CEQA) and provides identification of suggested thresholds of significance for criteria pollutants for both construction and operation (see discussion of thresholds below). With the help of the *CEQA Air Quality Handbook* and

associated guidance, local land use planners and consultants are able to analyze and document how proposed and existing projects affect air quality in order to meet the requirements of the CEQA review process. The South Coast AQMD periodically provides supplemental guidance and updates to the handbook on their website.

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. Under federal law, SCAG is designated as a Metropolitan Planning Organization and under State law as a Regional Transportation Planning Agency and a Council of Governments.

The State and federal attainment status designations for the SCAB are summarized in [Table 6: South Coast Air Basin Attainment Status](#). The SCAB is currently designated as a nonattainment area for CAAQS for O₃, PM₁₀, and PM_{2.5}, as well as NAAQS for 8-hour O₃ and PM_{2.5}. The SCAB is designated as attainment or unclassified for the remaining CAAQS and NAAQS.

Table 6: South Coast Air Basin Attainment Status		
Pollutant	State	Federal
Ozone (O ₃) (1 Hour Standard)	Non-Attainment	Non-Attainment (Extreme)
Ozone (O ₃) (8 Hour Standard)	Non-Attainment	Non-Attainment (Extreme)
Particulate Matter (PM _{2.5}) (24 Hour Standard)	–	Non-Attainment (Serious)
Particulate Matter (PM _{2.5}) (Annual Standard)	Non-Attainment	Non-Attainment (Moderate)
Particulate Matter (PM ₁₀) (24 Hour Standard)	Non-Attainment	Attainment (Maintenance)
Particulate Matter (PM ₁₀) (Annual Standard)	Non-Attainment	–
Carbon Monoxide (CO) (1 Hour Standard)	Attainment	Attainment (Maintenance)
Carbon Monoxide (CO) (8 Hour Standard)	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO ₂) (1 Hour Standard)	Attainment	Unclassifiable/Attainment
Nitrogen Dioxide (NO ₂) (Annual Standard)	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO ₂) (1 Hour Standard)	Attainment	Unclassifiable/Attainment
Sulfur Dioxide (SO ₂) (24 Hour Standard)	Attainment	–
Lead (Pb) (30 Day Standard)	–	Unclassifiable/Attainment
Lead (Pb) (3 Month Standard)	Attainment	–
Sulfates (SO ₄₋₂) (24 Hour Standard)	Attainment	–
Hydrogen Sulfide (H ₂ S) (1 Hour Standard)	Unclassified	–
Source: South Coast Air Quality Management District, <i>Air Quality Management Plan</i> , 2016; United States Environmental Protection Agency, <i>Nonattainment Areas for Criteria Pollutants (Green Book)</i> , 2021.		

The following is a list of South Coast AQMD rules that are required of construction activities associated with the Proposed Project:

- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM₁₀ emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM₁₀ suppression techniques are summarized below.
 - a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.
 - b) All on-site roads will be paved as soon as feasible or watered periodically or chemically stabilized.
 - c) All material transported off-site will be either sufficiently watered or securely covered to prevent excessive amounts of dust.
 - d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.
 - e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the work day to remove soil tracked onto the paved surface.

3.4 Local

City of Agoura Hills General Plan

The City of Agoura Hills General Plan (General Plan) contains the following goals and policies to improve air quality as part of the Natural Resources Element:

Goal NR-7: Improvement of the City and the region's air quality.

Policy NR-7.18: **Regional Cooperation.** Cooperate with the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) in their efforts to implement provisions of the region's Air Quality Management Plan.

Policy NR-7.2: **Truck Deliveries.** Encourage businesses to alter local truck delivery schedules to occur during non-peak hours, as feasible.

Policy NR-7.3: **Federal and State Regulations.** Comply with and promote state and federal legislation that improves vehicle/transportation technology and cleaner fuels.

Policy NR-7.4: **Dust and Particulate Control.** Adopt incentives, regulations, and/or procedures to minimize particulate emissions from paved and unpaved roads, parking lots, and building construction.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 Air Quality Thresholds

Based upon the criteria derived from State CEQA Guidelines Appendix G, a project would have a significant effect on the environment if it would:

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

South Coast AQMD Thresholds

The significance criteria established by South Coast AQMD may be relied upon to make the above determinations. According to the South Coast AQMD, an air quality impact is considered significant if the Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The South Coast AQMD has established thresholds of significance for air quality during construction and operational activities of land use development projects, as shown in Table 7: South Coast Air Quality Management District Emissions Thresholds.

Table 7: South Coast Air Quality Management District Emissions Thresholds (Maximum Pounds Per Day)		
Criteria Air Pollutants and Precursors	Construction-Related	Operational-Related
Reactive Organic Gases (ROG)	75	55
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO _x)	100	55
Sulfur Oxides (SO _x)	150	150
Coarse Particulates (PM ₁₀)	150	150
Fine Particulates (PM _{2.5})	55	55

Source: South Coast Air Quality Management District, *South Coast AQMD Air Quality Significance Thresholds*.

Localized Carbon Monoxide

In addition to the daily thresholds listed above, the Proposed Project would also be subject to the CAAQS and NAAQS. These are addressed through an analysis of localized CO impacts. The significance of localized impacts depends on whether ambient CO levels near the Project site are above CAAQS and NAAQS for CO (the more stringent CAAQS are 20 ppm for 1-hour and 9 ppm for 8-hour). The SCAB has been designated as attainment under the 1-hour and 8-hour CAAQS and NAAQS.

Localized Significance Thresholds

In addition to the CO hotspot analysis, the South Coast AQMD developed localized significance thresholds (LSTs) for emissions of NO₂, CO, PM₁₀, and PM_{2.5} generated at new development sites (off-site mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be generated at a project without expecting to cause or substantially contribute to an exceedance of the most stringent CAAQS or NAAQS. LSTs are based on the ambient concentrations of that pollutant within the Project source receptor area (SRA), as demarcated by the South Coast AQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects that disturb 5 acres or less on a single day. The City of Agoura Hills is located within South Coast AQMD SRA 6 (West San Fernando Valley). Table 8: Local Significance Thresholds for Construction/Operations shows the LSTs for a 1-acre, 2-acre, and 5-acre project in SRA 6 with sensitive receptors located within 25 meters of the Project site.

Table 8: Local Significance Thresholds for Construction/Operations (Maximum Pounds Per Day)				
Project Size	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particulates (PM₁₀)	Fine Particulates (PM_{2.5})
1 Acre	103/103	426/426	4/1	3/1
2 Acres	147/147	644/644	6/2	4/1
5 Acres	221/221	1,158/1,158	11/3	6/2

Source: South Coast Air Quality Management District, *Localized Significance Threshold Methodology*, July 2008.

LSTs associated with all acreage categories are provided in Table 8 for informational purposes. Table 8 shows that the LSTs increase as acreages increase. It is noted that LSTs are screening thresholds and are therefore conservative. The construction LST acreage is determined based on the daily acreage disturbed.

4.2 Methodology

This air quality impact analysis considers the Proposed Project's construction and operational impacts. Where criteria air pollutant quantification was required, emissions were modeled using Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model version 9.0.0 (RCEM), which is consistent with the guidance provided by the South Coast AQMD for evaluating construction impacts from roadway projects.⁴ RCEM is a land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects.

Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with Proposed Project construction would generate emissions of criteria air pollutants and precursors. Daily regional construction emissions are estimated by assuming construction occurs at the earliest feasible date (i.e., a conservative estimate of construction activities) and applying off-road, fugitive dust, and on-road emissions factors in RCEM.

Due to the nature of the Proposed Project (i.e., intersection improvements) no new or additional operational emissions beyond the Approved Project as analyzed in the Certified PEIR would occur; therefore, operational emissions are not quantified in this technical study.

⁴ South Coast Air Quality Management District, Air Quality Modeling, <https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-modeling>.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 Air Quality Analysis

Threshold 5.1 Would the Project conflict with or obstruct implementation of the applicable air quality plan?

The General Plan references the AVSP, which analyzes a proposed roundabout at the intersection of Kanan Road and Agoura Road. The Proposed Project would amend the AVSP to replace the roundabout with a widened standard four-leg signalized intersection to accommodate expected traffic flows upon future 2035 buildout of the AVSP. The Proposed Project includes improvements to the Kanan Road/Agoura Road intersection and roadways. The Proposed Project does not include any improvements that would result in a change to the City's projected population growth forecast and/or induce population growth. Therefore, the Proposed Project would not obstruct implementation of the AQMP, and a less than significant impact would occur.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

Threshold 5.2 Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable state or federal ambient air quality standard?

Construction Emissions

Proposed Project construction would generate short-term emissions of criteria air pollutants. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the South Coast AQMD's thresholds of significance.

Construction results in the temporary generation of emissions resulting from site grading, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

Proposed Project construction activities are estimated to be completed within approximately 7 months. Construction-generated emissions were calculated using the RCEM computer program, which is designed to model emissions for road construction projects, based on typical construction requirements. See [Appendix A: Air Quality Modeling Data](#) for more information regarding the construction assumptions used in this analysis. Compliance with South Coast AQMD Rules 402 and 403, which prohibit nuisances, require dust control measures, and limit VOC content in paints, respectively, would further reduce construction-related emissions; however, compliance with Rules 402 and 403 have not been assumed in the analysis. Predicted maximum daily Proposed Project construction-generated emissions are summarized in [Table 9: Construction-Related Emissions](#), which shows that unmitigated construction emissions would not exceed the established South Coast AQMD thresholds for criteria pollutants.

Table 9: Construction-Related Emissions						
Construction Year	Maximum Pounds Per Day (lbs/day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO ₂)	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Unmitigated Emissions¹						
Total Emissions	8.64	90.09	83.95	0.21	4.15	3.45
<i>South Coast AQMD Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
Exceed South Coast AQMD Threshold?	No	No	No	No	No	No
1. This analysis assumes the use of water trucks to minimize fugitive dust impacts. South Coast AQMD Rules 402 and 403 were not applied. No mitigation was applied to construction equipment.						
Source: RCEM version 9.0.0. Refer to Appendix A: Air Quality Modeling Data for model outputs.						

Operational Emissions

The Proposed Project would not include new permanent stationary or mobile sources of emissions, and therefore, by its very nature, would not generate quantifiable operational criteria emissions. The Proposed Project does not propose any buildings and therefore no permanent source or stationary source emissions would result. Intersection improvements do not directly generate vehicle trips, a predominant source of air pollutant emissions. Vehicle trips are typically generated by land use changes that may be indirectly influenced by transportation improvements. The Proposed Project would not result in increases in the rate of vehicle trips. Rather, the proposed traffic facility improvements provide improved circulation through an area with existing and forecast traffic congestion and are considered necessary to enhance traffic capacity and improve mobility, safety, and access within the City. In addition, the Proposed Project would reduce idle time of vehicles at the Kanan Road/Agoura Road intersection. The longer a vehicle idles in a single location, the more air pollutant emissions are generated over the course of its travel than would otherwise have been emitted with reduced idling; thus, vehicle idle emissions would decrease as a result of the Proposed Project. Therefore, impacts in this regard would be less than significant.

Cumulative Short-Term Emissions

The SCAB is designated nonattainment for CAAQS for O₃, PM₁₀, and PM_{2.5} and nonattainment for NAAQS O₃ and PM_{2.5}. Appendix D of the South Coast AQMD White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (2003)⁵ notes that projects that result in emissions that do not exceed the project-specific South Coast AQMD regional thresholds of significance should result in a less than significant impact on a cumulative basis unless there is other pertinent information to the contrary. Therefore, if a project is estimated to result in emissions that do not exceed the thresholds, the project's contribution to the cumulative impact on air quality in the SCAB would not be cumulatively considerable. As shown in Table 9, Proposed Project construction-related emissions by themselves would not exceed the South Coast AQMD significance thresholds for criteria pollutants. Therefore, the Proposed Project would not generate a cumulatively considerable contribution to air pollutant emissions during construction.

⁵ South Coast Air Quality Management District, *Air Quality Analysis Handbook, Cumulative Impacts Emissions Analysis*, <https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook>.

The South Coast AQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to the FCAA mandates. The analysis assumed one water truck would be utilized during construction to implement frequent water applications. South Coast AQMD rules, mandates, and compliance with adopted AQMP emissions control measures would also be imposed on construction projects throughout the SCAB, which would include related projects. Compliance with South Coast AQMD rules and regulations would further reduce the Proposed Project construction-related impacts. Therefore, Proposed Project-related construction emissions, combined with those from other projects in the area, would not substantially deteriorate local air quality. Construction emissions associated with the Proposed Project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Long-Term Impacts

The South Coast AQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, individual project emissions contribute to existing cumulatively significant adverse air quality impacts. The South Coast AQMD developed the operational thresholds of significance based on the level above which individual project emissions would result in a cumulatively considerable contribution to the SCAB's existing air quality conditions. Therefore, a project that exceeds the South Coast AQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As discussed previously, the Proposed Project's operational emissions would not include permanent stationary or mobile sources of emissions, and therefore, by its very nature, would not generate quantifiable criteria emissions from project emissions. As a result, Proposed Project operational emissions would not result in a cumulatively considerable contribution to significant cumulative air quality impacts. Additionally, adherence to South Coast AQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. As a result, the Proposed Project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, cumulative operational impacts associated with implementation of the Proposed Project would be less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

Threshold 5.3 Would the Project expose sensitive receptors to substantial pollutant concentrations?

Construction Localized Significance Analysis

The sensitive receptors nearest the Project site are the single-family residences located approximately 1,800 feet (549 meters) southeast. To identify impacts to sensitive receptors, the South Coast AQMD recommends addressing LSTs for construction.

LSTs were developed in response to South Coast AQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The South Coast AQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific emissions. The South Coast AQMD produced look-up tables for projects that disturb areas less than or equal to 5 acres in size. The

appropriate SRA for the localized significance thresholds is the West San Fernando Valley (SRA 6) since this area includes the Project site.

The South Coast AQMD's methodology states that "off-site mobile emissions from the Proposed Project should not be included in the emissions compared to LSTs." However, this analysis considers total construction emissions, inclusive of both on-site and off-site construction emissions, to provide a more conservative estimate of potential construction emissions. Since RCEM calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, [Table 10: Equipment-Specific Grading Rates](#), is used to determine the maximum daily disturbed acreage for comparison to LSTs. Proposed Project construction is anticipated to disturb a maximum of 5 acres in a single day.

Table 10: Equipment-Specific Grading Rates					
Construction Phase	Equipment Type	Equipment Quantity	Acres Graded per 8-Hour Day	Operating Hours per Day	Acres Graded per Day
Grading	Tractors	4	0.5	8	2.0
	Graders	2	0.5	8	1.0
	Dozers	0	0.5	8	0
	Scrapers	2	1	8	2.0
Total Acres Graded per Day					5.0
Source: RCEM version 9.0.0. Refer to Appendix A: Air Quality Modeling Data for model outputs.					

The nearest sensitive receptors are the single-family residences located approximately 1,800 feet (549 meters) southeast of the Project site. Therefore, LSTs for receptors located at 500 meters were utilized in this analysis. [Table 11: Localized Significance of Construction Emissions](#) presents the results of localized construction emissions and shows that emissions of criteria pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. A less than significant impact would occur in this regard.

Table 11: Localized Significance of Construction Emissions				
Construction Activity	Maximum Pounds Per Day (lbs/day)			
	Nitrogen Oxides (NO _x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Grubbing/Land Clearing	9.31	10.05	0.52	0.39
Grading/Excavation	53.42	45.08	2.34	1.95
Drainage/Utilities/Sub-Grade	27.37	28.82	1.30	1.11
Paving	14.00	19.44	0.74	0.66
Maximum ¹	90.09	83.95	4.15	3.45
<i>South Coast AQMD Localized Screening Threshold 5 acres at 500 meters)</i>	313	9,271	181	96
Exceed South Coast AQMD Threshold?	No	No	No	No
Notes:				
1. Maximum emissions account for overlapping construction phases.				
Source: RCEM version 9.0.0. Refer to Appendix A: Air Quality Modeling Data for model outputs.				

Localized Operational Significance Analysis

According to the South Coast AQMD LST methodology, LSTs would apply to the operational phase of a project only if it includes stationary sources or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The Proposed Project is an intersection improvement project and does not include such uses. Thus, no long-term localized significance threshold analysis is needed. No operational LST impacts would result in this regard.

Criteria Pollutant Health Impacts

On December 24, 2018, the California Supreme Court issued an opinion identifying the need to provide sufficient information connecting a project's air emissions to health impacts or explain why such information could not be ascertained (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502). The South Coast AQMD has set its CEQA significance thresholds based on the FCAA, which defines a major stationary source (in extreme O₃ nonattainment areas such as the SCAB) as emitting 10 tons per year. The thresholds correlate with the trigger levels for the federal New Source Review (NSR) Program and South Coast AQMD Rule 1303 for new or modified sources. The NSR Program⁶ was created by the FCAA to ensure that stationary sources of air pollution are constructed or modified in a manner that is consistent with attainment of health-based NAAQS. The NAAQS establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health. Therefore, projects that do not exceed the South Coast AQMD's LSTs and mass emissions thresholds would not violate any air quality standards or contribute substantially to an existing or projected air quality violation and no criteria pollutant health impacts.

As previously discussed, localized effects of total Proposed Project emissions on nearby receptors for the Proposed Project would be less than significant (refer to [Table 11](#)). The LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable CAAQS or NAAQS. The LSTs were developed by the South Coast AQMD based on the ambient concentrations of that pollutant for each SRA and distance to the nearest sensitive receptor. The CAAQS and NAAQS establish the levels of air quality necessary, with an adequate margin of safety, to protect public health, including protecting the health of sensitive populations. However, as discussed above, neither the South Coast AQMD nor any other air district currently have methodologies that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a project's mass emissions. Information on health impacts related to exposure to O₃ and particulate matter emissions published by the EPA and CARB have been summarized above and discussed in the Regulatory Framework section. Health studies are used by these agencies to set the NAAQS and CAAQS.

Ozone concentrations are dependent upon a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the NAAQS and CAAQS, none of the health-related information can be directly correlated to the pounds/day or tons/year of emissions estimated from a single project. It should also be noted that this analysis identifies health concerns related to particulate matter, CO, O₃, and NO₂. [Table 2](#) includes a list of criteria pollutants and summarizes common sources and effects. Thus, this

⁶ Code of Federal Regulation (CFR) [i.e., PSD (40 CFR 52.21, 40 CFR 51.166, 40 CFR 51.165 (b)), Non-attainment NSR (40 CFR 52.24, 40 CFR 51.165, 40 CFR part 51, Appendix S)]

analysis is reasonable and intended to foster informed decision making. shown above, Proposed Project-related emissions would not exceed the regional thresholds or the LSTs, and therefore would not exceed the ambient air quality standards or cause an increase in the frequency or severity of existing violations of air quality standards. Therefore, sensitive receptors would not be exposed to criteria pollutant levels in excess of the health-based ambient air quality standards.

Carbon Monoxide Hotspots

An analysis of CO “hot spots” is needed to determine whether the change in the level of service (LOS) of an intersection resulting from the Proposed Project would have the potential to result in exceedances of the CAAQS or NAAQS. It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when vehicles are idling at intersections. Vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations have steadily declined. Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard.

The SCAB was re-designated as attainment in 2007 and is no longer addressed in the South Coast AQMD’s AQMP. The 2003 AQMP is the most recent version that addresses CO concentrations. As part of the South Coast AQMD *CO Hotspot Analysis*, the Wilshire Boulevard and Veteran Avenue intersection, one of the most congested intersections in Southern California with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day, was modeled for CO concentrations. This modeling effort identified a CO concentration high of 4.6 ppm, which is well below the 35-ppm Federal standard. The Proposed Project would not produce the volume of traffic required to generate a CO hot spot in the context of SCAQMD’s *CO Hotspot Analysis*. As the CO hotspots were not experienced at the Wilshire Boulevard and Veteran Avenue intersection even as it accommodates 100,000 vehicles daily, it can be reasonably inferred that CO hotspots would not be experienced at any vicinity intersections resulting from the Proposed Project. Further, intersection improvements do not directly generate vehicle trips, a predominant source of air pollutant emissions. Therefore, impacts would be less than significant.

Construction-Related Diesel Particulate Matter

Proposed Project construction would result in the generation of DPM emissions from the use of required off-road diesel equipment required. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer.

The use of diesel-powered construction equipment would be temporary and episodic. The duration of exposure would be short and exhaust from construction equipment dissipates rapidly. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. The California Office of Environmental Health Hazard Assessment (OEHHA) has not identified short-term health effects from DPM. Construction is temporary and would be transient throughout the Project site (i.e., move from location to location) and would not generate emissions in a

fixed location for extended periods of time which would limit the exposure of any proximate individual sensitive receptor to TACs.

Additionally, construction is subject to and would comply with California regulations (e.g., California Code of Regulations, Title 13, Sections 2485 and 2449), which reduce DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles and limit the idling of heavy-duty construction equipment to no more than five minutes. These regulations would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Given the temporary and intermittent nature of construction activities likely to occur within specific locations in the Project site (i.e., construction is not likely to occur in any one location for an extended time), the dose of DPM of any one receptor is exposed to would be limited. Therefore, considering the relatively short duration of DPM-emitting construction activity at any one location, and the highly dispersive properties of DPM, sensitive receptors would not be exposed to substantial concentrations of construction-related TAC emissions. Impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less Than Significant Impact.

Threshold 5.4 Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

During construction-related activities, some odors (not substantial pollutant concentrations) that may be detected are those typical of construction vehicles (e.g. diesel exhaust from grading and construction equipment). These odors are a temporary short-term impact that is typical of construction projects and would disperse rapidly. Given the nature and duration of construction-related odors, the Project would result in a less than significant impact concerning the creation of objectionable odors during construction.

The South Coast AQMD *CEQA Air Quality Handbook* identifies certain land uses as sources of odors. These land uses include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Project involves intersection improvements and would not include any of the land uses that have been identified by the South Coast AQMD as odor sources. Therefore, no impact concerning the creation of objectionable odors during operations would occur.

Mitigation Measures: No mitigation is required.

Level of Significance: Less Than Significant.

6 REFERENCES

1. California Air Pollution Control Officers Association (CAPCOA), *Health Effects*, 2018.
2. California Air Resources Board, *Aerometric Data Analysis and Measurement System (ADAM) Top Four Summaries from 2015 to 2017*, 2019.
3. California Air Resources Board, *Ambient Air Quality Standards*, May 6, 2016.
4. City of Agoura Hills. *Agoura Village Specific Plan: Updated Final Revised and Recirculated Environmental Impact Report*. August 2008.
5. City of Agoura Hills, *General Plan*, 2004.
6. South Coast Air Quality Management District, *2016 Air Quality Management Plan*, March 2017.
7. South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.
8. South Coast Air Quality Management District, *Localized Significance Threshold Methodology*, 2009.
9. United States Environmental Protection Agency, *Nonattainment Areas for Criteria Pollutants*, 2019.

Appendix A

Air Quality Modeling Data

Road Construction Emissions Model
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.

Version 9.0.0

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.



Input Type

Project Name	Kanan Agoura Intersection
Construction Start Year	2023
Project Type	2
Project Construction Time	7.00
Working Days per Month	22.00
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
Project Length	0.52
Total Project Area	2.74
Maximum Area Disturbed/Day	0.01
Water Trucks Used?	1

Enter a Year between 2014 and 2040 (inclusive)

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

months
days (assume 22 if unknown)

1) Sand Gravel : Use for quaternary deposits (Delta/West County)
2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta)
3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)

miles
acres
acres

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	20.00	0.00	0.00
	Grading/Excavation	20.00	60.58	70.23
	Drainage/Utilities/Sub-Grade	20.00	0.00	3.56
	Paving	20.00	0.00	0.00
		20.00	0.00	0.00
Asphalt	Grubbing/Land Clearing	20.00	0.00	0.00
	Grading/Excavation	20.00	0.00	297.93
	Drainage/Utilities/Sub-Grade	20.00	0.00	0.00
	Paving	20.00	0.00	0.00
		20.00	0.00	0.00

Mitigation Options

On-road Fleet Emissions Mitigation	
Off-road Equipment 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
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	3.00	0.70	7/1/2023	1/1/2023
Grading/Excavation	1.00	2.80	8/1/2023	4/3/2023
Drainage/Utilities/Sub-Grade	5.00	2.45	9/1/2023	5/4/2023
Paving	2.10	1.05	11/1/2023	10/4/2023
Totals (Months)		11		

Please note: You have entered a different number of months than the project length shown in cell D16.

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

Soil Hauling Emissions		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				
User Input										
Miles/round trip: Grubbing/Land Clearing		30.00			0	0.00				
Miles/round trip: Grading/Excavation		30.00			7	210.00				
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00			1	30.00				
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	0.40	2.98	0.11	0.05	0.02	1,714.99	0.00	0.27	1,795.36
Grading/Excavation (grams/mile)	0.03	0.40	2.98	0.11	0.05	0.02	1,714.99	0.00	0.27	1,795.36
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	2.99	0.11	0.05	0.02	1,710.61	0.00	0.27	1,790.77
Paving (grams/mile)	0.03	0.40	2.98	0.11	0.05	0.02	1,713.69	0.00	0.27	1,793.99
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.43	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	0.01	0.19	1.45	0.05	0.02	0.01	793.99	0.00	0.12	831.20
Tons per const. Period - Grading/Excavation	0.00	0.00	0.02	0.00	0.00	0.00	8.73	0.00	0.00	9.14
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.03	0.21	0.01	0.00	0.00	113.14	0.00	0.02	118.44
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	6.22	0.00	0.00	6.51
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	0.00	0.03	0.00	0.00	0.00	14.96	0.00	0.00	15.66

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

Asphalt Hauling Emissions		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
User Input						
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00	
Miles/round trip: Grading/Excavation		30.00		15	450.00	
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	0.40	2.98	0.11	0.05	0.02	1,714.99	0.00	0.27	1,795.36
Grading/Excavation (grams/mile)	0.03	0.40	2.98	0.11	0.05	0.02	1,714.99	0.00	0.27	1,795.36
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	2.99	0.11	0.05	0.02	1,710.61	0.00	0.27	1,790.77
Paving (grams/mile)	0.03	0.40	2.98	0.11	0.05	0.02	1,713.69	0.00	0.27	1,793.99
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.43	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	0.03	0.40	3.11	0.11	0.05	0.02	1,701.41	0.00	0.27	1,781.14
Tons per const. Period - Grading/Excavation	0.00	0.00	0.03	0.00	0.00	0.00	18.72	0.00	0.00	19.59
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	0.00	0.03	0.00	0.00	0.00	18.72	0.00	0.00	19.59

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		Calculated		Calculated		
Miles/ one-way trip				20						
One-way trips/day				2		Daily Trips		Daily VMT		
No. of employees: Grubbing/Land Clearing				7		14		280.00		
No. of employees: Grading/Excavation				22		44		880.00		
No. of employees: Drainage/Utilities/Sub-Grade				15		30		600.00		
No. of employees: Paving				12		24		480.00		
Emission Rates		ROG		CO		NOx		PM10		PM2.5 SOx CO2 CH4 N2O CO2e
Grubbing/Land Clearing (grams/mile)		0.02		0.91		0.07		0.05		0.02 0.00 317.66 0.00 0.01 319.66
Grading/Excavation (grams/mile)		0.02		0.91		0.07		0.05		0.02 0.00 317.66 0.00 0.01 319.66
Draining/Utilities/Sub-Grade (grams/mile)		0.02		0.90		0.07		0.05		0.02 0.00 315.42 0.00 0.01 317.41
Paving (grams/mile)		0.02		0.91		0.07		0.05		0.02 0.00 316.99 0.00 0.01 319.01
Grubbing/Land Clearing (grams/trip)		1.04		2.75		0.29		0.00		0.00 68.26 0.07 0.03 79.50
Grading/Excavation (grams/trip)		1.04		2.75		0.29		0.00		0.00 68.26 0.07 0.03 79.50
Draining/Utilities/Sub-Grade (grams/trip)		1.03		2.73		0.29		0.00		0.00 67.79 0.07 0.03 78.91
Paving (grams/trip)		1.04		2.75		0.29		0.00		0.00 68.12 0.07 0.03 79.33
Emissions		ROG		CO		NOx		PM10		PM2.5 SOx CO2 CH4 N2O CO2e
Pounds per day - Grubbing/Land Clearing		0.04		0.65		0.05		0.03		0.01 198.20 0.00 0.00 199.79
Tons per const. Period - Grubbing/Land Clearing		0.00		0.02		0.00		0.00		0.00 6.54 0.00 0.00 6.59
Pounds per day - Grading/Excavation		0.13		2.04		0.17		0.09		0.04 622.90 0.01 0.02 627.92
Tons per const. Period - Grading/Excavation		0.00		0.02		0.00		0.00		0.00 6.85 0.00 0.00 6.91
Pounds per day - Drainage/Utilities/Sub-Grade		0.09		1.37		0.11		0.06		0.03 421.71 0.01 0.01 425.07
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00		0.08		0.01		0.00		0.00 23.19 0.00 0.00 23.38
Pounds per day - Paving		0.07		1.11		0.09		0.05		0.02 339.05 0.01 0.01 341.76
Tons per const. Period - Paving		0.00		0.03		0.00		0.00		0.00 7.83 0.00 0.00 7.90
Total tons per construction project		0.01		0.14		0.01		0.01		0.00 44.42 0.00 0.00 44.77

Note: Water Truck default values can be overridden in cells D153 through D156, H153 through H156, 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
Grubbing/Land Clearing - Exhaust				1				5		5
Grading/Excavation - Exhaust				1				5		5
Drainage/Utilities/Subgrade				1				5		5
Paving				1				5		5
Emission Rates		ROG		CO		NOx		PM10		PM2.5 SOx CO2 CH4 N2O CO2e
Grubbing/Land Clearing (grams/mile)		0.03		0.40		2.98		0.11		0.05 1,714.99 0.00 0.27 1,795.36
Grading/Excavation (grams/mile)		0.03		0.40		2.98		0.11		0.05 1,714.99 0.00 0.27 1,795.36
Draining/Utilities/Sub-Grade (grams/mile)		0.03		0.41		2.99		0.11		0.05 1,710.61 0.00 0.27 1,790.77
Paving (grams/mile)		0.03		0.40		2.98		0.11		0.05 1,713.69 0.00 0.27 1,793.89
Grubbing/Land Clearing (grams/trip)		0.00		0.00		4.43		0.00		0.00 0.00 0.00 0.00 0.00
Grading/Excavation (grams/trip)		0.00		0.00		4.43		0.00		0.00 0.00 0.00 0.00 0.00
Draining/Utilities/Sub-Grade (grams/trip)		0.00		0.00		4.43		0.00		0.00 0.00 0.00 0.00 0.00
Paving (grams/trip)		0.00		0.00		4.43		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		0.31		0.01		0.00 151.24 0.00 0.02 158.32
Tons per const. Period - Grubbing/Land Clearing		0.00		0.00		0.01		0.00		0.00 4.99 0.00 0.00 5.22
Pounds per day - Grading/Excavation		0.00		0.04		0.31		0.01		0.00 151.24 0.00 0.02 158.32
Tons per const. Period - Grading/Excavation		0.00		0.00		0.00		0.00		0.00 1.66 0.00 0.00 1.74
Pounds per day - Drainage/Utilities/Sub-Grade		0.00		0.04		0.31		0.01		0.00 150.85 0.00 0.02 157.92
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00		0.00		0.02		0.00		0.00 8.30 0.00 0.00 8.69
Pounds per day - Paving		0.00		0.04		0.31		0.01		0.00 151.12 0.00 0.02 158.20
Tons per const. Period - Paving		0.00		0.00		0.01		0.00		0.00 3.49 0.00 0.00 3.65
Total tons per construction project		0.00		0.00		0.04		0.00		0.00 18.44 0.00 0.00 19.31

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				0.01		0.10		0.00		0.02		0.00	
Fugitive Dust - Grading/Excavation				0.01		0.10		0.00		0.02		0.00	
Fugitive Dust - Drainage/Utilities/Subgrade				0.01		0.10		0.01		0.02		0.00	

Off-Road Equipment Emissions															
Grubbing/Land Clearing	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles		Override of												
	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Default												
Override of Default Number of Vehicles		Program-estimate	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	
			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	0.44	2.24	5.12	0.20	0.18	0.01	758.27	0.25	0.01	766.45	
			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	
	2		Model Default Tier	Excavators	0.38	6.52	3.10	0.15	0.14	0.01	1,000.21	0.32	0.01	1,010.99	
			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	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			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	
			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	
	2		Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13	
			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															
Number of Vehicles		Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e		
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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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		N/A		0	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					

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	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
			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
	0		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	0.44	2.24	5.12	0.20	0.18	0.01	758.27	0.25	0.01	766.45
			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
	3		Model Default Tier	Excavators	0.57	9.77	4.65	0.23	0.21	0.02	1,500.32	0.49	0.01	1,516.49
			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
	2		Model Default Tier	Graders	0.77	3.39	9.31	0.30	0.28	0.01	1,281.71	0.41	0.01	1,295.52
			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
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			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
	2		Model Default Tier	Rollers	0.31	3.70	3.22	0.18	0.16	0.01	508.22	0.16	0.00	513.69
			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		Model Default Tier	Rubber Tired Loaders	0.27	1.51	2.65	0.09	0.08	0.01	605.56	0.20	0.01	612.10
	2		Model Default Tier	Scrapers	1.57	12.27	16.57	0.65	0.60	0.03	2,940.26	0.95	0.03	2,971.94
	2		Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			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
	4		Model Default Tier	Tractors/Loaders/Backhoes	8.61	8.93	6.14	0.30	0.28	0.01	1,206.31	0.39	0.01	1,219.29
			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														
Number of Vehicles		Equipment Tier		Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation				pounds per day	4.65	42.42	48.38	1.97	1.82	0.09	8,899.27	2.86	0.08	8,994.61
Grading/Excavation				tons per phase	0.05	0.47	0.53	0.02	0.02	0.00	97.89	0.03	0.00	98.94

Data Entry Worksheet 6

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
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
				Model Default Tier	Aerial Lifts	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
				Model Default Tier	Bore/Drill Rigs	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
				Model Default Tier	Concrete/Industrial Saws	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
				Model Default Tier	Crawler Tractors	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
				Model Default Tier	Excavators	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
				Model Default Tier	Generator Sets	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
				Model Default Tier	Off-Highway Tractors	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
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				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
				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
	1			Model Default Tier	Pavers	0.19	2.88	1.87	0.09	0.08	0.00	456.21	0.15	460.12
	1			Model Default Tier	Paving Equipment	0.17	2.56	1.60	0.08	0.07	0.00	394.47	0.13	398.72
				Model Default Tier	Plate Compactors	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
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3.00	2		Model Default Tier	Rollers	0.46	5.56	4.81	0.26	0.24	0.01	762.33	0.25	770.54
				Model Default Tier	Rough Terrain Forklifts	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
				Model Default Tier	Rubber Tired Loaders	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
		2		Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	96.63	0.01	99.13
				Model Default Tier	Skid Steer Loaders	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
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Tractors/Loaders/Backhoes	0.45	6.69	4.59	0.23	0.21	0.01	904.76	0.29	914.50
				Model Default Tier	Trenchers	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
User-Defined Off-road Equipment														
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab														
Number of Vehicles		Equipment Tier		Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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		N/A			0	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			

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		158		8
Forklifts		82		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		85		8
Surfacing Equipment		253		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 9.0.0

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.