AIR QUALITY REPORT

State Route 1 (SR-1/Lincoln Boulevard)

Multimodal Improvements Project

Along State Route 1 (SR-1/Lincoln Boulevard)
Within the City and County of Los Angeles

District 7-LA-1, (PM 30.16 to 30.74)
EA 07-33880 / EFIS No. 0717000061

Prepared by

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Caltrans

May 2024

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AIR QUALITY REPORT

LOS ANGELES COUNTY, CALIFORNIA

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 7

E.A. 07-33880

EFIS 0717000061

Reviewed by: ________________________________ Date: May 1, 2024

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Acronyms and Abbreviations

Term	Definition
°F	Degrees Fahrenheit
AADT	Average annual daily traffic
AB	Assembly bill
ADT	Average daily traffic
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
ATM	Active Traffic Management
BACM	Best available control measures
BMP	Best Management Practice
BRT	Bus rapid transit
CAAQS	California Ambient Air Quality Standards
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Climate Action Program
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
County	[County Name]
EO	Executive Order
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
ft	Feet
FTA	Federal Transit Administration

Term	Definition
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
IPCC	International Panel on Climate Change
ITS	Intelligent Transportation Systems
LOS	Level of service
LRTP	Long Range Transportation Plan
mi	Miles
MOVES	Motor Vehicle Emission Simulator
mph	Miles per hour
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSAT	Mobile Source Air Toxics
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NO_x	Nitrogen oxide
O&M	Operations and maintenance
O_3	Ozone
OMB	White House Office of Management & Budget
OPR	Office of Planning and Research
PM	Particulate matter
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
Protocol	Transportation Project-Level Carbon Monoxide Protocol
ROGs	Reactive organic gases

Term	Definition
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
SB	Senate Bill
SIP	State Implementation Plan
SO_2	Sulfur dioxide
TACs	Toxic air contaminants
TDM	Transportation Demand Management
TSM	Transportation System Management
TIP	Transportation Improvement Program
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
UV	Ultraviolet
VHT	Vehicle hours traveled
VMT	Vehicle miles traveled
VOCs	Volatile organic compounds

1. Project Description

1.1 Introduction

This Air Quality Report (AQR) has been prepared in accordance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) to evaluate the potential air quality impacts of the proposed State Route 1 (SR-1/Lincoln Boulevard) Multimodal Improvements Project (Project) within the City of Los Angeles. The California Department of Transportation (Caltrans), in cooperation with the City of Los Angeles, proposes to implement multimodal improvements along SR-1/Lincoln Boulevard, which is also designated as State Route 1 (SR-1), between Jefferson Boulevard and just south of Fiji Way in the City and County of Los Angeles. Specifically, Alternative 2 would include the realignment of the SR-1/Lincoln Boulevard centerline approximately 50 feet to the east of the existing SR-1/Lincoln Boulevard Bridge; addition of one southbound lane along SR-1/Lincoln Boulevard for a length of approximately 1,800 feet; demolition, replacement, and widening of the SR-1/Lincoln Boulevard Bridge; demolition, replacement, and widening of the Culver Boulevard Bridge over SR-1/Lincoln Boulevard; demolition, replacement, and realignment of the connector ramps between SR-1/Lincoln Boulevard and Culver Boulevard; and construction of active transportation improvements, including sidewalks and Class IV protected bicycle lanes, on both sides of SR-1/Lincoln Boulevard. Alternative 2 would also include utility relocation, landscaping, low-intensity street lighting, striping, signage, drainage, and water quality improvements. Alternative 2 would install a striped center median that would allow space to accommodate a future center-running transit facility within the Project Site, which is not included as part of Alternative 2. Construction of Alternative 2 would result in three through lanes in the northbound and southbound directions of SR-1/Lincoln Boulevard between Fiji Way and Jefferson Boulevard, with additional turning lanes at Culver Loop. Caltrans is the lead agency under NEPA and CEQA.

1.2 Location and Background

The Project Site primarily occurs in the City of Los Angeles, with limited temporary construction easements and partial right-of-way acquisitions needed in the north and northwest portions of the Project Site from parcels that are located within unincorporated Los Angeles County. The Project Site is located within the South Coast Air Basin (Basin) and under the local jurisdiction of the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG). Figure 1-1 shows the Project Site.

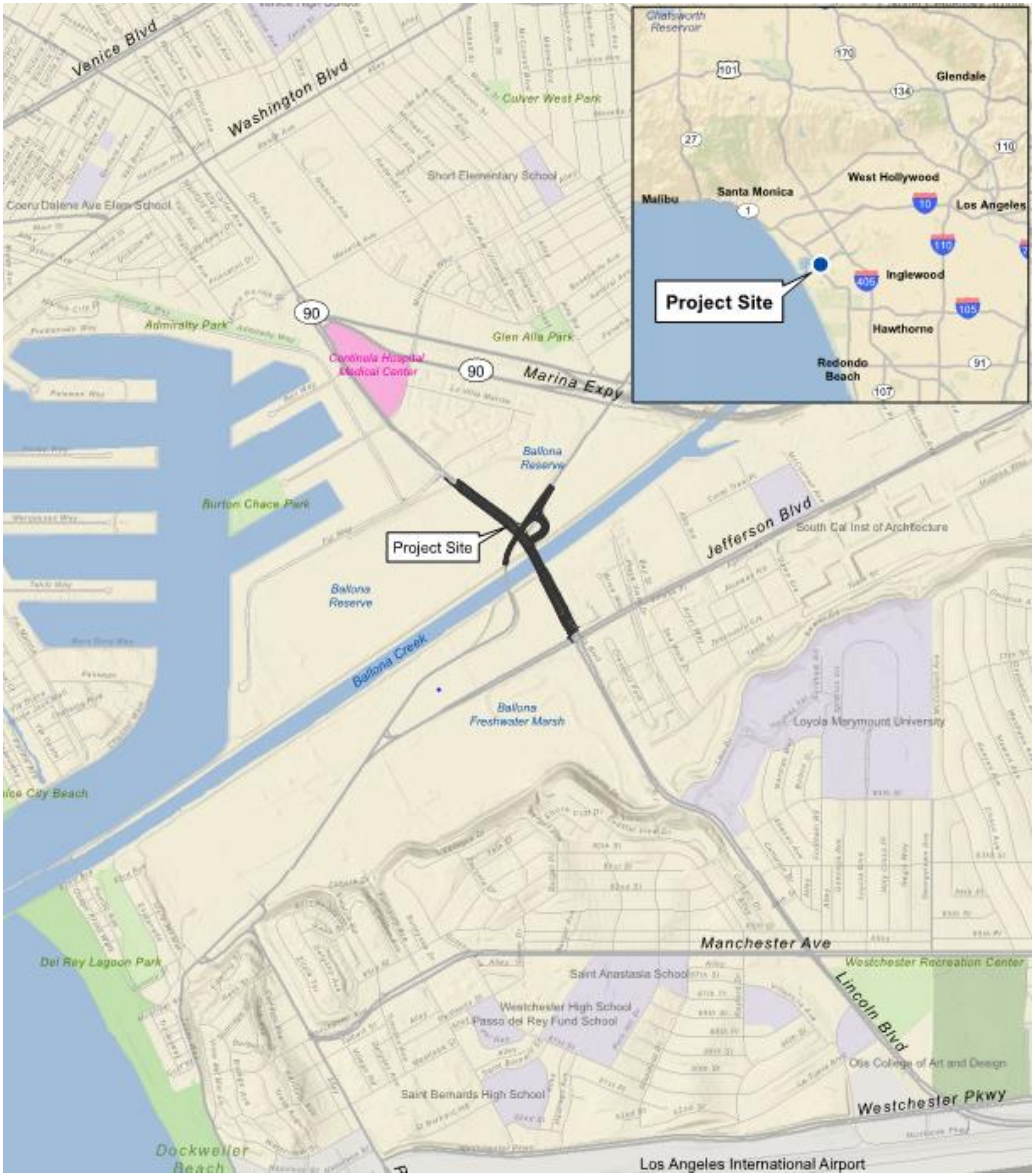

Figure 1-1. Map of the Project Site Location.

1.3 Purpose and Need

Purpose

The purpose of this Project is to create a new multi-modal corridor along SR-1/Lincoln Boulevard between Fiji Way and Jefferson Boulevard to improve traffic operations and to serve transit, bicyclists and pedestrians while minimizing effects to the Ballona Wetlands Ecological Reserve (BWER), Ballona Creek, and other environmental resources.

Need

SR-1/Lincoln Boulevard serves as a critical north-south connection on the Westside. There are few arterial connections that provide continuous access through the Westside, which results in SR-1/Lincoln Boulevard being oversaturated during peak commute periods. SR-1/Lincoln Boulevard narrows from three to two lanes in the southbound direction, approximately 1,050 feet north of the existing SR-1/Lincoln Boulevard Bridge over Ballona Creek, and from four to three lanes in the northbound direction, approximately 320 feet north of the intersection with Jefferson Blvd, to the intersection with Fiji Way. These existing lane reductions create a major traffic operations bottleneck.

The average vehicle travel speeds along SR-1/Lincoln Boulevard are 15 mph during peak periods when measured between Ozone Ave in the City of Santa Monica and Sepulveda Boulevard while the existing design speed is 50 mph. Travel times are greatly affected by bottlenecks resulting in slower speeds along much of the corridor.

Additionally, access for pedestrians along SR-1/Lincoln Boulevard is disjointed north and south of the Ballona Creek Bridge which does not have sidewalks. SR-1/Lincoln Boulevard also lacks bicycle facilities across the bridge. Pedestrian and bicycle facilities are also deficient along Culver Boulevard.

1.4 Baseline and Forecasted Conditions for Alternative 1 and Alternative 2

A discussion of the existing roadways and traffic conditions within the Project Site is provided in Section 1.4.1, which serves as a baseline for the Project's transportation analysis. The Project alternatives include Alternative 1 (the No Build Alternative), Alternative 2 (the base Build Alternative) and four design variations described as Alternatives 2A, 2B, 2C, and 2D. Unless otherwise indicated, information in this section comes from the Project's Traffic Analysis Report (TAR) (Fehr & Peers 2023). The TAR analyzed traffic operations for the existing baseline conditions as well as a 2030 Opening Year and a 2050 Design Year for Alternatives 1 and 2[1].

[1] Alternatives 2A, 2B, 2C, and 2D were not evaluated in the TAR as these alternatives would not change operational traffic patterns, traffic volumes, or traffic speeds.

1.4.1 Existing Roadways and Traffic Conditions

The baseline for the environmental conditions is based on traffic conditions for the year 2019. Best available information was used to represent this year, but the year of the information may not always be for the year 2019. The roadways analyzed in the Project's TAR include the following:

1. ***SR-1/Lincoln Boulevard*** is designated as a Boulevard I and runs north/south with two to three travel lanes in each direction. On the bridge, the southbound direction provides two travel lanes and the northbound direction provides three travel lanes. At Jefferson Boulevard, the southbound direction widens to provide four travel lanes. Lanes are 10 feet wide and parking is not permitted on either side.
2. ***Jefferson Boulevard*** is designated as a Boulevard II and runs east/west with two to three travel lanes in each direction. Lanes are approximately 10 feet wide and parking is not permitted on either side of the street.
3. ***Culver Boulevard*** is designated as an Avenue I east of the Project Site and an Avenue III west of the Project Site. The street runs northeast/southwest with one travel lane in the southwest direction and two lanes in the northeast direction. The Culver Loop provides northbound and southbound access to SR-1/Lincoln Boulevard with one right-turn lane from Culver Boulevard to northbound SR-1/Lincoln Boulevard, one protected left-turn lane from Culver Boulevard to southbound SR-1/Lincoln Boulevard, and one left-turn lane from SR-1/Lincoln Boulevard onto northeast-bound Culver Boulevard. The Culver overpass provides one travel lane in each direction.
4. ***Fiji Way*** is designated as a Local Street. It runs east/west and provides one to two travel lanes west of SR-1/Lincoln Boulevard and provides one travel lane in each direction east of Lincoln. Lanes are approximately 10 feet wide with parking permitted on both sides of the street, east of Lincoln.

Figure 1-2 shows the general Project location with major cross-streets in the vicinity. Table 1-1 summarizes the existing traffic conditions at the four intersections.

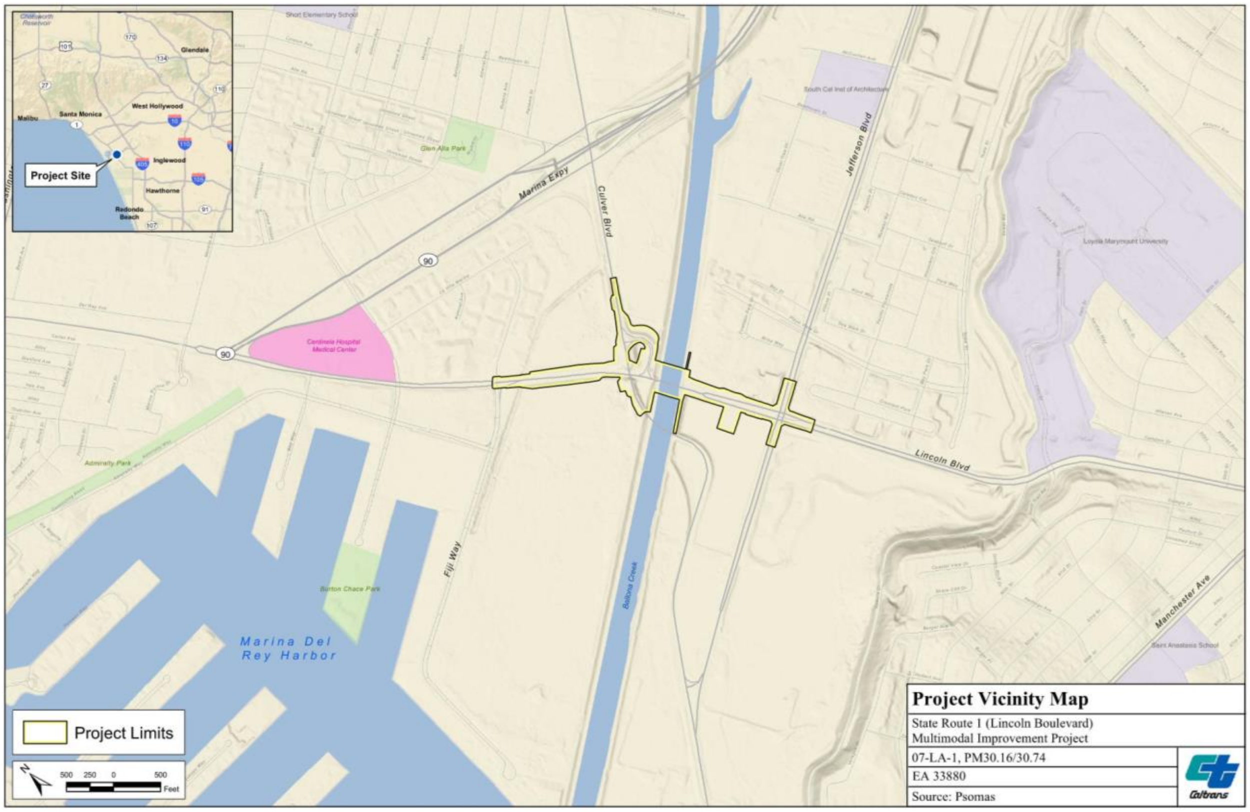

Figure 1-2. Map of the Project Site and Nearby Roadways.

Table 1-1. Summary of Existing Traffic Conditions.'

Scenario/ Analysis Year	Location	AADT[1]		% Truck	VMT (mi)	Average Speed During Peak Travel (mph)		Average Speed During Off-Peak Travel (mph)	
		Total	Truck			AM	PM	MD	NT
Existing/Baseline Year (2019)	SR-1/Lincoln Boulevard	60,000	1,200*	2%	593,873[1]	22 (NB)	24 (NB)	24 (NB)	27 (NB)
						25 (SB)	21 (SB)	25 (SB)	26 (SB)
Existing/Baseline Year (2019)	Culver Boulevard	33,615**	200**	.5%***	593,873[1]	32 (EB)	36 (EB)	40 (EB)	46 (EB)
						42 (WB)	36 (WB)	42 (WB)	46 (WB)

Notes:
NB = northbound; SB = southbound; MD = mid-day; NT = nighttime
*(Caltrans Performance Management System (PeMS) 2011), **(City of LA 2019), ***(Intersection Project Counts 2019)
[1]VMT values in this table represent regional VMT within a 1.5-mile radius of the Project Site
Average Speeds for Culver Blvd are representative of Culver Blvd west of Culver Loop
Source: Fehr & Peers 2023

1.4.2 Alternative 1

Alternative 1 consists of those transportation projects that are planned for construction by or before the 2030 Opening Year. Consequently, Alternative 1 represents future travel conditions in the Project Site without implementation of Alternative 2 and is the baseline against which Alternative 2. 2A. 2B. 2C, and 2D will be assessed to meet NEPA requirements.

Under Alternative 1, SR-1/Lincoln Boulevard and Culver Boulevard would remain unchanged. The lane configurations along Culver Boulevard and SR-1/Lincoln Boulevard in the study area would be the same as Existing Conditions. Table 1-2 summarizes the Opening Year (2030) traffic conditions within the Project Site with Alternative 1.

Table 1-2. Summary of Future Traffic Conditions with Alternative 1

Scenario/ Analysis Year	Location	AADT[1]		% Truck	VMT (mi)	Average Speed During Peak Travel (mph)		Average Speed During Off-Peak Travel (mph)	
		Total	Truck			AM	PM	MD	NT
Alternative 1 Opening Year (2030)	SR-1/ Lincoln Boulevard	67,200	1,300	2%	632,532[1]				
Alternative 1 Design Year (2050)	SR-1/ Lincoln Boulevard	78,700	1,600	2%	700,441[1]	21 (NB)	21 (NB)	22 (NB)	26 (NB)
						22 (SB)	20 (SB)	23 (SB)	26 (SB)
Alternative 1 Opening Year (2030)	Culver Boulevard	34,700	200	.6%	632,532[1]				
Alternative 1 Design Year (2050)	Culver Boulevard	36,400	200	.6%	700,441[1]	31 (EB)	31 (EB)	38 (EB)	46 (EB)
						39 (WB)	35 (WB)	41 (WB)	46 (WB)

Notes:

NB = northbound; SB = southbound; MD = mid-day; NT = nighttime

[1]VMT values in this table represent regional VMT within a 1.5-mile radius of the Project Site

Design year Average Speeds are representative of year 2050

Average Speeds for Culver Blvd are representative of Culver Blvd west of Culver Loop

Source: Fehr & Peers 2023

1.4.3 Alternative 2

Alternative 2 includes the realignment of the SR-1/Lincoln Boulevard centerline approximately 50 feet to the east of the existing SR-1/Lincoln Boulevard Bridge; addition of one southbound lane along SR-1/Lincoln Boulevard for a length of approximately 1,800 feet; demolition, replacement, and widening of the SR-1/Lincoln Boulevard Bridge; demolition, replacement, and widening of the Culver Boulevard Bridge over SR-1/Lincoln Boulevard; demolition, replacement, and realignment of the connector ramps between SR-1/Lincoln Boulevard and Culver Boulevard; and construction of active transportation improvements, including sidewalks and Class IV protected bicycle lanes, on both sides of SR-1/Lincoln Boulevard. Alternative 2 would also include utility relocation, landscaping, low-intensity street lighting, striping, signage, drainage, and water quality improvements. Alternative 2 would install a striped center median that would allow space to accommodate a future center-running transit facility within the Project Site, which is not included as part of Alternative 2. Construction of Alternative 2 would result in three through lanes in the northbound and southbound directions of SR-1/Lincoln Boulevard between Fiji Way and Jefferson Boulevard, with additional turning lanes at Culver Loop.

Project right-of-way needs are still being refined for Alternative 2, but it is likely that partial right-of-way acquisition and/or temporary construction easements would be required from approximately 12 parcels. No full right-of-way takes, residential displacements, or business displacements would be required under Alternative 2; however, local parking and driveways may need to be reconfigured for parcels where partial right-of-way acquisition occur to accommodate Alternative 2.

Under Alternative 2, the replacement SR-1/Lincoln Boulevard Bridge over Ballona Creek would include three 12-foot travel lanes in each direction, a 12-foot center median, and 2-foot lane buffers, 8-foot shoulders including 6-foot-wide, Class IV protected bicycle lanes, 6-foot sidewalks, and 1-foot edge barriers on both sides of the roadway.

With Alternative 2, the replacement Culver Boulevard Bridge would include one 12-foot travel lane in each direction as well as 5-foot shoulders, 6-foot sidewalks, and 1-foot bridge barriers on both sides of the roadway.

Transportation System Management/Transportation Demand Management Alternatives

A stand-alone alternative featuring Transportation System Management (TSM) and Travel Demand Management (TDM) improvements alone was considered as an alternative for the Project. Collectively, TSM and TDM describe a series of strategies that can be implemented to maximize the efficiency of the existing transportation system by reducing dependence on single occupant vehicles. TSM and TDM are typically low-cost measures to reduce travel demand and/or improve the utilization of existing transportation facilities. TSM focuses on increasing the person-trip capacity of existing transportation systems through techniques such as restriping roadways for channelization, ramp metering, establishing auxiliary lanes, and providing freeway service patrol. TDM techniques focus on influencing an individual’s travel behavior by reducing the demand for single occupant vehicle travel, especially during peak commute periods, including such strategies as preferential parking for carpoolers, teleconferencing, and advanced communication technology. Several TSM strategies have been incorporated into the Project’s build alternatives, including the addition of and improvements to bicycle and pedestrian facilities and improvements to signal timing. The Project’s build alternatives have also been crafted to improve transit operations along the corridor in the short term as well as to facilitate future implementation of a higher-quality transit service at some time in the future. However, on their own TSM and TDM strategies would not achieve the Purpose and Need of the Project. Therefore, this alternative was eliminated from further analysis as a stand-alone alternative.

Future Traffic Conditions With Alternative 2

Traffic conditions with Alternative 2 for the Opening Year (2030) and Design Year (2050) are provided below in Table 1-3.

Table 1-3. Summary of Future Traffic Conditions With Alternative 2

Scenario/ Analysis Year	Location	AADT[1]		% Truck	VMT (mi)	Average Speed During Peak Travel (mph)		Average Speed During Off-Peak Travel (mph)	
		Total	Truck			AM	PM	MD	NT
Alternative 2 Opening Year (2030)	SR-1/ Lincoln Boulevard	69,900	1,300	2%	621,550[1]	21 (NB)	21 (NB)	22 (NB)	26 (NB)
						25 (SB)	24 (SB)	25 (SB)	27 (SB)
Alternative 2 Design Year (2050)	SR-1/ Lincoln Boulevard	81,800	1,600	2%	667,226[1]	21 (NB)	21 (NB)	22 (NB)	26 (NB)
						25 (SB)	24 (SB)	25 (SB)	27 (SB)
Alternative 2 Opening Year (2030)	Culver Boulevard	35,000	200	0.6%	621,550[1]	31 (EB)	31 (EB)	38 (EB)	46 (EB)
						40 (WB)	38 (WB)	42 (WB)	46 (WB)
Alternative 2 Design Year (2050)	Culver Boulevard	36,700	200	0.6%	667,226[1]	31 (EB)	31 (EB)	38 (EB)	46 (EB)
						40 (WB)	38 (WB)	42 (WB)	46 (WB)

Notes:

NB = northbound; SB = southbound; MD = mid-day; NT = nighttime

1 VMT values in this table represent regional VMT within a 1.5 mile radius of the Project Site Design year Average Speeds are representative of year 2050 Average Speeds for Culver Blvd are representative of Culver Blvd west of Culver Loop

Source: Fehr & Peers 2023

1.4.4 Comparison of Traffic Conditions With Existing, Baseline and Implementation of Alternative 2

As discussed previously in Section 1.3.1 and Section, 1.3.2, southbound SR-1/Lincoln Boulevard narrows from three to two lanes approximately 1,050 feet north of the existing SR-1/Lincoln Boulevard Bridge over Ballona Creek. The resulting merge movement for southbound drivers creates a traffic bottleneck along this roadway segment and poses a safety hazard for pedestrians, bicyclists, and vehicles. Alternative 2 would increase southbound roadway capacity along SR-1/Lincoln Boulevard within the Project Site at a location where southbound Lincoln bottlenecks from three lanes to two lanes in the southbound direction. While the vehicle fleet mix is not anticipated to change between existing, Opening Year (2030), and Design Year (2050), ADT is anticipated to increase within the Project Site as redistribution of traffic occurs due to the elimination of the southbound traffic bottleneck along Lincoln Bridge. The removal of the traffic bottleneck would increase average vehicle speeds by 1-4 mph for southbound traffic along SR-1/Lincoln Boulevard between Jefferson Boulevard and Fiji Way. Within a 1.5-mile radius of the Project Site, VMT in the study area is estimated to decrease by approximately 1.74% compared to conditions in 2030 with Alternative 1, and by 4.74% in 2050. The decrease in VMT is due to the elimination of the existing southbound bottleneck on the bridge, which results in vehicles using alternate routes that, while time efficient, require traveling a greater distance (Fehr & Peers 2023). Table 1-4 summarizes design features and operational impacts on traffic conditions near the Project Site.

Table 1-4. Summary of Long-Term Operational Impacts on Traffic Conditions of Existing, Alternative 1, and Alternative 2

Scenario/ Analysis Year	Location	Design Features and Operational Impacts on Traffic Conditions
Baseline Existing (2019)	SR-1/ Lincoln Boulevard between Jefferson Boulevard and Fiji Way	60,000 ADT
Alternative 1 Opening Year (2030)	SR-1/ Lincoln Boulevard between Jefferson Boulevard and Fiji Way	67,200 ADT
Alternative 2 Opening Year (2030)	SR-1/ Lincoln Boulevard between Jefferson Boulevard and Fiji Way	69,900 ADT
Alternative 1 Design Year (2050)	SR-1/ Lincoln Boulevard between Jefferson Boulevard and Fiji Way	78,700 ADT
Alternative 2 Design Year (2050)	SR-1/ Lincoln Boulevard between Jefferson Boulevard and Fiji Way	81,800 ADT
Alternative 2 Opening Year (2030)	1.5-mile radius of Project site	1.74% reduction in VMT when comparing Alternative 2 to Alternative 1
Alternative 2 Design Year (2050)	1.5-mile radius of Project site	4.74% reduction in VMT when comparing Alternative 2 to Alternative 1
2019 counts from Caltrans Performance Management System (PeMS) are most recent available. Source: Fehr & Peers 2023.		

1.5 Construction Activities and Schedule

Construction activities associated with the development of Alternative 2 are anticipated to start in early 2027 and last through late 2029. It is estimated that Alternative 2 would require approximately 783 workdays. The length of the Alternative 2 construction period is approximately three years.

Although construction is planned to last approximately three years, no construction activities are anticipated to last more than five years at any individual site. Emissions from construction-related activities are thus considered temporary as defined in 40 CFR 93.123(c)(5); and are not required to be included in PM hot-spot analyses to meet conformity requirements.

Stage Construction

The following is a description of the three major stages of construction for Alternative 2.

- Stage 1- Demolish and Construct New Culver Boulevard Bridge:
    a) This stage will be completed first so that existing traffic on SR-1/Lincoln Boulevard can be shifted to the east side of the new SR-1/Lincoln Boulevard Bridge over Ballona Creek during Stage 3.

b) Environmentally sensitive area (ESA) fencing would be installed along the edge of the Project construction limits except within Ballona Creek where the edge of construction would be clearly marked on the banks of the creek.

c) Temporary security fencing (i.e., chain link) would be installed around portions of the construction areas as needed within the Project limits to deter unauthorized public access within the construction area, including around Project staging areas.

d) Mobilization and establishment of construction staging areas. During mobilization, equipment, machinery, and materials would be delivered to the Project Site.

e) Culver Boulevard would be closed between the connector loop road intersection and the Jefferson Boulevard intersection.

f) A detour would be provided from SR-1/Lincoln Boulevard to Culver Boulevard to SR-91 and from Jefferson Boulevard to Centinela Avenue.

g) During this stage, the existing SR-1/Lincoln Boulevard Bridge would remain and would maintain the existing five lanes of traffic.

h) Vegetation would be cleared and grubbed from the Project construction limits (e.g., the combination of the temporary and permanent impact footprints).

i) The existing Culver Boulevard Bridge would be demolished.

j) The new Culver Boulevard Bridge would be constructed.

  - Installation of retaining walls.
  - Construction of abutments including 36" diameter Cast-In-Drilled-Hole (CIDH) concrete piles.

k) Construction of the revised Culver Boulevard Loop Connector Ramps.

- Stage 2 - Construct Widened SR-1/Lincoln Boulevard on East Side of the Road:

a) Open traffic on Culver Boulevard and Culver Boulevard Loop Connector Ramps.

b) Shift traffic to the westerly edge of SR-1/Lincoln Boulevard pavement to provide work area for east side widening.

  - During this stage, a minimum of four lanes of traffic would be maintained.

c) Lower the bike trail profile on the north side of Ballona Creek.

d) Construct east side of SR-1/Lincoln Boulevard Bridge over Ballona Creek.

- Temporary cofferdams [2]would be installed and used to create a work area within Ballona Creek in areas where new piers would be constructed.
- Abutments would be constructed including 36″ diameter CIDH concrete piles, and stone columns installed beneath the abutments.
- Piers would be constructed consisting of 66-inch diameter CISS concrete pile columns each with integral drop pier caps.
- Concrete slope paving would then be installed.

e) Relocate existing utilities from the existing SR-1/Lincoln Boulevard Bridge to new east side of SR-1/Lincoln Boulevard Bridge.

f) Construct new Culver connector loop intersection.

g) Construct the east side widening of SR-1/Lincoln Boulevard from Jefferson Boulevard to Fiji Way. Relocate overhead utility poles on the east side of SR-1/Lincoln Boulevard.

- <u>Stage 3 – Construct Widened SR-1/Lincoln Boulevard on West Side of the Road:</u>

a) Shift traffic to the newly constructed easterly edge of SR-1/Lincoln Boulevard.

b) Remove existing SR-1/Lincoln Boulevard Bridge.

- Temporary cofferdams would be installed and used to create a work area within Ballona Creek in areas where demolition of the existing piers would occur.
- Existing footings would be demolished and removed.
- Existing timber piles would be left in place below the Ballona Creek surface level.
- Concrete, reinforcing steel and steel girders would be salvaged and recycled following current sustainability practices.

a) Construct west side of SR-1/Lincoln Boulevard Bridge over Ballona Creek.

a. Temporary cofferdams would be installed and used to create a work area within Ballona Creek in areas where new piers would be constructed.

[2] A cofferdam is a watertight enclosure from which water is pumped to expose the bed of a body of water so that construction can occur.

b. Abutments would be constructed including 36” diameter Cast-In-Drilled-Hole (CIDH) concrete piles, and stone columns installed beneath the abutments.

c. Piers would be constructed consisting of 66-inch diameter CISS concrete pile columns each with integral drop pier caps.

d. New piers would be driven between the existing timber piles that would remain in place.

e. A concrete deck closure pour would then be cast to tie the two bridge halves together.

f. Concrete slope paving would then be installed.

b) Construct the west side widening of SR-1/Lincoln Boulevard from Jefferson Boulevard to Fiji Way.

c) Relocate overhead utility poles on the west side of SR-1/Lincoln Boulevard.Install landscaping.

2. Regulatory Setting

Many statutes, regulations, plans, and policies have been adopted at the federal, state, and local levels to address air quality issues related to transportation and other sources. The Project is subject to air quality regulations at each of these levels. This section discusses the pollutants governed by these regulations and describes the regulation and policies relevant to the Project.

2.1 Pollutant-Specific Overview

Air pollutants are governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM, which includes fine particulate matter [$PM_{2.5}$] and respirable particulate matter [PM_{10}]), and sulfur dioxide (SO_2). The U.S. Environmental Protection Agency (EPA) has also identified nine priority mobile source air toxics (MSAT): 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter (https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/). In California, sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

2.1.1 Criteria Pollutants

The Clean Air Act requires the USEPA to set NAAQS for six criteria air contaminants: O_3, $PM_{2.5}$ and PM_{10}, CO, NO_2, Pb, and SO_2. It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 2-1 documents the current air quality standards while Table 2-2 summarizes the sources and health effects of the six criteria pollutants and pollutants regulated in the state of California.

Table 2-1. Table of State and Federal Ambient Air Quality Standards
Accessed March 2023, www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 $\mu g/m^3$)		0.070 ppm (137 $\mu g/m^3$)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	12.0 $\mu g/m^3$	15 $\mu g/m^3$	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Gas Phase Chemiluminescence	100 ppb (188 $\mu g/m^3$)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)		0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Ultraviolet Fluorescence	75 ppb (196 $\mu g/m^3$)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 $\mu g/m^3$)	
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 $\mu g/m^3$	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 $\mu g/m^3$ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 $\mu g/m^3$		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 $\mu g/m^3$	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			

See footnotes on next page ...

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1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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Source: California Air Resources Board 2016.

Table 2-2. State and Federal Criteria Air Pollutant Effects and Sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10})	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.

Table 2-2. State and Federal Criteria Air Pollutant Effects and Sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Sulfate	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

2.1.2 Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. EPA regulate 188 air toxics, also known as hazardous air pollutants. The U.S. EPA has assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of U.S. EPA's Integrated Risk Information System (IRIS) (https://www.epa.gov/iris). In addition, the U.S. EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-hazard contributors from the 2011 National Air Toxics Assessment (NATA) (https://www.epa.gov/national-air-toxics-assessment). These are *1,3-butadiene*, *acetaldehyde*, *acrolein*, *benzene*, *diesel particulate matter (diesel PM)*, *ethylbenzene*, *formaldehyde*, *naphthalene*, and *polycyclic organic matter*. While the Federal Highway Administration (FHWA) considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future U.S. EPA rules.

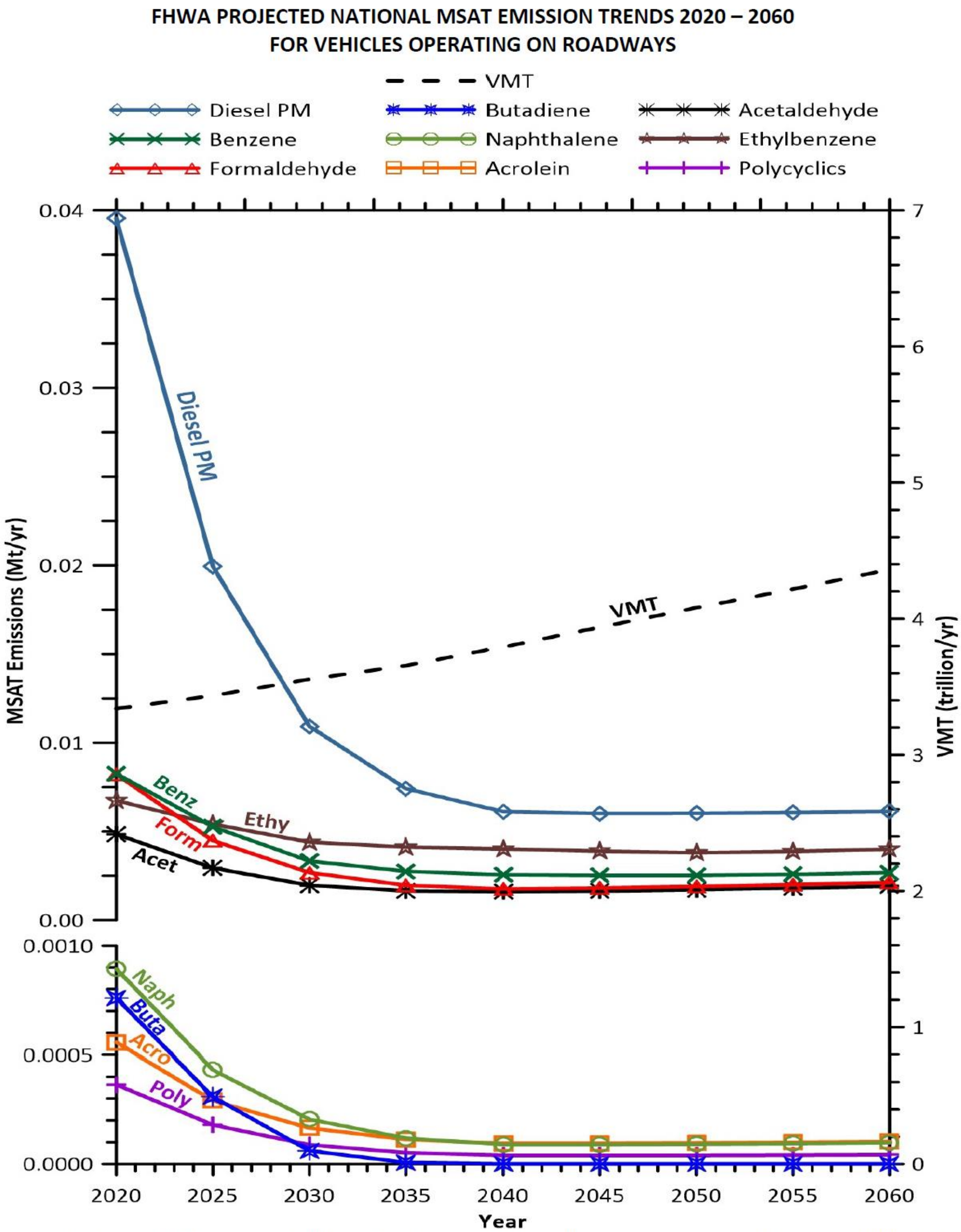
The 2007 U.S. EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines.

On January 18, 2023, the U.S. DOT updated the October 2016, Interim Guidance that advised Federal Highway Administration (FHWA) Division Offices on when and how to analyze Mobile Source Air Toxics (MSAT) within the National Environmental Policy Act (NEPA) review process for proposed highway projects. This update was prompted by recent changes in the emissions model required for conducting emissions analysis. In 2021, the U.S. Environmental Protection Agency (EPA) released MOVES3, 1 the latest major update of the Motor Vehicle Emissions Simulator (MOVES) vehicle emissions model and started a 2-year grace period to phase in the requirement of using MOVES3 for transportation conformity analysis. Beginning January 9, 2023, project sponsors should use MOVES3 to conduct emissions analysis for both transportation conformity determinations and for NEPA purposes. This Updated Interim Guidance incorporates new analysis conducted using MOVES3. Based on FHWA's analysis using MOVES3, diesel particulate matter (diesel PM) remains the dominant

MSAT of concern for highway projects. We have also provided an update on the status of scientific research on air toxics. This Updated Interim Guidance supersedes the October 2016 Interim Guidance and should be referenced in NEPA documentation.

According to EPA, MOVES3 is a major revision to MOVES2014 and improves upon it in many respects. MOVES3 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2014. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES3 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. In the November 2020 EPA issued MOVES3 Mobile Source Emissions Model Questions and Answers 4 EPA states that for on-road emissions, MOVES3 updated heavy-duty (HD) diesel and compressed natural gas (CNG) emission running rates and updated HD gasoline emission rates. They updated light-duty (LD) emission rates for hydrocarbon (HC), carbon monoxide (CO) and nitrogen oxide (NOx) and updated light-duty (LD) particulate matter rates, incorporating new data on Gasoline Direct Injection (GDI) vehicles.

Using EPA's MOVES3 model, as shown in Figure 2-1, FHWA estimates that even if VMT increases by 31 percent from 2020 to 2060 as forecast, a combined reduction of 76 percent in the total annual emissions for the priority MSAT is projected for the same time period.



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.

Figure 2-1. Projected National MSAT Trends, 2010-2060

(Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/).

2.1.3 Greenhouse Gases

The term greenhouse gas (GHG) is used to describe atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO_2, CH_4, N_2O, and fluorinated gases. GHGs differ in how much heat each traps in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO_2. For example, the 2007 International Panel on Climate Change *Fourth Assessment Report* calculates the GWP of CH_4 as 25 and the GWP of N_2O as 298, over a 100-year time horizon.[3] Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in metric tons ($MTCO_2e$), or million metric tons ($MMTCO_2e$).[4]

As evidence has mounted for the relationship of climate changes to rising GHGs, federal and state governments have established numerous policies and goals targeted to improving energy efficiency and fuel economy and reducing GHG emissions. Nationally, electricity generation is the largest source of GHG emissions, followed by transportation. In California, however, transportation is the largest contributor to GHGs.

At the federal level, the National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. However, the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) issued the first corporate fuel economy (CAFE) standards in 2010, requiring cars and light-duty vehicles to achieve certain fuel economy targets by 2016, with the intention of gradually increasing the targets and the range of vehicles to which they would apply.

California has enacted aggressive GHG reduction targets, starting with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 is California's signature climate change legislation. It set the goal of reducing statewide GHG emissions to 1990 levels by 2020 and required the ARB to develop a Scoping Plan that describes the approach California will take to achieve that goal and to update it every 5 years. In 2015, Governor Jerry Brown enhanced the overall adaptation

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3 See Table 2.14 in IPCC Fourth Assessment Report: Climate Change 2007 (AR4): The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf.

4 See http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools.

planning effort with Executive Order (EO) B-30-15, establishing an interim GHG reduction goal of 40 percent below 1990 levels by 2030, and requiring state agencies to factor climate change into all planning and investment decisions.

Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008, furthered state climate action goals by mandating coordinated transportation and land use planning through preparation of sustainable communities strategies (SCS). The ARB sets GHG emissions reduction targets for passenger vehicles for each region. Each regional metropolitan planning organization must include in its regional transportation plan an SCS proposing actions toward achieving the regional emissions reduction targets.[5]

With these and other State Senate and Assembly bills and executive orders, California advances an innovative and proactive approach to dealing with GHG emissions and climate change.

2.1.4 Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the ARB in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentine and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos-bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentine may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology has developed a map showing the general location of ultramafic rock in the state (https://ww2.arb.ca.gov/sites/default/files/classic/toxics/asbestos/ofr_2000-019.pdf).

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5 https://www.arb.ca.gov/cc/sb375/sb375.htm

2.2 Regulations

2.2.1 Federal and California Clean Air Act

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

2.2.2 Transportation Conformity

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

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

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

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP and the project has a design concept and scope[6] that has not changed significantly from those in the RTP and TIP. If the design concept and scope have changed substantially from that used in the RTP Conformity analysis, RTP and TIP amendments may be needed. Project-level conformity also needs to demonstrate that project analyses have used the latest planning assumptions and U.S. EPA-approved emissions models; the project complies with any control measures in the SIP in PM areas. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.3 National Environmental Policy Act (NEPA)

NEPA requires that policies and regulations administered by the federal government are consistent with its environmental protection goals. NEPA also requires that federal agencies use an interdisciplinary approach to planning and decision-making for any actions that could impact the environment. It requires environmental review of federal actions including the creation of Environmental Documents (EDs) that describe the environmental effects of a project and its alternatives (including a section on air quality impacts).

2.2.4 California Environmental Quality Act (CEQA)

CEQA[7] is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA documents address CCAA requirements for transportation projects. While state standards are often more strict than federal standards, the state has no conformity process.

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

7 For general information about CEQA, see: http://resources.ca.gov/ceqa/more/faq.html.

2.2.5 Local

The U.S. EPA has delegated responsibility to air districts to establish local rules to protect air quality. Caltrans' Standard Specification 14-9.02 (Caltrans, 2023) requires compliance with all applicable air quality laws and regulations including local and air district ordinances and rules. In the Basin, the SCAQMD is the agency responsible for protecting public health and welfare through the administration of federal and State air quality laws, regulations, and policies. Included in the SCAQMD's tasks are the monitoring of air pollution; the preparation of the Air Quality Management Plan (AQMP) for the Basin; and the promulgation of rules and regulations.

South Coast Air Quality Management District Rules

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust and criteria pollutant emissions. The following rules are most relevant to the Project:

SCAQMD Rule 403, Fugitive Dust, requires actions to prevent, reduce, or mitigate fugitive particulate matter emissions. These actions include applying water or chemical stabilizers to disturbed soils; managing haul road dust by applying water; covering all haul vehicles before transporting materials; restricting vehicle speeds on unpaved roads to 15 miles per hour (mph); and sweeping loose dirt from paved site access roadways used by construction vehicles. In addition, Rule 403 requires that vegetative ground cover be established on disturbance areas that are inactive within 30 days after active operations have ceased. Alternatively, an application of dust suppressants can be applied in sufficient quantity and frequency to maintain a stable surface. Rule 403 also requires grading and excavation activities to cease when winds exceed 25 mph.

SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACMs). All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

3. Affected Environment

The Project Site is located along and adjacent to SR-1/Lincoln Boulevard between Jefferson Boulevard and Fiji Way. The Project Site is crossed by Ballona Creek and occurs partially within and adjacent to the Ballona Wetlands Ecological Reserve. Since the late 1940's, the Project Site and vicinity have been urbanized. The affected environment for Alternative 1 and Alternatives 2, 2A, 2B, 2C, and 2D are the same with regard to air quality.

The topography of a region can substantially impact air flow and resulting pollutant concentrations. California is divided into 15 air basins with similar topography and meteorology to better manage air quality throughout the state. Each air basin has a local air district that is responsible for identifying and implementing air quality strategies to comply with ambient air quality standards.

The Project Site is located between the communities of Marina Del Rey and Playa Vista in Los Angeles County, an area within the South Coast Air Basin (Basin) which includes Los Angeles, Orange, Riverside, and San Bernardino counties. Air quality regulation in the South Coast Air Basin is administered by SCAQMD. Based on the 2021 census, Los Angeles County's population is estimated at 9,829,544 with a -1.8% projected decrease in population. The County's economy is largely driven by agriculture, manufacturing, finance, transportation, and the communication and entertainment industries.

3.1 Climate, Meteorology, and Topography

The Project Site is located in the Basin, which includes all of Orange County and the urbanized portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is arid, with virtually no rainfall and abundant sunshine during the summer months. It has light winds and poor vertical mixing compared to the other large urban areas in the U.S.

Meteorology (weather) and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport ozone and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

The Los Angeles International Airport, California (045114) climatological station, maintained by the Western Regional Climate Center, is located near the Project Site and is representative of meteorological conditions near the Project Site. Figure 3-1 shows a wind rose illustrating the predominant wind patterns near the Project Site. The climate of the Project Site and vicinity is generally Mediterranean in character, with cool winters (average 56.35 °Fahrenheit in January) and warm, dry summers (average 69 °Fahrenheit in July). Temperature inversions are common, affecting localized pollutant concentrations in the winter and enhancing ozone formation in the summer. Mountains located to the north and east of the Basin tend to trap pollutants in the region by limiting air flow. Annual average rainfall is 12.02 inches (at Los Angeles International Airport), mainly falling during the winter months.

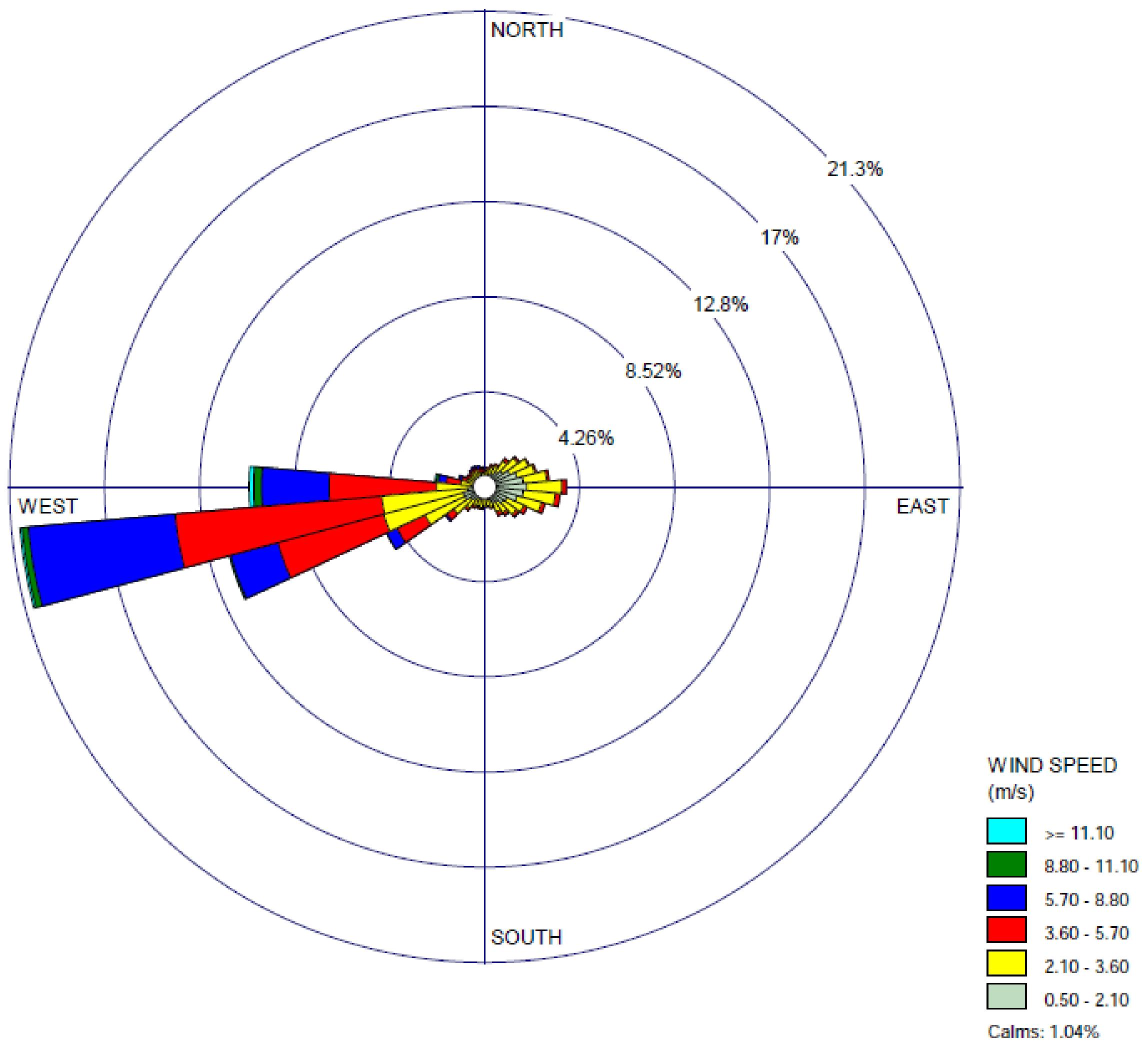

Figure 3-1. Predominant Wind Patterns Near the Project Site

3.2 Existing Air Quality

This section summarizes existing air quality conditions near the Project Site. It includes attainment statuses for criteria pollutants, describes local ambient concentrations of criteria pollutants for the past 4 years, and discusses MSAT and GHG emissions. The SCAQMD monitors air quality conditions at 37 locations throughout the Basin. The nearest air pollutant monitoring site to the Project Site is the West Los Angeles VA Hospital monitoring station which is approximately 5.2 miles northeast of the Project Site. Figure 3-2 shows the location of the Project Site relative to this air quality monitoring station.

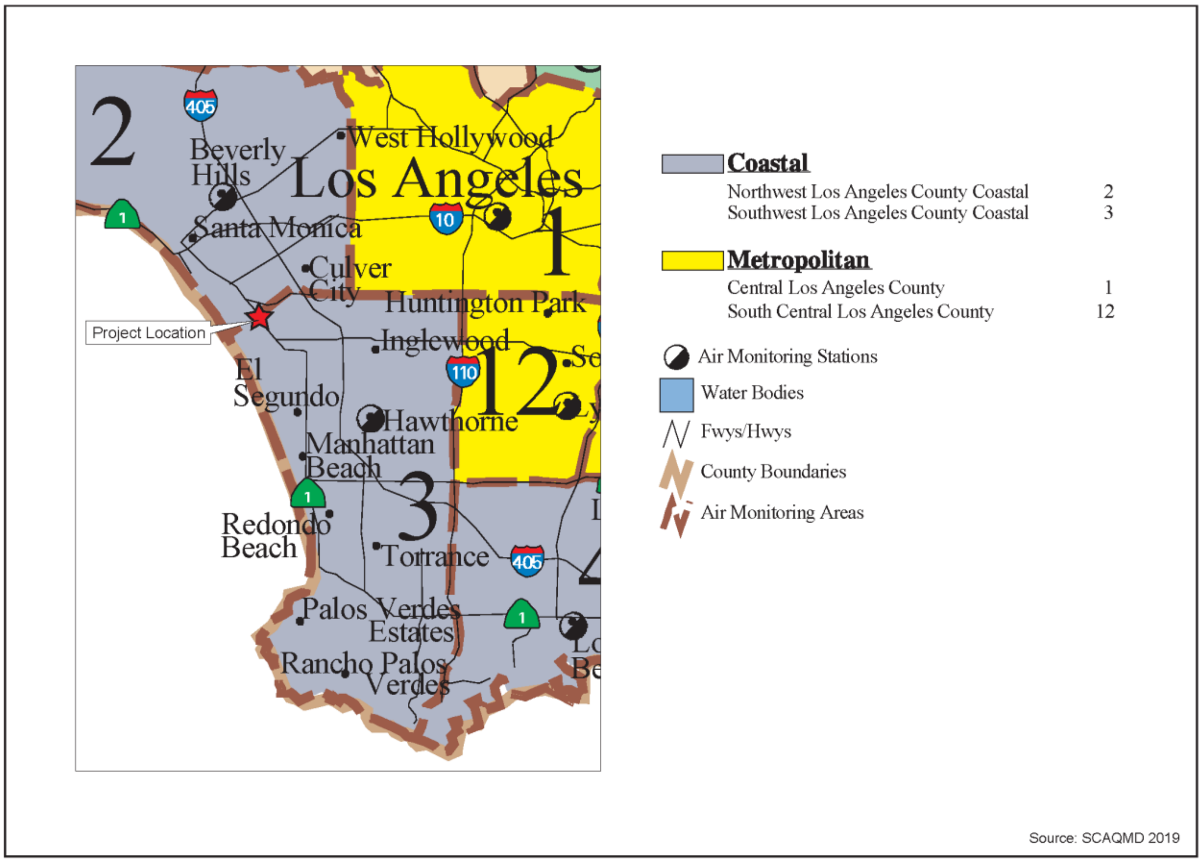

Figure 3-2. Map of Air Quality Monitoring Stations Located Near the Project Site

3.2.1 Criteria Pollutants and Attainment Status

States with air quality that did not achieve the NAAQS were required to develop and maintain SIPs. These plans constitute a federally enforceable definition of the State's approach (or "plan") and schedule for the attainment of the NAAQS. Air quality management areas were designated as "attainment," "nonattainment," or "unclassified" for individual pollutants depending on whether they achieve the applicable NAAQS and California Ambient Air Quality Standards (CAAQS) for each pollutant. It is important to note that because the NAAQS and CAAQS differ in many cases, it is possible for an area to be designated attainment by the USEPA (meets NAAQS) and nonattainment by the California Air Resources Board (CARB) (does not meet CAAQS) for the same pollutant. Table 3-1 lists the state and federal attainment status for all regulated pollutants. As shown in Table 3-1, the Project Site is located in an area that is nonattainment for O_3 and $PM_{2.5}$ for both the CAAQS and the NAAQS. For PM_{10}, the Basin is in nonattainment of CAAQS and attainment of NAAQS. The Basin is designated as maintenance for CO at the federal level and attainment for CO at the state level.

Table 3-1. State and Federal Attainment Status.

Pollutant	State Attainment Status	Federal Attainment Status
1-Hour Ozone (O_3)	Nonattainment	No Standards
8-Hour Ozone (O_3)	Nonattainment	Nonattainment (Extreme)
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment – Maintenance
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment (Serious)
Carbon Monoxide (CO)	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Nonattainment[1]
Visibility-Reducing Particles	Unclassifiable	No Standards
Sulfates	Attainment	No Standards
Hydrogen Sulfide	Attainment	No Standards
Vinyl Chloride	Attainment	No Standards

Notes:

N/A Not Applicable

[1]Nonattainment occurs in Los Angeles County. The rest of the State of California is in a state of attainment for lead.

Source: California Air Resources Board. 2022.

Table 3-2 lists air quality trends in data collected at the Southwest Coastal LA County Monitoring Station for the past four years. Historical data from this Monitoring Station was used to characterize the majority of existing conditions in the vicinity of the Project Site. Based on data provided in Table 3-2, ozone concentrations exceeded the state and federal standards. Other criteria pollutants were either below the standards or did not have information available regarding exceedances.

Table 3-2. Air Quality Concentrations for the Past 4 Years Measured at Southwest Coastal LA County and Northwest Coastal LA County Monitoring Station.

Pollutant	California Standard	National Standard	Year	Max. Level[a]	State Standard Days Exceeded[b]	National Standard Days Exceeded[b, c]
O_3 (1 hour)	0.09 ppm	None	2019	.082	0	N/A
			2020	.117	1	N/A
			2021	.059	0	N/A
			2022*	.081	0	0
O_3 (8 hour)	0.070 ppm	0.070 ppm	2019	.067	0	0
			2020	.074	2	2
			2021	.049	0	0
			2022*	.070	0	0
PM10 (24 hour)	50 µg/m^3	150 µg/m^3	2019	62	2	0
			2020	43	0	0
			2021	33	0	0
			2022*	N/A	N/A	N/A
PM10 (AAM)	20 µg/m^3	None	2019	19.2	0	N/A
			2020	22.5	N/A	N/A
			2021	17.7	0	N/A
			2022*	N/A	N/A	N/A
NO_2 (1 hour)	0.18 ppm	0.100 ppm	2019	.057	0	0
			2020	.060	0	0
			2021	.063	0	0
			2022*	.051	0	0
NO_2 (AAM)	0.030 ppm	0.053 ppm	2019	.0095	0	0
			2020	.0095	0	0
			2021	.0072	0	0
			2022*	.0114	0	0
CO (1 hour)	20 ppm	35 ppm	2019	1.8	0	0
			2020	1.6	0	0
			2021	1.7	0	0
			2022*	N/A	0	0
CO (8 hour)	9 ppm	9 ppm	2019	1.3	0	0
			2020	1.3	0	0
			2021	1.3	0	0
			2022*	N/A	0	0
SO_2 (1 Hour)	0.075 ppm	0.25 ppm	2019	8.2	N/A	N/A
			2020	6.0	N/A	N/A
			2021	7.7	N/A	N/A
			2022*	N/A	N/A	N/A

Table 3-2. Air Quality Concentrations for the Past 4 Years Measured at Southwest Coastal LA County and Northwest Coastal LA County Monitoring Station.

Pollutant	California Standard	National Standard	Year	Max. Level[a]	State Standard Days Exceeded[b]	National Standard Days Exceeded[b, c]
PM2.5 (AAM)	12 µg/m^3	15 µg/m^3	2019	N/A	N/A	N/A
			2020	N/A	N/A	N/A
			2021	N/A	N/A	N/A
			2022*	N/A	N/A	N/A

NA: Not Available

*: 2022 data for the Southwest Coastal LA County Monitoring Station #3 (1630 North Main Street, Los Angeles) was not available as of December 12, 2023 since the station has closed. Data from the Northwest Coastal LA County Station #2 located at the West LA VA hospital (Site Address Wilshire Bl & Sawtelle, Los Angeles CA 90025, Latitude Longitude 34°03'03.9"N 118°27'23.0"W [CARB 2023]) was used for 2022 since the Project Site is located within the similar distances from both these air monitoring stations and similar conditions (west side of the County, west of I-405).

Source: SCAQMD 2022.

The status of SIPs within the Basin are shown in Table 3-3. These SIPs provide the pathway to the Basin meeting both state and federal ambient air quality standards.

Table 3-3. Status of SIPs Relevant to the Project Site and Vicinity

Name/Description	Status
2021 South Coast PM2.5 Redesignation Request and Maintenance Plan	CARB Consideration
2021 South Coast PM10 Maintenance Plan	Submitted to EPA
2020 South Coast PM2.5 SIP Revision	CARB Consideration
2019 South Coast 8-Hour Ozone SIP Update	CARB Consideration
2019 South Coast PM2.5 Contingency Measure	Withdrawn
2018 South Coast SIP Revisions and Updates	Adopted
2016 Ozone and PM2.5 Plan for the South Coast Air Basin and Coachella Valley	Adopted
2016 AQMP Reasonably Available Control Technology SIP Demonstration	Adopted
2015 Minor Revision to the South coast 2012 PM2.5 SIP	Adopted
2012 South Coast Ozone and PM2.5 State Implementation Plan	Approved
2012 Lead State Implementation Plan for Los Angeles County	Approved
2011 Proposed 8-Hour Ozone State Implementation Plans and Technical Revisions to the PM2.5 State Implementation Plan Transportation Conformity Budgets for the South Coast and San Joaquin Valley Air Basins	Approved
2011 Progress Report on Implementation of PM2.5 State Implementation Plans (SIP) for the South Coast and San Joaquin Valley Air Basins and Proposed SIP Revision	Approved
South Coast Air Basin PM10 Redesignation Request, Maintenance Plan, and Conformity Budgets	Approved
2008 8-Hour Ozone Standard Early Progress Plans	Adopted
2007 South Coast and Coachella Valley 8-Hour Ozone and Pm2.5 Plans	Approved

Source: California Air Resources Board. 2019.

3.2.2 Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the CAAA of 1990, whereby Congress mandated that the USEPA regulate 188 air toxics, also known as hazardous air pollutants. The USEPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their IRIS. In addition, USEPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 2017 National Air Toxics Assessment. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. As more electric battery vehicles enter the vehicle fleet, direct emissions associated with roadway vehicles will decrease.

3.2.3 Greenhouse Gas and Climate Change

CO_2, as part of the carbon cycle, is an important compound for plant and animal life, but also accounted for 84% of California's total GHG emissions in 2015. Transportation, primarily on-road travel, is the single largest source of CO_2 emissions in the state. The Project Site is located in Los Angeles County and is included in the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy Connect (RTP/SCS). Emissions of GHGs will be evaluated within an Air Quality and Greenhouse Gas Emissions and Climate Change Technical Report that will be prepared for the RTP/SCS.

3.3 Sensitive Receptors

The Project Site is located adjacent to several parcels that are undeveloped and part of the Ballona Wetlands Ecological Reserve. Residential uses are located on the eastern side of SR-1/Lincoln Boulevard from W. Jefferson Boulevard to Ballona Creek. The Culver Marina Little League baseball fields are located between Culver Boulevard and Ballona Creek east of the Project Site. Commercial, retail and residential uses are located proximate to SR-1/Lincoln Boulevard and Fiji Way.

Some members of the general population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. According to the SCAQMD *CEQA Air Quality Analysis Guidelines*, as well as the CEQA and Federal Conformity Guidelines, residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. On the basis of research showing that the zone of greatest concern near roadways is within 500 feet, sensitive receptors within 500 feet have been identified and are documented in Table 3-4. Given the large size of the Project and its potential to influence receptors at greater distances, sensitive receptors within 2,000 feet are also listed. Figure 3-3 shows the locations of sensitive land uses relative to the Project Site.

Table 3-4. Sensitive Receptors Located Within 2,000 feet of the Project Site

Receptor	Description	Distance Between Receptor and Project (ft)
Residences east of SR-1/ Lincoln Boulevard / Pacific Coast Highway	Multifamily residential uses (Fountain Park at Playa Vista)	Within 50 feet
Medical uses located east of SR-1/ Lincoln Boulevard / Pacific Coast Highway	Silicon Beach Medical Center	Within 50 feet
Residences west of SR-1/ Lincoln Boulevard / Pacific Coast Highway	A single-family residential community located south of the Project Site	2,000
Park	Culver Marina Little League Park	200
School	USC Institute for Creative Technologies located near Lincoln Blvd and Fiji Way	178
Bike Path	Ballona Creek Bike Path	60
Marina	Located west of the Project Site	1,500
Hospital	Marina Del Rey Hospital - located north of Lincoln Blvd and Fiji Way	1,315
School	Playa Vista Elementary- located southeast of Lincoln Blvd and Jefferson Blvd	1,950
Library	Playa Vista Library- located southeast of Lincoln Blvd and Jefferson Blvd	1,585

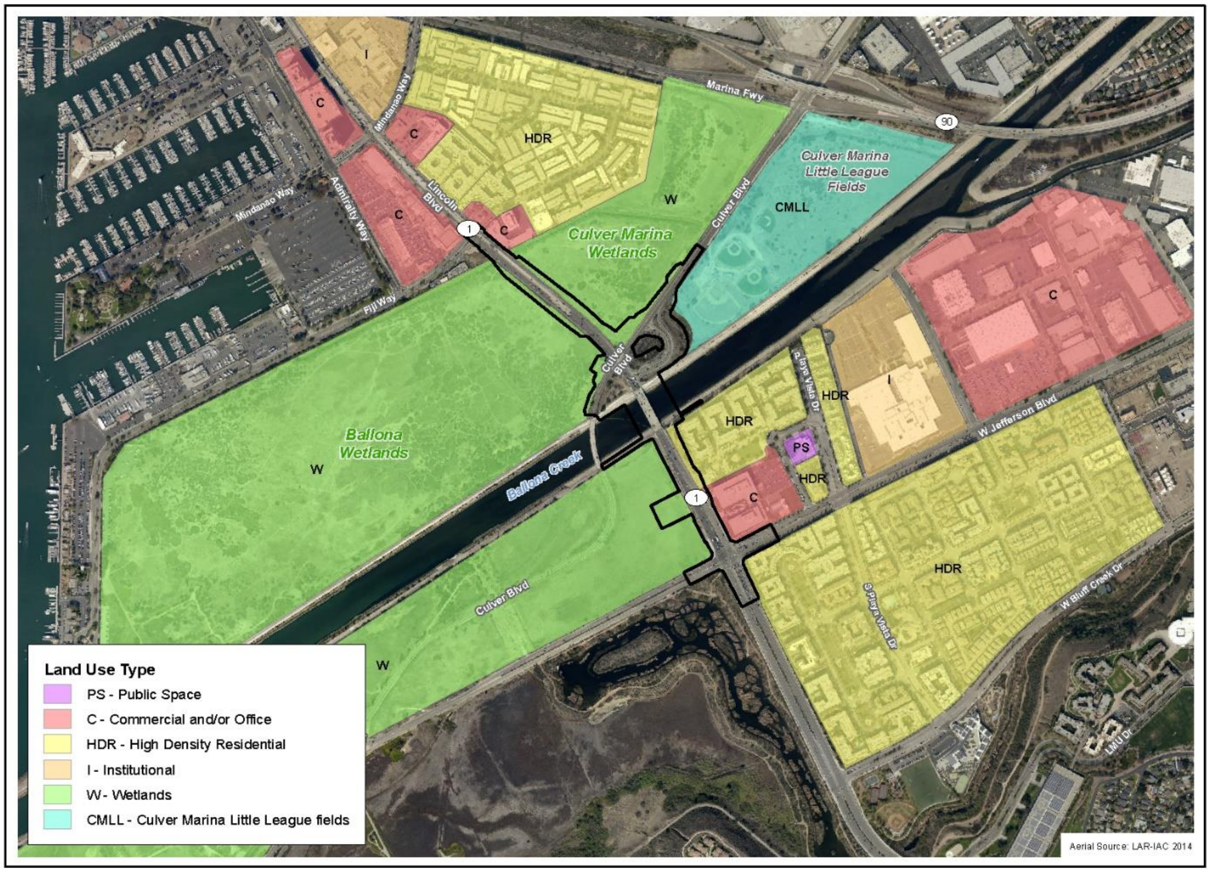

Figure 3-3. Sensitive Receptors Located Near the Project Site

3.4 Conformity Status

Under the 1990 Clean Air Act Amendments, the USDOT cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The Project must conform at both levels to be approved. Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO_2, O_3, and PM. California is in attainment for the other criteria pollutants. At the regional level, RTP are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as SCAG and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the RTP is in conformity with the State

Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the project is deemed to meet regional conformity requirements for purposes of project-level analysis.

3.4.1 Regional Conformity

The Project is listed in the Final Adopted 2023 Federal Transportation Improvement Program, which was subject to a conformity determination by FHWA and FTA. Conformity status information is summarized in Table 3-5. Photocopies of relevant pages from the RTP and TIP are added as Appendix A.

Table 3-5. Status of Plans Related to Regional Conformity.

MPO	Plan/TIP	Date of adoption by MPO	Date of Approval by FHWA
Southern California Association of Governments	2023 Transportation Improvement Program	October 6, 2022	December 16, 2022
Southern California Association of Governments	2024 Regional Transportation Plan/Sustainable Communities Strategy	April 4, 2024	April 27, 2024

The proposed Project is listed in the 2024 financially constrained Regional Transportation Plan which was found to conform by SCAG on April 4, 2024, and FHWA and FTA made a regional conformity determination finding on April 27, 2024. The Project is also included in SCAG's financially constrained 2023 Transportation Improvement Program, page 39. The SCAG 2023 Transportation Improvement Program was determined to conform by FHWA and FTA on December 16, 2022. The design concept and scope of the proposed Project is consistent with the project description in the 2024 RTP/SCS, 2023 Transportation Improvement Program, and the "open to traffic" assumptions of SCAG's regional emissions analysis.

3.4.2 Project-Level Conformity

The Project Site is located in a nonattainment area for O_3, PM10, and PM2.5, and a maintenance area for CO, thus a Project-level hot-spot analysis for carbon monoxide analysis is required under 40 CFR 93.109. These analyses were prepared as part of this AQR and are presented in Section 4.0.

3.4.3 Interagency Consultation

On August 27, 2019, the Project was considered at the Transportation Conformity Working Group (TCWG). At that meeting, the TCWG concurred that the Project is not a project of air quality concern (POAQC).

In March 2024, an updated PM Hot Spot Form along with updated traffic data for the Project was provided to TCWG. During their March 26, 2024 meeting, the TCWG reaffirmed that the Project is not a POAQC. Because the Project is classified as not being a POAQC, in accordance with the March 2006 EPA/FHWA guidance document, a quantitative PM hot-spot analysis is not required.

A summary of the interagency consultation process is provided in Table 3-6.

Table 3-6. Summary of Interagency Consultation Process.

Date	Format	Participants	Discussion Summary	Outcomes
August 27, 2019	TCWG Meeting	Tin Cheung, Psomas Andrew Yoon, Caltrans	The PM Conformity Hot Spot Analysis Project Summary Form for Interagency Consultation for the Project was considered at the meeting.	It was determined that this Project is not a POAQC (EPA concurrence received after the meeting)
March 26, 2024	TCWG Meeting	Andrew Yoon, Caltrans	The PM Conformity Hot Spot Analysis Project Summary Form for Interagency Consultation for the Project was considered at the meeting.	It was reaffirmed that this Project is not a POAQC (EPA concurrence received after the meeting)

3.5 NEPA Analysis/Requirement

NEPA applies to all projects that receive federal funding or involve a federal action. NEPA requires that all reasonable alternatives for the Project are rigorously explored and objectively evaluated. For NEPA, the air quality study should address federal criteria pollutants (ozone, $PM_{2.5}$, PM_{10}, CO, NO_2, SO_2, and lead), MSAT, and asbestos. Analysis/documentation requirements vary by pollutant (see Table 4-1); for example, in some cases documentation that the Project is listed in a conforming RTP and TIP is sufficient, while in other cases emissions modeling may be required. If construction will last more than three years and/or will substantially impact traffic due to detours, road closures, and temporary terminations, then impacts of the resulting traffic flow changes may need to be analyzed. For NEPA analyses, analysts should compare emissions from the future year Alternative 2 scenario to those from the future year Alternative 1 scenario.

3.6 CEQA Analysis/Requirement

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with the type and scale of development associated with the Project. SCAQMD has published the *Air Quality Analysis Handbook* (Handbook), as well as Handbook updates included on SCAQMD's website, to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. This Handbook and its updates provide standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and were used extensively in the preparation of this analysis. This document was also used in the preparation of this analysis.

4. Environmental Consequences

This section describes the methods, impact criteria, and results of air quality analyses of the Project. Analyses in this AQR were conducted using methodology and assumptions that are consistent with the requirements of NEPA, CEQA, the CAAAs of 1990, and the CCAA of 1988. The analyses also use guidelines and procedures provided in applicable air quality analysis protocols, such as the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Garza et al., 1997), Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Areas (USEPA, 2021), and the FHWA Updated Interim Guidance on Air Toxics Analysis in NEPA Documents (FHWA, 2016).

4.1 Impact Criteria

Project-related emissions will have an adverse environmental impact if they result in pollutant emissions levels that either create or worsen a violation of an ambient air quality standard (identified in Table 2-2) or contribute to an existing air quality violation.

In addition to exceedances of the ambient air quality concentrations, there are additional impact criteria used for CEQA analyses. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

Air Quality

- 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 non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;

Greenhouse Gases

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The analysis of the air quality impacts for CEQA purposes follows the guidance and methodologies recommended in SCAQMD's *Air Quality Analysis Guidance Handbook* (formerly the *CEQA Air Quality Handbook*).

4.2 Short-Term Effects (Construction Emissions)

4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust

Site preparation and roadway construction will involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include CO, NO_x, VOCs, directly emitted PM_{10} and $PM_{2.5}$, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction activities are expected to temporarily increase traffic congestion in the area at certain stages of Project construction, resulting in temporary increases in emissions from traffic during these delays during construction. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Under the transportation conformity regulations (40 CFR 93.123(c)(5)), construction-related activities that cause temporary increases in emissions are not required to conduct a hot-spot analysis. These temporary increases in emissions are those that occur only during the construction phase and last five years or less at any individual site. These temporary increases in emissions typically fall into two main categories:

- *Fugitive Dust*: A major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit "visible emissions" exceeding three minutes in one hour – this applies not only to dust but also to engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line. SCAQMD Rule 403 includes the prohibition against visible dust emissions leaving a project's site boundaries as well as other prohibitions against fugitive dust generation.

  Sources of fugitive dust for the Project might include temporarily disturbed soils and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.
- *Construction equipment emissions:* Diesel exhaust particulate matter is a California-identified toxic air contaminant and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

While construction emissions typically need not be considered in conformity analyses where construction will last for five years or less, they may need to be considered for a wider variety of projects and shorter construction periods for both NEPA and CEQA. The construction period for the Project spans 2 years. For purposes of conducting a construction emissions analysis for CEQA, construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.21. The linear land use type (infrastructure) was selected to quantify Project construction emissions.

Regional Emissions

Alternative 2

Construction emissions were estimated for Alternative 2 using detailed equipment inventories provided within the Road Construction Emissions Model (which was then utilized by CalEEMod) for bridge construction and roadway widening projects and Project construction scheduling information provided by the Project engineers (Psomas) combined with emissions factors from the EMFAC and OFFROAD models. Construction-related emissions for Alternative 2 are presented in Table 4-1. The results of the construction emission calculations are included in Appendix C of this AQR. The emissions presented are based on the best information available at the time of calculations. The emissions represent the peak daily construction emissions that would be generated by Alternative 2.

Table 4-1. Construction Emissions for Roadways (Alternative 2)

	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	ROG (lbs/day)	CO_2e (tons/phase)
Land Clearing/ Grubbing	2	1	11	10	1	130
Roadway Excavation	9	4	100	78	9	3,496
Drainage/Utilities/Sub-Grade	5	2	60	46	6	1,848
Paving	1	<1	22	12	1	188
Maximum Daily	9	4	100	78	9	NA
Source: California Emissions Estimator Model (CalEEMod) version 2022.1.1.21.						

Alternative 2A - Design Variation A - Retaining Wall Along the West Side of Lincoln Boulevard North of the Culver Boulevard Bridge

Alternative 2A would include construction of a retaining wall along the west side of Lincoln Boulevard north of the Culver Boulevard Bridge. Overall, no additional air emissions would result from these activities when compared to air emissions generated for Alternative 2, which are shown above in Table 4-1, since the installation of the aforementioned retaining wall would not substantially change the amount of construction equipment used, the duration of construction activities, the number of construction workers, or the number of haul trucks required.

Alternative 2B – Design Variation B – Cantilevered Widening of the Roadway Over Fiji Ditch to Avoid Direct Impacts to a Wetland Feature

Alternative 2B would include cantilevered sidewalks instead of traditional sidewalks. Overall, no additional air quality emissions would result from these activities when compared to air emissions anticipated for Alternative 2, which are shown above in Table 4-1, since the installation of the aforementioned sidewalks would not substantially change the amount of construction equipment used, the duration of construction activities, the number of construction workers, or the number of haul trucks required.

Alternative 2C – Design Variation C – Wider Culver Boulevard Bridge

Alternative 2C would include a wider Culver Boulevard Bridge over Lincoln Boulevard. Overall, a limited amount of additional air quality emissions would result from the construction of a bridge that is 12-feet wider when compared to air quality emissions that would result from construction of Alternative 2.

Construction emissions were estimated for Alternative 2C by calculating the percentage increase (approximately 10 percent) in bridge area over Alternative 2 with the additional 12 feet in width (the bridge area for Alternative 2 is 1.02 acres, while the bridge area for Alternative 2C is 1.12 acres). From there, the length in construction for Alternative 2C was increased proportionally for the paving phase by 10 percent (approximately 12 days). The number and types of equipment used for Alternative 2C remained unchanged as compared to Alternative 2. Construction-related emissions for Alternative 2C are presented in Table 4-2. The results of the construction emission calculations are included in Appendix C of this AQR. The emissions presented are based on the best information available at the time of calculations. In addition, the emissions represent the peak daily construction emissions that would be generated by construction of Alternative 2C. The model calculates the worst-case scenario for daily construction emissions. Daily construction emissions remain unchanged between Alternative 2C and Alternative 2 because the number and types of construction equipment used would be the same. An increase in the amount of GHG emissions for the additional pavement required to accommodate Alternative 2C and associated increase in length for the paving phase is reflected in the paving phase for Alternative 2C.

Table 4-2. Construction Emissions for Roadways (Alternative 2C).

	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	ROG (lbs/day)	CO_2e (tons/phase)
Land Clearing/ Grubbing	2	1	11	10	1	130
Roadway Excavation	9	4	100	78	9	3,496
Drainage/Utilities/Sub-Grade	5	2	60	46	6	1,848
Paving	1	1	22	12	1	206
Maximum Daily	9	4	100	78	9	NA

Source: California Emissions Estimator Model (CalEEMod) version 2022.1.1.21.

*Note: Daily emissions for the criteria pollutants are similar to daily emissions for Alternative 2 since the CalEEMod calculates maximum daily emissions and emissions for criteria pollutants are typically expressed in pounds per day. Emissions for criteria pollutants remain unchanged since the number and types of construction equipment would remain the same for Alternative 2C. Nevertheless, the increase in duration for Alternative 2C's construction phase would result in increased GHG emissions, which are typically expressed in tons per year or tons per phase.

Alternative 2D – Design Variation D – Provide Bicycle/Pedestrian Ramp from South Side of Culver Boulevard Bridge to West Side of Lincoln Boulevard

Alternative 2D would include construction of an additional pedestrian and bicycle ramp between Culver Loop and SR-1/Lincoln Boulevard. Overall, a limited amount of additional air quality emissions would result from the construction of this additional bicycle/pedestrian ramp when compared to air quality emissions that would result from construction of Alternative 2.

Construction emissions were estimated for Alternative 2D by calculating the percentage increase (approximately 1.1 percent) in Project area over Alternative 2 with the additional 3,572 square feet in area for the bicycle/pedestrian ramp. From there, the length in construction for Alternative 2D was increased proportionally for the paving and grading phases by 1.1 percent (approximately 1 day and 3 days, respectively). The number and type of equipment used for Alternative 2D remained unchanged when compared to Alternative 2. Construction-related emissions for Alternative 2D are presented in Table 4-3. The results of the construction emission calculations are included in Appendix C of this AQR. The emissions presented are based on the best information available at the time of calculations. In addition, the emissions represent the peak daily construction emissions that would be generated by construction of Alternative 2D. The model calculates the worst-case scenario for daily construction emissions. Daily construction emissions remain unchanged between Alternative 2D and Alternative 2 because the number and types of construction equipment used would be the same. An increase in the amount of GHG emissions for the additional pavement and grading/excavation required to implement Alternative 2D and associated increase in length for the paving and grading/excavation phases is reflected in the paving, drainage/utilities/sub-grade, and grading/excavation phases for Alternative 2D, respectively.

Table 4-3. Construction Emissions for Roadways (Alternative 2D).

	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	ROG (lbs/day)	CO_2e (tons/phase)
Land Clearing/ Grubbing	2	1	11	10	1	130
Roadway Excavation	9	4	100	78	9	3,517
Drainage/Utilities/Sub-Grade	5	2	60	46	6	1,858
Paving	1	<1	22	12	1	189
Maximum Daily	9	4	100	78	9	NA

Source: California Emissions Estimator Model (CalEEMod) version 2022.1.1.21.

*Note: Daily emissions for the criteria pollutants are similar to daily emissions for Alternative 2 since the CalEEMod calculates maximum daily emissions and emissions for criteria pollutants are typically expressed in pounds per day. Emissions for criteria pollutants remain unchanged since the number and types of construction equipment would remain the same for Alternative 2D. Nevertheless, the increase in duration for Alternative 2D's construction phase would result in increased GHG emissions, which are typically expressed in tons per year or tons per phase.

4.2.2 Asbestos

As discussed in more detail in Section 2.1.4, asbestos occurs naturally in ultramafic rock (which includes serpentinite). When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Exposure to asbestos can result in health ailments such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing). The California Department of Conservation prepared a map showing areas more likely to contain NOA in California (DOC 2000). The map shows no NOA areas in Los Angeles County. Therefore, the Project Site is not in an area likely to contain NOA.

Prior to the 1970s, Asbestos was used in building materials which include floor tiles, ceiling panels and drywall. Details on required asbestos testing and abatement, if needed, is specified in the Project's Phase I Environmental Site Assessment prepared by Group Delta in August 2019, which includes sampling to determine whether Asbestos Containing Materials (ACM) occur within the bridge structure and recommends abatement if necessary. Specific work practice requirements limiting asbestos emissions from building demolition and renovation activities are set forth in USEPA National Emission Standards for Hazardous Air Pollutants Title 40 Code of Federal Regulations and SCAQMD Rule 1403 (Asbestos Emission From Demolition/Renovation Activities). Asbestos exposure related to bridge demolition activities would not result in an adverse impact under Alternative 2.

4.2.3 Lead

In the Basin, aerially deposited lead (ADL) has been generated almost entirely by the historical combustion of leaded gasoline in automobiles and lead-based paint (LBP). Lead in gasoline was banned in California in 1991. LBP was also banned in 1978 in the United States. Lead is normally not an air quality issue for transportation projects unless the project involves disturbance of soils containing high levels of ADL or modification to structures or roadway surfaces with LBP.

There is the potential for ADL to be present in undisturbed areas of soil within the Project Site originating from historic leaded gasoline emissions. Therefore, an ADL Site Investigation shall be conducted during final design and prior to construction. The ADL Site Investigation report shall classify soil in accordance with hazardous waste criteria and provide recommendations for soil management.

A hazardous materials survey shall be prepared for Alternative 2 during final design to evaluate any structures that may contain ACMs or LBP. This includes Lincoln Boulevard Bridge over Ballona Creek, the Culver Boulevard Bridge over Lincoln Boulevard, and the remnant abutments from a Pacific Electric Railway bridge that are located immediately north of the Culver Bridge overcrossing. All three of these structures would need to be removed as part of Alternative 2. The survey shall be conducted under the oversight of a California Division of Occupational Safety and Health (Cal/OSHA) Certified Asbestos Consultant (CAC) and California Department of Public Health (CDPH) lead Inspector/Assessor and will serve to confirm the presence or absence of ACM and LBP through collection of bulk samples and laboratory analysis. During final design, special provisions shall be prepared based on the results of the hazardous materials survey(s) that direct the Contractor on the management of hazardous building materials during construction. Asbestos removal will be conducted in conformance with Rule 1403 of the SCAQMD and with EPA National Emissions Standards for Hazardous Air Pollutants. Similarly, any LBP requiring removal would be handled and disposed of in accordance with all applicable laws and regulations.

4.3 Long-Term Effects (Operational Emissions)

Operational emissions take into account long-term changes in emissions due to Alternative 2 (excluding the construction phase). The operational emissions analysis compares forecasted emissions for the existing/baseline condition and for Alternative 1 and Alternative 2. As shown in Table 4-4 and detailed in Appendix G, emissions associated with Alternative 2 would result in a reduction in criteria pollutant emissions as compared to Alternative 1. The reduction in emissions that would result from implementation of Alternative 2 is associated with the reduction in VMT and the increase in the average vehicle speed that would result from Alternative 2. As detailed in the TAR (Fehr & Peers, 2023), Alternative 2 would result in a decrease in VMT by approximately 1.74% compared to Alternative 1 conditions in 2030, and a decrease of 4.74% when compared to Alternative 1 in 2050. These reductions in VMT would result from the elimination of the existing southbound bottleneck along SR-1/Lincoln Boulevard, which in the baseline condition causes motorists to use alternate routes that requires travelling a greater distance but are more time efficient. Alternative 2 would result in a net reduction in emissions when compared to Alternative 1.

Table 4-4. Summary of Comparative Emissions Analysis

Scenario/ Analysis Year	CO (lbs/day)	NO_x (surrogate for NO_2) (lbs/day)	ROG (lbs/day)	PM_{10}[1] (lbs/day)	$PM_{2.5}$[1] (lbs/day)
Baseline (Existing Conditions) 2019	2,066	257	52	426	111
Alternative 1 Opening Year (2030)	1,204	96	23	447	115
Alternative 2 Opening Year (2030)	1,126	87	20	439	113
Difference Between Opening Year (2030) Alternative Two and Alternative 1	-78.0	-9.0	-3.0	-8	-2
Alternative 1 Alternative Design Year (2050)	903	57	12	494	126
Alternative 2 Design Year (2050)	860	54	12	470	120
Difference Between Design Year (2050) Alternative Two and Alternative 1	-43	-3	0	-24	-6

Source: California Air Resources Board (CARB) EMFAC2021

Note:

[1] PM10 and PM2.5 emissions include emissions associated with vehicle exhaust, tirewear, brakewear, and road dust.

4.3.1 CO Analysis

The CO Protocol was developed for project-level conformity (hot-spot) analysis and was approved for use by the USEPA in 1997. It provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of the CO standards. Although the protocol was designed to address federal standards, it has been used by the SCAQMD in CEQA analysis guidance documents and should also be valid for California standards because the key criterion (8-hour concentration) is the same: 9 ppm for the federal and state standard.

In California, the procedures of the local analysis for CO are modified pursuant to 40 CFR 93.123(a)(1) of the Transportation Conformity Rule. Sub-paragraph (a)(1) states the following:

> CO hot-spot analysis. (1) The demonstrations required by 40 CFR 93.116 ("Localized CO and PM_{10} violations") must be based on a quantitative analysis using the applicable air quality models, data bases, and other requirements specified in 40 CFR part 51, Appendix W (Guideline on Air Quality Models). These procedures shall be used in the following cases, unless different procedures developed through the interagency consultation process required in 40 CFR 93.105 and approved by the EPA Regional Administrator are used.

The sub-paragraph allows for an alternative identified in the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) developed by the Institute of Transportation Studies at the University of California, Davis (UC Davis). The CO Protocol outlines the procedure for performing a CO analysis, which was approved by David P. Howekamp, Director of the Air Division of the USEPA Region IX, in October 1997. The USEPA deemed the CO Protocol as an acceptable option to the mandated quantitative analysis. The CO Protocol incorporates 40 CFR 93.115 through 93.117, and 40 CFR 93.126 through 93.128 into its rules and procedures.

The scope required for CO local analysis is summarized in the CO Protocol, Section 3 (Determination of Project Requirements). In Section 3, the CO Protocol provides two requirement decision flowcharts that are designed to assist the project sponsor(s) in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 of the CO Protocol applies to new projects and was used in this local analysis. They are included in Appendix D. Figure 1 should be used to determine the conformity requirements that apply to new projects. Each step of the flow chart is covered in detail in the following subsections. In addition, that Figure is presented below.

In addition, projects that have already demonstrated compliance with all federal and state air quality requirements may not require a new air quality analysis when the project is advanced. However, consideration of alternatives in the NEPA/CEQA process or other project development studies may result in a project with design concept and scope significantly different from that in the RTP or TIP. Figure 2 of the CO Protocol should be used to determine if the air quality impacts of the project must be re-examined. This Figure is shown on the following page.

<u>3.1.1 Project exempt from all emissions analyses?</u> **No.** The Project is not exempt from all emissions analyses. Even though the Project qualifies for an exemption based on the parameters outlined in Table 1 of Section 2.14 of the State of California CO Protocol, Alternative 2 would worsen the LOS of one intersection. In addition, the Project would involve the addition of a new turning lane.

<u>3.1.2 Project exempt from regional emissions analyses?</u> **No.** The Project is not exempt from regional emissions analyses based on the parameters outlined in Table 2 of Section 2.15 of the State of California CO Protocol as Alternative 2 does not involve:

- Intersection channelization
- Intersection signalization at individual intersections
- Interchange reconfiguration
- Changes in vertical and horizontal alignment
- Truck size and weight inspection stations
- Bus terminals and transfer points

<u>3.1.3 Project locally defined as regionally significant?</u> **No.** As stated in Section 93.101, Chapter 1, Title 40 of the United States Code of Federal Regulations, a regionally significant project is a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Alternative 2 consists of improvements made to Lincoln Boulevard and Culver Boulevard. Both SR-1/Lincoln Boulevard and Culver Boulevard are major arterial roadways that provide regional access to the Project Site. Therefore, improvements made to these roadways would be regionally significant.

3.1.4 Project in a federal attainment area? **No.** The Project Site is located within an area classified by the Federal Government as a CO attainment area. Nevertheless, the Southern California Air Basin (SCAB) is in nonattainment for O_3, and PM2.5. Since the Project Site is located in a nonattainment area, the Project analysis must proceed to Step 3.1.5 of the Figure 1 Flowchart

3.1.5 Is there a currently conforming RTP and TIP? **Yes.** Most recently, SCAG received approval of the transportation conformity determination for the 2020-2045 RTP/SCS (Connect SoCal) Amendment #3 and the 2023 FTIP Consistency Amendment #23-03 from the FHWA/FTA on June 9, 2023.

3.1.6 Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP? **Yes.** The Project is listed in the 2020 SCAG RTP/SCS as a fiscally constrained project, which means that the Project was not modeled for air quality conformity purposes. However, the Project is listed in the 2024 RTP/SCS, known as the Connect SoCal 2024 Plan, as an unconstrained project, which was adopted by SCAG in April 2024. Therefore, once the regional conformity determination is approved by FHWA/FTA for the 2024 RTP/SCS, the Project would be exempt from regional conformity analysis under 40 CFR 93.126.

3.1.7. Has project design concept and/or scope changed significantly from that in regional analysis? **No.** The design concept and scope of Alternative 2 has not changed since the approval of SCAG's 2024 RTP/SCS.

3.1.9. Examine local impacts. According to Figure 1 of the CO Protocol, if a Project is located within an attainment area, the analysis must consider further analysis based on the guidelines provided in Section 4 of the CO Protocol. Below is a step-by-step explanation of the flow chart. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the Project. The flowchart begins with Section 4.1.1:

Level 1a. Is the project in a CO non-attainment area? **No**. The Project Site is within the South Coast Air Basin, which has been designated as an attainment/maintenance area for the federal CO standards effective June 11, 2007.

Level 1b. Was the area redesignated as "attainment" after the 1990 Clean Air Act? **Yes.** The Project Site is located in the South Coast Air Basin, under the jurisdiction of the SCAQMD, and was classified nonattainment after the 1990 FCAA. The South Coast Air Basin has been granted federal redesignation to attainment/maintenance effective June 11, 2007.

Level 1c. Has "continued attainment" been verified with local Air District, if appropriate? **Yes**. As stated above, the South Coast Air Basin has been recently redesignated as an attainment/maintenance area for the federal CO standards effective June 11, 2007. Additionally, Table 2-2 shows that the Southwest Coastal LA County monitoring station has not recorded an exceedance for CO in the past three years.

Level 7a. Does the project worsen air quality? **Yes**. Section 4.7.1 of the CO Protocol provides criteria for determining whether a Project is likely to worsen air quality. These criteria include increases in vehicles operating in cold start mode, increases in traffic volumes greater than five percent, and a worsening of traffic flow. Alternative 2 would not increase the percentage of vehicles operating in cold start mode. Alternative 2 would not substantially increase traffic volumes nor would Alternative 2 substantially increase emissions in the Project Site or vicinity. However, for the intersection of Lincoln Boulevard/Jefferson Boulevard that functions at LOS E or F in existing conditions, Alternative 2 would create some additional minor delays. However, Alternative 2 would improve the LOS at the remaining analyzed intersections and would consequently reduce vehicle idling and travel exhaust emissions at these intersections.

Level 7b. Is the project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration? **No**. Section 4.7.2 of the CO Protocol provides criteria for determining whether a Project is likely to result in higher CO concentrations than those existing within the region at the time of attainment demonstration. Projects potentially creating CO concentrations higher than those existing within the region at the time of attainment demonstration should proceed to Section 4.7.3; other projects should be deemed satisfactory, and no further analysis is needed. Project sponsors may use the following criteria to determine the potential existence of higher CO concentrations in the region. Select one of the worst locations in the region having a similar configuration and compare it to the "build" scenario of the location under study according to the following conditions:

a. The receptors at the location under study are at the same distance or farther from the traveled roadway than the receptors at the location where attainment has been demonstrated.

Caltrans has published the Transportation Project-Level Carbon Monoxide Protocol which established a policy that receptors for 8-hour analyses should be placed at 3 meters for the minimum distance to the nearest receptor. The 3-meter receptor distance reflects the concentration in the "mixing zone" above and surrounding the traveled way and is the closest distance for which modeled concentrations are considered valid.

b. The roadway geometry of the two locations is not significantly different. An example of a significant difference would be a larger number of lanes at the location under study compared to the location where attainment has been demonstrated.

The intersection of Wilshire Boulevard and Veteran Avenue in the Westwood community of the City of Los Angeles was selected for comparison since this intersection has a similar number of lanes as the intersections analyzed in this Air Quality Report, with the exception of the intersection of Lincoln Boulevard and Jefferson Avenue, which has one more additional lane along Lincoln Boulevard. Nevertheless, the additional lane present along Lincoln Boulevard does not represent a significant difference compared to the attainment demonstration intersection of Wilshire Boulevard and Veteran Avenue.

c. Expected worst-case meteorology at the location under study is the same or better than the worst-case meteorology at the location where attainment has been demonstrated. Relevant meteorological variables include: wind speed, wind direction, temperature, and stability class.

The intersections selected for the attainment demonstration had the highest CO concentrations in the air basin and are located at different locations with different meteorological conditions. CO hotspots are most likely to occur during low winds which allows for CO concentrations to accumulate. Meteorological conditions for the Project Site and vicinity are shown in Figure 3-1, which shows that calms winds occur for 1% of the time while low wind speeds occur 4% of the time. Due to the Project Site being located within 2 miles of the ocean, 96% of the time wind speeds would be 2.1-3.5 meters per second (4.7-8 mph). These wind speeds are likely to be higher than those occurring for intersections analyzed under the attainment demonstration due to those intersections being away from the coast and in the presence of buildings which cause urban surface roughness and decreased windspeed.

d. Traffic lane volumes at the location under study are the same or lower than those at the location where attainment has been demonstrated.

Traffic volumes for the intersections studied in this AQR and the TAR would be lower than those at the intersection of Wilshire Boulevard and Veteran Avenue which analyzed traffic volumes of 100,000 average daily trips (ADT). Counts for the segment of Wilshire Boulevard west of Veteran Avenue were collected by LADOT on February 9th, 2012. According to the counts that were collected by LADOT, the westbound segment of Wilshire Boulevard west of Veteran Avenue handled a total of 8,733 trips during the AM peak hour, or approximately 2,183 trips per lane, while the eastbound segment of Wilshire Boulevard handled a total of 13,057 trips during the AM peak hour, or approximately 2,611 trips per lane. The southbound segment of Lincoln Boulevard south of Culver Boulevard is projected to handle a total of 6,190 trips during the AM peak hour under Opening Year 2030 with Project conditions, which equates to approximately 2,063 trips per lane. These traffic volumes would be less than the 2,611 trips per lane peak hour trips analyzed for the attainment demonstration project. Similarly, in the year 2050 the southbound segment of Lincoln Boulevard south of Culver Boulevard is projected to handle a total of 7,070 trips which equates to 2,356 trips per lane, which would also be less than the 2,611 trips per lane peak hour trips that were analyzed for the attainment demonstration project.

e. Percentages of vehicles operating in cold start mode at the location under study are the same or lower than those at the location where attainment has been demonstrated.

The percentage of vehicles operating in cold start mode are expected to be less due to the incorporation of electric and hydrogen fueled vehicles into the vehicle fleet per the requirements established under CARB’s Advanced Clean Cars II Rule which were not accounted for during the attainment demonstration.

f. Percentage of Heavy-Duty Gas Trucks at the location under study is the same or lower than the percentage at the location where attainment has been demonstrated.

The percentage of Heavy-Duty Gas Trucks would be less would occur during the attainment demonstration due to the adoption of the Advanced Clean Truck regulation which requires that half of all heavy-duty truck sales in California be fully electric by 2035.

g. For projects involving intersections, average delay and queue length for each approach is the same or smaller for the intersection under study compared to those found in the intersection where attainment has been demonstrated.

The intersection selected for analysis (Wilshire Boulevard and Veteran Avenue) in the attainment demonstration is among the worst within the air basin and which is described in the attainment demonstration as "The most congested intersection in Los Angeles County. The average daily traffic volume is about 100,000 vehicles/day." As such, the attainment demonstration evaluated an intersection in the South Coast Air Basin with the worst LOS and measured CO concentrations. Alternative 2 would only worsen LOS at one intersection from LOS E to F, the intersection of Lincoln Boulevard and Jefferson Boulevard. The average peak hour delay would for this intersection worsen to 86.3 seconds due to Alternative 2 in the year 2050. This intersection is marginally above the criteria for LOS F of 80 seconds per vehicle. As such, the LOS at the intersection analyzed for the attainment demonstration is worse than that of Alternative 2.

h. Background concentration at the location under study is the same or lower than the background concentration at the location where attainment has been demonstrated.

CO concentrations for the locations under study would be substantially less as those that occurred at the location where attainment has been demonstrated (Wilshire Boulevard and Veteran Avenue). CO concentrations for the location under study are below federal and state standards (refer to Table 3-2 - Air Quality Concentrations for the Past 4 Years Measured at Southwest Coastal LA County Monitoring Station). The attainment demonstration shows 1 hour CO concentrations of between 8.5 ppm at all analyzed intersections in the 2005 analysis year. This is substantially below the CAAQS of 20 ppm for 1 hour CO concentrations. 8-hour CO concentrations for the year 2005 were predicted to be 7.8 ppm which is also below the 9 ppm CAAQS. As shown previously in Table 3-2, currently monitored CO concentrations are between 1.6-1.8 ppm for 1-hour concentrations and 1.3 ppm 8-hour concentrations. 1-hour concentrations would have to increase more than tenfold to exceed the 20 ppm 1-hour CAAQS and sevenfold for the 8-hour 9 ppm CAAQS. Cessation of CO monitoring is occurring at increasing number of monitoring stations. The attainment demonstration documents a continued decrease in CO concentrations over time. Two decades have passed since the attainment demonstration and CO concentrations continue to decline due to CARB's regulatory activities related to phase-in of zero emission vehicles. As such, current CO concentrations are less than those during the attainment demonstration. Since all of the above conditions indicate that Alternative 2 would not result in higher CO concentrations than those existing within the region at the time of attainment demonstration and attainment of the ambient air quality standards were demonstrated in 2005, there is no reason to expect higher concentrations at the location under study. Project satisfactory, no further analysis is needed.

4.3.2 PM Analysis

Emissions Analysis

PM emissions were estimated for the existing baseline condition, for Alternative 1, and for Alternative 2 for the Opening Year (2030) and Design Year (2050) scenarios. As shown previously in

Table 4-1, Alternative 2 would result in regional contributions to PM10 and PM2.5 that are less than Alternative 1. This is due to reductions in VMT that would result from implementation of Alternative 2. Because Alternative 2 would result in less PM10 and PM2.5 emissions as compared to Alternative 1, Alternative 2 is considered to result in minimal effects related to the contribution of PM emissions on a regional level.

Hot-Spot Analysis

In October 2021, the USEPA released an updated version of Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The USEPA originally released the quantitative guidance in December 2010. The October 2021version reflects MOVES and its subsequent minor revisions to revise design value calculations to be more consistent with other USEPA programs, and to reflect Guidance implementation and experience in the field. Note that EMFAC, not MOVES, should be used for project hot-spot analysis in California. The Guidance requires a hot-spot analysis to be completed for projects of local air quality concern. EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that would be covered by 40 CFR 93.123(b)(1) and require a PM2.5 or PM10 hot-spot analysis (71 FR 12491).[1]

Some examples of projects of local air quality concern that would be covered by 40 CFR 93.123(b)(1)(i) and (ii) are:

- A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 annual average daily traffic (AADT) and 8% or more of such AADT is diesel truck traffic;
- New exit ramps and other highway facility improvements to connect a highway or expressway to a major freight, bus, or intermodal terminal;
- Expansion of an existing highway or other facility that affects a congested intersection (operated at Level-of-Service D, E, or F) that has a significant increase in the number of diesel trucks; and,
- Similar highway projects that involve a significant increase in the number of diesel transit buses and/or diesel trucks.

Some examples of projects of local air quality concern that would be covered by 40 CFR 93.123(b)(1)(iii) and (iv) are:

- A major new bus or intermodal terminal that is considered to be a "regionally significant project" under 40 CFR 93.101[2]; and,
- An existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses increases by 50% or more, as measured by bus arrivals.

A project of local air quality concern covered under 40 CFR 93.123(b)(1)(v) could be any of the above listed project examples.

The March 2006 final rule also provided examples of projects that would not be covered by 40 CFR 93.123(b)(1) and would not require a PM2.5 or PM10 hot-spot analysis (71 FR 12491). The following are examples of projects that are not a local air quality concern under 40 CFR 93.123(b)(1)(i) and (ii):

- Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at Level-of-Service D, E, or F;
- An intersection channelization project or interchange configuration project that involves either turn lanes or slots, or lanes or movements that are physically separated. These kinds of projects improve freeway operations by smoothing traffic flow and vehicle speeds by improving weave and merge operations, which would not be expected to create or worsen PM NAAQS violations; and,
- Intersection channelization projects, traffic circles or roundabouts, intersection signalization projects at individual intersections, and interchange reconfiguration projects that are designed to improve traffic flow and vehicle speeds, and do not involve any increases in idling and capacity.

Examples of projects that are not a local air quality concern under 40 CFR 93.123(b)(1)(iii) and (iv) would be:

- A new or expanded bus terminal that is serviced by non-diesel vehicles (e.g., compressed natural gas) or hybrid-electric vehicles; and,
- A 50% increase in daily arrivals at a small terminal (e.g., a facility with 10 buses in the peak hour).

As described above in Section 3.4.3, the Project was presented at a TCWG meeting. During the interagency consultation the Project was not classified as a POAQC and did not require a quantitative PM hot-spot analysis as described in 40 CFR 93.123(b)(1)(i) because Alternative 2 is not covered by any of the categories defined above. The closest category that Alternative 2 can be considered under is "Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at Level-of-Service D, E, or F". Alternative 2 does involve a worsening in LOS and does not involve roadways with a significant number of diesel vehicles. Truck trips comprise 2% of traffic along SR-1/Lincoln Boulevard and 0.6% on Culver Boulevard. In addition, Alternative 2 would result in less exhaust emissions due to an overall reduction In VMT within the Project Site. As such, Alternative 2 would not result in a PM hot-spot.

4.3.3 NO_2 Analysis

NOx emissions were estimated for the existing baseline condition, Alternative 1, and Alternative 2 for the Opening Year (2030) and Design Year (2050) scenarios. As shown previously in Table 4-1, Alternative 2 would result in regional contributions of NO_x that are less than Alternative 1. This is due to reductions in VMT that would result from implementation of Alternative 2. Because Alternative 2 would result in fewer NOx emissions than Alternative 1, Alternative 2 would result in minimal effects related to the contribution of NO_x emissions on a regional level.

4.3.4 Mobile Source Air Toxics Analysis

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.cfm.

FHWA released updated guidance in January 18, 2023 (FHWA, 2023) for determining when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA identified three levels of analysis:

- No analysis for projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; and
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Projects with no impacts generally include those that a) qualify as a categorical exclusion under 23 CFR 771.117) qualify as exempt under the FCAA conformity rule under 40 CFR 93.126, or c) are not exempt, but have no meaningful impacts on traffic volumes or vehicle mix.

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity or creating a facility that is likely to substantially increase emissions. The large majority of projects fall into this category.

Projects with high potential MSAT effects include those that:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of Diesel Particulate Matter in a single location; involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Are proposed to be located in proximity to populated areas.

The amount of mobile source air toxics (MSAT) emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for Alternative 2 is slightly lower than that for Alternative 1, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. Higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. However, there is an overall emissions decrease associated with a reduction in areawide VMT which is also accompanied by lower MSAT emission rates due to increased speeds. According to the Environmental Protection Agency's (EPA) MOVES3 model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under Alternative 2 would be reduced by approximately 1.7 percent in the opening year 2030 and by 4.7% in the design year of 2050, it is expected there would be slight reduction in overall MSAT emissions for Alternative 2 versus Alternative 1. Emissions will also likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 76 percent between 2020 and 2060 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, January 18, 2023). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

4.3.5 Greenhouse Gas Emissions Analysis

A greenhouse gas (GHG) emissions analysis was conducted using the latest approved version of the EMFAC2021 model. While EMFAC2021 has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its emission rates are based on tailpipe emission test data and have limitations. The EMFAC2021 -based CO_2e emissions estimates are used for comparison of alternatives. However, the model does not account for factors such as the vehicle operation mode (e.g., rate of acceleration) and the vehicles' aerodynamics, which would influence CO_2 e emissions. ARB's GHG Inventory follows the IPCC guideline by assuming complete fuel combustion, while still using EMFAC data to calculate CH_4 and N_2O emissions.

Traffic activity data were estimated for each of different periods of a representative day in the baseline, Opening Year (2030), and Design Year (2050). Table 4-5 provides a summary of the GHG emissions for the Baseline, Opening Year Alternative 1 and Alternative 2 and the Design Year Alternative 1 and Alternative 2. As shown in Table 4-5, GHG emissions would be less under Alternative 2 than Alternative 1 for both the Opening and Design Year. This is primarily due to the reduction in VMT and increase in the average vehicle speed associated with the development of Alternative 2. This reduction in VMT would result from the elimination of the existing southbound traffic bottleneck on the SR-1/Lincoln Boulevard Bridge over Ballona Creek, which causes vehicles to use alternate routes that require travelling a greater distance but which are more time efficient.

Table 4-5. Modeled Annual CO_2e Emissions and Vehicle Miles Traveled, by Alternative.

Alternative	CO_2e Emissions (Metric Tons/Year)	Annual Vehicle Miles Traveled[1]
Existing/Baseline Year 2019	74,444	206,073,931
Opening Year (2030)		

Alternative 1	68,358	219,488,604
Alternative 2	62,678	215,677,850
Opening Year Difference Between Alternative 2 and Alternative 1	-5,680	-3,810,754
Design Year (2050)		
Alternative 1	59,260	243,053,027
Alternative 2	56,450	231,527,422
Design Year Difference Between Alternative 2 and Alternative 1	-2,810	-11,525,605
CO_2e = carbon dioxide equivalent Source: EMFAC2021 1 Annual VMT values derived from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008).		

On June 2021 Caltrans published the GHG Reduction Measures Toolbox for Internal Use in Caltrans Project Development. This document provides tools for consideration of greenhouse gas reduction measures and climate change adaptation measures that can be used at the project level (TPSIS, PID and PA&ED) and demonstrate that climate change has been considered in project development. Additionally, the lists of measures may be used as mitigation for CEQA significant impacts related to GHG emissions. The list of reduction measures should be reviewed, and all applicable measures shall be incorporated into the proposed project to ensure consistency with the direction outlined in the April 2019 version of the Caltrans Interim Guidance: Determining CEQA Significance for Greenhouse Gas Emissions for Projects on the State Highway System (Caltrans 2021).

Measures to reduce construction related GHG emissions must be included in all projects. Not all listed measures will be feasible or relevant to every project, but all feasible measures must be included for every project. Examples of general construction emissions reduction measures that can be incorporated are listed in Table 1 of the Caltrans GHG Reduction Measures Toolbox, Project-Level Measures to Reduce GHG Emissions Related to Construction Activities of the Caltrans GHG Reduction Measures Toolbox document. Some of these measures are best considered early in the project development process and should be discussed with the project development team (PDT) and the design engineer.

Operational emissions refer to petroleum use by vehicles on the state highway system. Measures to address operational emissions are best considered in the planning or early development of the proposed project. If GHG emissions have been determined to have a CEQA significant impact, additional measures must be incorporated. At the early planning stages capacity-increasing projects should be assumed to increase GHG emissions and should plan for additional minimization or mitigation measures. Table 2, Project-Level Measures to Reduce Operational GHG Emissions, of the Caltrans GHG Reduction Measures Toolbox provides a list of potential measures.

Table 3 of the Caltrans GHG Reduction Measures Toolbox provides project-level measures to address adaptation to changes in sea level rise, precipitation and flooding, wildfire, and temperature that will pose hazards to transportation projects and assets.

Measures selected from the aforementioned tables are identified in Section 5 – Minimization Measures. These measures have been reviewed and accepted by a committee of Headquarters Project Development staff to ensure applicability and ability to implement for Caltrans projects.

4.4 Cumulative/Regional/Indirect Effects

Construction and operation of cumulative projects would further degrade the local air quality, as well as the air quality of the Basin. Air quality would be temporarily degraded during construction. The Project Site is located within an area that is generally either fully developed or preserved open space. As such, no major construction activities related to cumulative projects are anticipated to occur in the immediate vicinity concurrently with the construction of Alternative 2, with one major exception. Adjacent to the Project Site within the Ballona Wetlands Ecological Reserve, the California Department of Fish and Wildlife, in partnership with other agencies, has proposed an ecological restoration project known as the Ballona Wetlands Restoration Project. The Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the Ballona Wetlands Restoration Project was circulated in September 2017. CDFW’s restoration project proposes to restore wetlands, other aquatic resources, and adjacent habitats within the reserve. To varying extents, each of the restoration alternatives analyzed in CDFW’s restoration project’s Draft EIR would enhance and create native coastal wetland, other aquatic resources, and upland habitats; improve flood and storm water management in the surrounding area; provide public access and visitor amenities; and modify infrastructure and utilities within the reserve to support the restoration efforts. Recent development trends in the Project Site and vicinity have primarily involved the upgrade and rehabilitation of existing infrastructure, development of infill sites on vacant parcels, and the redevelopment of several sites for residential and mixed-use developments at greater densities than their prior use. There are also several modernization projects underway and in the planning phases at Los Angeles International Airport (LAX) approximately 1.6-miles south of the Project Site, as well as office developments in Playa Vista that are under construction or have recently opened.

For the operations phase of Alternative 2, the greatest cumulative impact on the quality of regional air would be the incremental addition of pollutants from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. It should be noted that Alternative 2 consists of multimodal transportation improvements that would remove a traffic bottleneck and would reduce overall VMT. Alternative 2 would not result in any direct trip generation. With respect to emissions that may contribute to exceeding state and federal standards, a CO and particulate matter screening analysis was performed. The results of this analysis illustrate that localized levels would not exceed published air quality standards, and therefore represent a minimal cumulative effect. Implementation of Alternative 2 would improve traffic flow and congestion within the area proximate to the Project Site. The reduction in traffic congestion that would result from Alternative 2 would cause a reduction in air pollution when compared to Alternative 1. As such, Alternative 2 would not contribute substantially to cumulative impacts related to construction and operations phase emissions.

5. Minimization Measures

Caltrans standard specifications and special provisions will be included in the contractor's contract language, and will be implemented during Project design and construction, including but not limited to those listed below. These standard specifications and special provisions are considered components of Alternative 2 and standard project design features.

- Division II – General Construction – 10 – General
- Division II – General Construction – 13 – Water Pollution Control
- Division II – General Construction – 14 – Environmental Stewardship
- Division III – Earthwork and Landscape – 18 – Dust Palliatives
- Division III – Earthwork and Landscape – 19 – Earthwork
- Division III – Earthwork and Landscape – 21 – Erosion Control

Additional avoidance, minimization, and mitigation measures which go above and beyond the standard specifications and special provisions are described below in Section 5.1.

5.1 Short-Term (Construction)

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control will reduce any air quality impacts resulting from construction activities:

AQ-1 Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion at the right-of-way line as per SCAQMD Rule 403.

AQ-2 Soil binder will be spread on any unpaved roads used for construction purposes, and on all Project construction parking areas.

AQ-3 Trucks will be washed as they leave the Project Site as necessary to control fugitive dust emissions.

AQ-4 Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.

AQ-5 As part of review of design plans and specifications, Caltrans would need to coordinate with the SCAQMD for approval of a nonstandard special provision (NSSP) 14-9.05 to mandate contractors' compliance with the applicable air district rules including measures related to dust control.

AQ-6 Equipment and materials storage sites will be located as far away from residential uses and the Ballona Creek Bike Path as practicable. Caltrans will ensure that the construction contractor adhere to the temporary work areas analyzed in the Project's Environmental Impact Report/Environmental Assessment (EIR/EA) and its supporting technical studies.

AQ-7 Construction areas will be kept clean and orderly.

AQ-8 ESA (Environmentally Sensitive Area)-like areas or their equivalent will be established within 500 feet of sensitive air receptors near the Project Site. Within these areas, construction activities involving extended idling and maintenance of diesel equipment and vehicles will be prohibited to the extent feasible.

AQ-9 Track-out reduction measures will be used, such as gravel pads at Project access points to minimize dust and mud deposits on roads affected by construction traffic.

AQ-10 All transported loads of soils and wet materials generated during Project construction will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize the emission of dust (particulate matter) during transportation.

AQ-11 Dust and mud that are deposited on paved, public roads due to construction activities will be promptly and regularly removed during Project construction to minimize emission of particulate matter.

AQ-12 To the extent feasible, Project construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles traveling along local roads during peak travel times.

AQ-13 Mulch will be installed, or vegetation will be planted as soon as practical after grading to reduce windblown particulate in the area. Certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues; therefore, controls such as dampened straw will be used as needed.

AQ-14 Under the California Air Resources Board's (ARB) idling emissions rule, 2008 and newer model year heavy-duty diesel engines used for the Project will be equipped with a nonprogrammable engine shutdown system that automatically shuts down the engine after 5 minutes of idling, or optionally meet a stringent nitrogen oxides (NOX) idling emission standard. This rule applies to diesel-fueled commercial motor vehicles that operate in California with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways.

AQ-15 To the extent feasible, all construction signal/message boards used for the Project shall be solar powered.

AQ-16 To the extent feasible, electricity for Project construction shall be obtained from power poles rather than temporary diesel or gasoline generators.

AQ-17 To the extent feasible, the use of recycled materials shall be maximized.

AQ-18 To the extent feasible, construction and demolition waste shall be reused or recycled in order to reduce construction waste and reduce consumption of raw materials as well as reducing waste and transportation to area landfills.

AQ-19 To the extent feasible, the use of potable water during Project consumption shall be reduced and replaced with recycled water.

5.2 Long-Term (Operational)

No adverse operational impacts were identified to result from Project; therefore, no avoidance, minimization, and/or mitigation measures are required.

6. Conclusions

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) and other pollutants generated by excavation, grading, hauling, demolition, and various other activities related to construction. All construction vehicles and equipment would be required to be equipped with the State-mandated emission control devices pursuant to State emission regulations and standard construction practices. Caltrans Standard Specifications for Construction (Section 10 and 18 [Dust Palliatives] and Section 39-3.06 [Asphalt Concrete Plants]) would also be adhered to by the construction contractor. After construction is complete, all construction related air quality impacts would cease.

For the operations phase of Alternative 2, a regional operational emissions analysis was prepared based on vehicle miles traveled and vehicle speeds. Regional emissions would be less than baseline conditions in the 2030 Opening Year and 2050 Design Year. This decrease is due to the reduction in VMT as well as higher vehicle speeds with Alternative 2. Regional operational emissions would result in a beneficial impact with implementation of Alternative 2.

Cumulative emissions associated with the construction phase of Alternative 2 would not result in a cumulatively considerable level of PM10 and PM2.5 emissions in combination with other related projects.

The operations phase of Alternative 2 would result in a net reduction in emissions and consequently would not result in cumulatively considerable emissions.

Particulate matter and carbon monoxide hotspot analyses were completed as required by the Transportation Conformity Rule. The Project was reviewed in 2019 at the TCWG meeting, during which the TCWG found that the Project was not a POAQC. In 2024, the TCWG reaffirmed that the Project was not a POAQC. Therefore, a quantitative PM Hot Spot analysis is not required for the Project. A carbon monoxide analysis was completed for the Project in accordance with Caltrans guidance and indicated that the Project would not generate a carbon monoxide hotspot. A qualitative diesel particulate matter assessment was completed for the Project. It was determined that the development of the Project would result in less PM within the Project vicinity due to a reduction in VMT and improvement in emission rates resulting from higher average vehicle speeds. A MSAT analysis was completed for the Project. The analysis determined that Alternative 2 would have lower emissions compared to Alternative 1 for the Opening and Design Years analyzed.

Asbestos may occur in the two bridges to be demolished and replaced by Alternative 2. Details on required asbestos testing and abatement, if needed, is specified in the Phase I Environmental Site Assessment prepared by Group Delta in August 2019, which includes sampling to determine whether ACM occur within the bridge structure and recommends abatement if necessary. Specific work practice requirements limiting asbestos emissions from building demolition and renovation activities are set forth in USEPA National Emission Standards for Hazardous Air Pollutants Title 40 Code of Federal Regulations and SCAQMD Rule 1403 (Asbestos Emission From Demolition/Renovation

Activities). Asbestos exposure related to bridge demolition activities would not result in an adverse impact with Alternative 2.

A greenhouse gas analysis was completed pursuant to Caltrans guidelines. Future greenhouse gas emissions (2030 and 2050) that would result from implementation of Alternative 2 would be less than with Alternative 1. Air quality modeling indicates that technological changes in automobile engines will result in less greenhouse gas emissions in the future. Automobiles will also generate fewer greenhouse gas emissions under higher speeds. Alternative 2 would decrease congestion and increase speeds. Therefore, Alternative 2 would result in fewer greenhouse gas emissions when compared to Alternative 1 in 2030 and 2050. Regional and project-level transportation conformity analyses were completed for Alternative 2. On a regional level, Alternative 2 would be consistent with the SCAG's RTP/SCS and FTIP. On a local level, Alternative 2 would not cause new violations or increase the frequency or severity of any existing violations or delay timely attainment of the National Ambient Air Quality Standards. Also, Alternative 2 would be consistent with transportation conformity requirements.

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Appendix A

RTP/SCS and FTIP Listings for the Project and FHWA Conformity Determination

The Project is listed as FTIP ID LA0G1714 in the Final Adopted 2023 Federal Transportation Improvement Program within the Los Angeles County Local Highway Projects. The scope and limits of improvements for Alternative 2 are the same as what is described in the FTIP project listing.

FTIP ID	LEAD AGENCY	COUNTY	CONFORM CATEGORY	AIR BASIN	PROJECT COST	RTP ID	SYSTEM
LA0G1714	Los Angeles A, City of	Los Angeles	EXEMPT - 93.126	SCAB	$1,491	7120001	Local

PRIMARY PROGRAM CODE	PROJECT LIMITS	MODELING	FTIP AMENDMENT
STUDY - PROJECT STUDY	From Jefferson Blvd to Fiji Way		23-00

DESCRIPTION

Improve circulation and safety along Lincoln Bl by constructing an additional southbound lane approximately 1,800 ft, installing sidewalks and bicycle lanes, and other improvements along the 0.61 mile segment of Lincoln Bl between Jefferson Bl and Fiji Wy. In each direction, replace Lincoln Bl Bridge and Culver Bl Bridge to include three 12 ft travel lanes, 21 ft center median, and 2 ft lane buffers, 8 ft shoulders including 6 ft bicycle lanes, 6 ft sidewalks, and 1-ft edge barriers.

PHASE	FUND SOURCE	PRIOR	22/23	23/24	24/25	25/26	26/27	27/28	FUTURE	TOTAL
PE	CITY - City Funds	$0	$1,491	$0	$0	$0	$0	$0	$0	$1,491
TOTAL	TOTAL	$0	$1,491	$0	$0	$0	$0	$0	$0	$1,491

The Project is listed as three separate unconstrained projects on the Draft Project List Technical Report that was prepared for Connect SoCal: The 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments (SCAG).

Listing from page 443 of the technical report.

LOS ANGELES	LOCAL HIGHWAY	S1160154		LINCOLN BLVD	JEFFERSON BLVD	FIJI WAY	LINCOLN BL - PROPOSED CYCLE TRACK: LINCOLN BL FROM JEFFERSON BL TO FIJI WAY. THIS PROJECT WOULD BE A FEATURE OF THE RECONSTRUCTION OF THE LINCOLN BL BALLONA CREEK BRIDGE PROJECT PROPOSED AS AN ELEMENT OF THE WESTSIDE MOBILITY PLAN.

Listing from page 445 of the technical report.

LOS ANGELES	LOCAL HIGHWAY	S1160178					PARTNERING WITH CALTRANS AND LA COUNTY, IMPROVE LINCOLN BL BETWEEN JEFFERSON BL AND FIJI WAY, INCL. REMOVING EXISTING BOTTLENECK BY REPLACING EXISTING BRIDGE TO PROVIDE A WIDER BRIDGE WITH AN ADDITIONAL SB LANE, TRANSIT LANES, AND ON-STREET BIKE LANES.	LOS ANGELES

Listing from page 447 of the technical report.

LOS ANGELES	LOCAL HIGHWAY	S1120157		LINCOLN BOULEVARD	JEFFERSON BLVD	FIJI WAY	PARTNERING WITH CALTRANS & LA COUNTY, IMPROVE LINCOLN BLVD BETWEEN JEFFERSON BLVD & FIJI WAY INCLUDING REMOVING THE EXISTING BOTTLENECK BY REPLACING/WIDENING THE EXISTING BRIDGE TO PROVIDE AN ADD'L LANE IN EACH DIRECTION & ON-STREET BIKE LANES	LOS ANGELES CITY

U.S. Department of Transportation
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April 27, 2024

In Reply Refer To:
HDA-CA

Mr. Kome Ajise, Executive Director
Southern California Association of Governments
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90017

SUBJECT: Conformity Determination for SCAG's Connect SoCal 2024 (2024-2050 Regional Transportation Plan/Sustainable Communities Strategy)

Dear Mr. Ajise:

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have completed our review of the conformity determination for the Southern California Association of Governments' (SCAG) SCAG's Connect SoCal 2024 (2024-2050 Regional Transportation Plan/Sustainable Communities Strategy). An FTA/FHWA air quality conformity determination is required for the new 2024 RTP/SCS pursuant to the Environmental Protection Agency's (EPA) *Transportation Conformity Rule*, 40 Code of Regulations (CFR) Parts 51 and 93, and the United States Department of Transportation's *Final Rule on Statewide and Metropolitan Planning*, 23 CFR Part 450.

On April 4, 2024, SCAG adopted Connect SoCal 2024 and the associated Consistency Amendment No. 23-26 to the 2023 FTIP via Resolution 24-664-2. The conformity analysis given by SCAG indicates all air quality conformity requirements have been met. Based on our review, and after consultation with the EPA Region 9 office, we find that Connect SoCal 2024 conforms to the applicable State Implementation Plan (SIP) in accordance with the provisions of 40 CFR Parts 51 and 93. This conformity determination will remain in effect for four (4) years from the date of this letter and replaces the previous determination. In accordance with the December 15, 2014, *Memorandum of Understanding (MOU) between the Federal Highway Administration, California Division, and the Federal Transit Administration, Region IX*, the FTA has agreed with this conformity determination, and a single signature constitutes FHWA and FTA's joint air quality conformity determination for SCAG's 2016 RTP/SCS. If you have questions on this conformity finding, please contact Michael Morris of the FHWA California Division's Cal-South office at (213) 894-4014, or by email at michael.morris@dot.gov..

Sincerely,

Antonio D. Johnson
Director of Planning, Environment,
& Right of Way
Federal Highway Administration

cc: (email)
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Appendix B

Summary of Forecast Travel Activities

AM

1	Lincoln Boulevard/ Fiji Way											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing	54.5	50.4	0	52.6	0	51	72.1	27.5	30.5	42.5	24.8	25.8
2030 NP	55	50.2	0	54	0	51.2	75.8	29.2	32.9	43.1	27.7	29.2
2030 PP	55	50.2	0	54	0	51.2	75.8	29.3	33.1	43.1	28.2	29.9
2050 NP	55.1	48.5	0	54.3	0	50.1	78.8	33.2	39.2	45.4	38.8	44
2050 PP	55.1	48.5	0	54.3	0	50.1	85	33.2	39.2	45.4	45.6	53.1

2	Lincoln Boulevard/ Culver Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing				51.8		52.4		147.6			14	
2030 NP				50.8		52.9		175.8			22.2	
2030 PP				50.7		53.2		179.6			12.3	
2050 NP				49.3		56.2		218.4			97.7	
2050 PP				51.1		57.8		225.4			20.1	

3	Lincoln Boulevard/ Jefferson Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing	289.8	70.6	74.2	63.8	61.3	26.3	72.9	155.8	23.8	49.8	19.3	20.2
2030 NP	272.9	70.3	73.9	61.6	60.3	30.4	72.3	172.3	23.2	52.9	22.9	24.2
2030 PP	272.9	70.3	73.9	61.6	60.3	30.4	72.3	172.3	23.4	52.9	24.6	18.3
2050 NP	297	69.7	73.4	61.4	59	42.3	71.5	194.9	23.2	57.7	29.1	32
2050 PP	297	69.7	73.4	61.4	59	42.3	71.5	194.9	23.4	59	35.3	22

4	Culver Loop to Lincoln Boulevard/ Culver Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing				22.3								
2030 NP				24.9								
2030 PP				26								
2050 NP				26.4								
2050 PP				32.1								

PM

1	Lincoln Boulevard/ Fiji Way											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing	55.9	50.4	0	53.3	0	51.6	62.1	20.8	21.7	42	22	23.2
2030 NP	55.9	50.1	0	54.3	0	51.2	63.9	22.8	24.1	43.2	26.4	28.3
2030 PP	55.9	50.1	0	54.3	0	51.2	63.9	23	24.4	43.2	28.2	30.7
2050 NP	56.3	49.5	0	54.5	0	50.7	70	27.8	30.9	44.4	34.8	38.6
2050 PP	56.3	49.5	0	54.5	0	50.7	70	28.8	32.4	44.4	54.4	65

2	Lincoln Boulevard/ Culver Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing				79.8		45.7		19.1			35.4	
2030 NP				82.1		46.5		27.4			48.8	
2030 PP				82.1		46.6		26.8			15.9	
2050 NP				83.7		47.5		67.3			74.8	
2050 PP				83.7		48.5		74.4			28.1	

3	Lincoln Boulevard/ Jefferson Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing	82.3	67.1	67.9	105.6	60.4	11.5	72.4	56.3	28.3	40.8	28.5	32.2
2030 NP	93	67.7	68.8	64.2	60.1	15.4	71.5	57.9	22.2	51	37.6	44.8
2030 PP	95.9	67.7	68.7	63.8	59.8	14.5	71.5	62.3	23.1	49.5	40.6	32.7
2050 NP	316.1	69.2	71.3	62.5	59.4	17.9	71.4	107.7	20.7	58.4	43.8	55.3
2050 PP	316.1	69.2	71.2	62.1	59.2	17.6	71.4	118.8	21.4	57.1	87.3	49

4	Culver Loop to Lincoln Boulevard/ Culver Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing				12.7								
2030 NP				13.6								
2030 PP				14.3								
2050 NP				14.6								
2050 PP				16.8								

Congested Speed on Lincoln Bridge Segment (Source: City of Los Angeles Travel Demand Model) - MPH

	2019 Base				2050 No Project				2050 Plus Project			
	AM	MD	PM	NT	AM	MD	PM	NT	AM	MD	PM	NT
NB	22	24	24	27	21	22	21	26	21	22	21	26
SB	25	25	21	26	22	23	20	26	25	25	24	27

	Project related Change in Speeds			
	AM	MD	PM	NT
NB	0	0	0	0
SB	3	2	4	1

Appendix C

Construction Emissions Calculations

SR-1 Lincoln 2-15-24 v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SR-1 Lincoln 2-15-24 v3
Construction Start Date	2/15/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	8.20
Location	33.976217100488896, -118.43260359325164
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4428
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Widening	0.79	Mile	22.0	0.00	—	—	—	—

Bridge/Overpass Construction	0.08	Mile	1.00	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.45	77.7	100	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.44	77.9	99.5	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,595
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.59	44.9	60.3	0.13	1.79	3.49	5.28	1.65	0.51	2.16	14,967
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.02	8.19	11.0	0.02	0.33	0.64	0.96	0.30	0.09	0.39	2,478

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2027	9.45	77.7	100	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,666

2028	9.07	72.6	99.6	0.21	2.95	5.73	8.68	2.71	0.87	3.58	24,591
2029	5.56	43.0	59.7	0.13	1.63	3.47	5.10	1.50	0.47	1.97	14,960
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2027	9.44	77.9	99.5	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,595
2028	9.07	72.8	98.8	0.21	2.95	5.73	8.68	2.71	0.87	3.58	24,522
2029	5.56	43.1	59.2	0.13	1.63	3.47	5.10	1.50	0.47	1.97	14,918
2030	1.31	11.8	21.8	0.03	0.36	0.42	0.78	0.33	0.10	0.43	3,508
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2027	4.12	34.5	43.7	0.09	1.43	2.64	4.06	1.32	0.41	1.73	10,995
2028	5.59	44.9	60.3	0.13	1.79	3.49	5.28	1.65	0.51	2.16	14,967
2029	2.97	23.4	33.5	0.07	0.87	1.75	2.62	0.80	0.25	1.05	7,940
2030	0.11	0.99	1.84	< 0.005	0.03	0.04	0.07	0.03	0.01	0.04	296
Annual	—	—	—	—	—	—	—	—	—	—	—
2027	0.75	6.30	7.97	0.02	0.26	0.48	0.74	0.24	0.08	0.32	1,820
2028	1.02	8.19	11.0	0.02	0.33	0.64	0.96	0.30	0.09	0.39	2,478
2029	0.54	4.26	6.11	0.01	0.16	0.32	0.48	0.15	0.05	0.19	1,315
2030	0.02	0.18	0.34	< 0.005	0.01	0.01	0.01	0.01	< 0.005	0.01	49.0

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.86	7.62	8.94	0.01	0.37	—	0.37	0.34	—	0.34	1,269
Dust From Material Movement	—	—	—	—	—	0.42	0.42	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.62	8.94	0.01	0.37	—	0.37	0.34	—	0.34	1,269
Dust From Material Movement	—	—	—	—	—	0.42	0.42	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.63	1.91	< 0.005	0.08	—	0.08	0.07	—	0.07	271
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.30	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	44.9
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.05	0.00	0.00	0.23	0.23	0.00	0.05	0.05	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.03	2.44	0.97	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.89	0.00	0.00	0.23	0.23	0.00	0.05	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	2.55	0.98	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,167
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	48.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.55	0.21	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	463
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	76.7

3.3. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.08	74.9	93.8	0.20	3.21	—	3.21	2.95	—	2.95	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	9.08	74.9	93.8	0.20	3.21	—	3.21	2.95	—	2.95	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.77	31.1	38.9	0.08	1.33	—	1.33	1.23	—	1.23	8,792
Dust From Material Movement	—	—	—	—	—	1.63	1.63	—	0.18	0.18	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	5.67	7.10	0.01	0.24	—	0.24	0.22	—	0.22	1,456
Dust From Material Movement	—	—	—	—	—	0.30	0.30	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.32	5.56	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,247
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	63.9
Hauling	0.03	2.44	0.97	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,163
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.40	4.71	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,179
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	63.8
Hauling	0.03	2.54	0.98	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,160
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.13	0.17	2.05	0.00	0.00	0.50	0.50	0.00	0.12	0.12	497
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	26.5
Hauling	0.01	1.07	0.40	0.01	0.01	0.24	0.25	0.01	0.06	0.08	896
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.09	0.09	0.00	0.02	0.02	82.3
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.38
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	148

3.5. Linear, Grading & Excavation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	69.9	93.4	0.20	2.92	—	2.92	2.68	—	2.68	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	69.9	93.4	0.20	2.92	—	2.92	2.68	—	2.68	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.87	31.0	41.5	0.09	1.30	—	1.30	1.19	—	1.19	9,414
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.19	0.19	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.67	7.57	0.02	0.24	—	0.24	0.22	—	0.22	1,559
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.32	5.22	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,224
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	62.4
Hauling	0.03	2.36	0.94	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,112
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.36	4.44	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,158
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	62.3
Hauling	0.03	2.45	0.95	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,109
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.16	2.06	0.00	0.00	0.53	0.53	0.00	0.13	0.13	523
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.7
Hauling	0.01	1.10	0.42	0.01	0.01	0.25	0.27	0.01	0.07	0.08	937
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.38	0.00	0.00	0.10	0.10	0.00	0.02	0.02	86.5

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.59
Hauling	< 0.005	0.20	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	155

3.7. Linear, Drainage, Utilities, & Sub-Grade (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.55	45.8	57.1	0.13	1.77	—	1.77	1.63	—	1.63	14,183
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.55	45.8	57.1	0.13	1.77	—	1.77	1.63	—	1.63	14,183
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	12.5	15.5	0.04	0.48	—	0.48	0.44	—	0.44	3,858
Dust From Material Movement	—	—	—	—	—	0.73	0.73	—	0.08	0.08	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.28	2.27	2.83	0.01	0.09	—	0.09	0.08	—	0.08	639
Dust From Material Movement	—	—	—	—	—	0.13	0.13	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	3.38	0.00	0.00	0.78	0.78	0.00	0.18	0.18	794
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.23	2.88	0.00	0.00	0.78	0.78	0.00	0.18	0.18	751
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.82	0.00	0.00	0.21	0.21	0.00	0.05	0.05	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	34.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Drainage, Utilities, & Sub-Grade (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.37	42.9	56.5	0.13	1.63	—	1.63	1.50	—	1.50	14,179
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.37	42.9	56.5	0.13	1.63	—	1.63	1.50	—	1.50	14,179
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.55	20.4	26.9	0.06	0.77	—	0.77	0.71	—	0.71	6,743
Dust From Material Movement	—	—	—	—	—	1.28	1.28	—	0.14	0.14	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.72	4.90	0.01	0.14	—	0.14	0.13	—	0.13	1,116
Dust From Material Movement	—	—	—	—	—	0.23	0.23	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	3.16	0.00	0.00	0.78	0.78	0.00	0.18	0.18	780
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.21	2.68	0.00	0.00	0.78	0.78	0.00	0.18	0.18	739
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.34	0.00	0.00	0.37	0.37	0.00	0.09	0.09	357
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.07	0.07	0.00	0.02	0.02	59.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Linear, Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	12.0	20.5	0.03	0.39	—	0.39	0.36	—	0.36	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	12.0	20.5	0.03	0.39	—	0.39	0.36	—	0.36	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.86	4.90	0.01	0.09	—	0.09	0.09	—	0.09	743
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.52	0.89	< 0.005	0.02	—	0.02	0.02	—	0.02	123
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.71	0.00	0.00	0.42	0.42	0.00	0.10	0.10	423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	1.45	0.00	0.00	0.42	0.42	0.00	0.10	0.10	400
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	97.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	16.1

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Linear, Paving (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	11.7	20.5	0.03	0.36	—	0.36	0.33	—	0.33	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.99	1.72	< 0.005	0.03	—	0.03	0.03	—	0.03	262
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.18	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	43.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.36	0.00	0.00	0.42	0.42	0.00	0.10	0.10	394
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.04	0.04	0.00	0.01	0.01	33.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.57
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	2/15/2027	6/2/2027	5.00	78.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	6/3/2027	8/14/2028	5.00	313	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	8/15/2028	8/31/2029	5.00	274	—
Linear, Paving	Linear, Paving	9/1/2029	2/12/2030	5.00	117	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	7.00	8.00	36.0	0.38
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Linear, Grading & Excavation	Graders	Diesel	Average	4.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	5.00	8.00	36.0	0.38
Linear, Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	6.00	8.00	84.0	0.37
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	5.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	3.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43

Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	17.5	18.5	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	30.9	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	92.5	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	30.8	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	60.0	18.5	LDA,LDT1,LDT2

Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	10.2	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	32.5	18.5	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	10.2	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	19,305	0.00	23.0	0.00	—
Linear, Grading & Excavation	77,220	0.00	23.0	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	23.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	22.0	100%
Bridge/Overpass Construction	1.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	58.7	690	0.05	0.01
2028	58.7	690	0.05	0.01
2029	58.7	690	0.05	0.01
2030	29.4	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.27	annual days of extreme heat
Extreme Precipitation	5.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	40.0
AQ-PM	64.7
AQ-DPM	79.1
Drinking Water	71.7
Lead Risk Housing	21.1
Pesticides	0.00
Toxic Releases	80.8
Traffic	77.7
Effect Indicators	—
CleanUp Sites	74.4
Groundwater	86.2
Haz Waste Facilities/Generators	56.4
Impaired Water Bodies	99.6
Solid Waste	55.5
Sensitive Population	—
Asthma	13.1
Cardio-vascular	14.8
Low Birth Weights	54.8
Socioeconomic Factor Indicators	—

Education	18.8
Housing	78.1
Linguistic	41.4
Poverty	38.1
Unemployment	9.72

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.23893238
Employed	55.84498909
Median HI	76.76119595
Education	—
Bachelor's or higher	91.36404466
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	86.34672142
Active commuting	50.8020018
Social	—
2-parent households	9.80366996
Voting	64.49377647
Neighborhood	—
Alcohol availability	47.37585012
Park access	81.35506224
Retail density	58.1675863

Supermarket access	76.08109842
Tree canopy	50.8020018
Housing	—
Homeownership	50.58385731
Housing habitability	74.43859874
Low-inc homeowner severe housing cost burden	32.50352881
Low-inc renter severe housing cost burden	79.13512126
Uncrowded housing	92.9038881
Health Outcomes	—
Insured adults	81.30373412
Arthritis	17.5
Asthma ER Admissions	89.1
High Blood Pressure	15.4
Cancer (excluding skin)	6.6
Asthma	80.2
Coronary Heart Disease	17.4
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	81.4
Cognitively Disabled	26.7
Physically Disabled	45.1
Heart Attack ER Admissions	91.5
Mental Health Not Good	87.0
Chronic Kidney Disease	45.1
Obesity	75.0
Pedestrian Injuries	48.4
Physical Health Not Good	70.2

Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	71.2
Current Smoker	89.0
No Leisure Time for Physical Activity	82.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	61.9
Children	73.7
Elderly	6.3
English Speaking	52.1
Foreign-born	56.5
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	12.3
Traffic Density	74.6
Traffic Access	64.6
Other Indices	—
Hardship	20.2
Other Decision Support	—
2016 Voting	64.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	49.0
Healthy Places Index Score for Project Location (b)	78.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on data from the Roadway Construction Emissions Model

SR-1 Lincoln 2-15-24 v7 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SR-1 Lincoln 2-15-24 v7
Construction Start Date	2/15/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	8.20
Location	33.976217100488896, -118.43260359325164
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4428
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Widening	0.79	Mile	22.0	0.00	—	—	—	—

Bridge/Overpass Construction	0.08	Mile	1.12	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.45	77.7	100	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.44	77.9	99.5	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,595
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.59	44.9	60.3	0.13	1.79	3.49	5.28	1.65	0.51	2.16	14,967
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.02	8.19	11.0	0.02	0.33	0.64	0.96	0.30	0.09	0.39	2,478

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2027	9.45	77.7	100	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,666

2028	9.07	72.6	99.6	0.21	2.95	5.73	8.68	2.71	0.87	3.58	24,591
2029	5.56	43.0	59.7	0.13	1.63	3.47	5.10	1.50	0.47	1.97	14,960
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2027	9.44	77.9	99.5	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,595
2028	9.07	72.8	98.8	0.21	2.95	5.73	8.68	2.71	0.87	3.58	24,522
2029	5.56	43.1	59.2	0.13	1.63	3.47	5.10	1.50	0.47	1.97	14,918
2030	1.31	11.8	21.8	0.03	0.36	0.42	0.78	0.33	0.10	0.43	3,508
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2027	4.12	34.5	43.7	0.09	1.43	2.64	4.06	1.32	0.41	1.73	10,995
2028	5.59	44.9	60.3	0.13	1.79	3.49	5.28	1.65	0.51	2.16	14,967
2029	2.97	23.4	33.5	0.07	0.87	1.75	2.62	0.80	0.25	1.05	7,940
2030	0.15	1.36	2.53	< 0.005	0.04	0.05	0.09	0.04	0.01	0.05	406
Annual	—	—	—	—	—	—	—	—	—	—	—
2027	0.75	6.30	7.97	0.02	0.26	0.48	0.74	0.24	0.08	0.32	1,820
2028	1.02	8.19	11.0	0.02	0.33	0.64	0.96	0.30	0.09	0.39	2,478
2029	0.54	4.26	6.11	0.01	0.16	0.32	0.48	0.15	0.05	0.19	1,315
2030	0.03	0.25	0.46	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	67.2

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.86	7.62	8.94	0.01	0.37	—	0.37	0.34	—	0.34	1,269
Dust From Material Movement	—	—	—	—	—	0.42	0.42	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.62	8.94	0.01	0.37	—	0.37	0.34	—	0.34	1,269
Dust From Material Movement	—	—	—	—	—	0.42	0.42	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.63	1.91	< 0.005	0.08	—	0.08	0.07	—	0.07	271
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.30	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	44.9
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.05	0.00	0.00	0.23	0.23	0.00	0.05	0.05	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.03	2.44	0.97	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.89	0.00	0.00	0.23	0.23	0.00	0.05	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	2.55	0.98	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,167
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	48.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.55	0.21	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	463
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	76.7

3.3. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.08	74.9	93.8	0.20	3.21	—	3.21	2.95	—	2.95	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	9.08	74.9	93.8	0.20	3.21	—	3.21	2.95	—	2.95	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.77	31.1	38.9	0.08	1.33	—	1.33	1.23	—	1.23	8,792
Dust From Material Movement	—	—	—	—	—	1.63	1.63	—	0.18	0.18	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	5.67	7.10	0.01	0.24	—	0.24	0.22	—	0.22	1,456
Dust From Material Movement	—	—	—	—	—	0.30	0.30	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.32	5.56	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,247
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	63.9
Hauling	0.03	2.44	0.97	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,163
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.40	4.71	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,179
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	63.8
Hauling	0.03	2.54	0.98	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,160
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.13	0.17	2.05	0.00	0.00	0.50	0.50	0.00	0.12	0.12	497
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	26.5
Hauling	0.01	1.07	0.40	0.01	0.01	0.24	0.25	0.01	0.06	0.08	896
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.09	0.09	0.00	0.02	0.02	82.3
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.38
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	148

3.5. Linear, Grading & Excavation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	69.9	93.4	0.20	2.92	—	2.92	2.68	—	2.68	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	69.9	93.4	0.20	2.92	—	2.92	2.68	—	2.68	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.87	31.0	41.5	0.09	1.30	—	1.30	1.19	—	1.19	9,414
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.19	0.19	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	5.67	7.57	0.02	0.24	—	0.24	0.22	—	0.22	1,559
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.32	5.22	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,224
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	62.4
Hauling	0.03	2.36	0.94	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,112
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.36	4.44	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,158
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	62.3
Hauling	0.03	2.45	0.95	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,109
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.16	2.06	0.00	0.00	0.53	0.53	0.00	0.13	0.13	523
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.7
Hauling	0.01	1.10	0.42	0.01	0.01	0.25	0.27	0.01	0.07	0.08	937
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.38	0.00	0.00	0.10	0.10	0.00	0.02	0.02	86.5

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.59
Hauling	< 0.005	0.20	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	155

3.7. Linear, Drainage, Utilities, & Sub-Grade (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.55	45.8	57.1	0.13	1.77	—	1.77	1.63	—	1.63	14,183
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.55	45.8	57.1	0.13	1.77	—	1.77	1.63	—	1.63	14,183
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	12.5	15.5	0.04	0.48	—	0.48	0.44	—	0.44	3,858
Dust From Material Movement	—	—	—	—	—	0.73	0.73	—	0.08	0.08	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.28	2.27	2.83	0.01	0.09	—	0.09	0.08	—	0.08	639
Dust From Material Movement	—	—	—	—	—	0.13	0.13	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	3.38	0.00	0.00	0.78	0.78	0.00	0.18	0.18	794
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.23	2.88	0.00	0.00	0.78	0.78	0.00	0.18	0.18	751
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.82	0.00	0.00	0.21	0.21	0.00	0.05	0.05	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	34.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Drainage, Utilities, & Sub-Grade (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.37	42.9	56.5	0.13	1.63	—	1.63	1.50	—	1.50	14,179
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.37	42.9	56.5	0.13	1.63	—	1.63	1.50	—	1.50	14,179
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.55	20.4	26.9	0.06	0.77	—	0.77	0.71	—	0.71	6,743
Dust From Material Movement	—	—	—	—	—	1.28	1.28	—	0.14	0.14	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	3.72	4.90	0.01	0.14	—	0.14	0.13	—	0.13	1,116
Dust From Material Movement	—	—	—	—	—	0.23	0.23	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	3.16	0.00	0.00	0.78	0.78	0.00	0.18	0.18	780
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.21	2.68	0.00	0.00	0.78	0.78	0.00	0.18	0.18	739
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.34	0.00	0.00	0.37	0.37	0.00	0.09	0.09	357
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.07	0.07	0.00	0.02	0.02	59.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Linear, Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	12.0	20.5	0.03	0.39	—	0.39	0.36	—	0.36	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	12.0	20.5	0.03	0.39	—	0.39	0.36	—	0.36	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.86	4.90	0.01	0.09	—	0.09	0.09	—	0.09	743
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.52	0.89	< 0.005	0.02	—	0.02	0.02	—	0.02	123
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.71	0.00	0.00	0.42	0.42	0.00	0.10	0.10	423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	1.45	0.00	0.00	0.42	0.42	0.00	0.10	0.10	400
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.36	0.00	0.00	0.10	0.10	0.00	0.02	0.02	97.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	16.1

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Linear, Paving (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	11.7	20.5	0.03	0.36	—	0.36	0.33	—	0.33	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.35	2.36	< 0.005	0.04	—	0.04	0.04	—	0.04	359
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.25	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	59.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.36	0.00	0.00	0.42	0.42	0.00	0.10	0.10	394
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.05	0.05	0.00	0.01	0.01	46.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.64
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	2/15/2027	6/2/2027	5.00	78.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	6/3/2027	8/14/2028	5.00	313	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	8/15/2028	8/31/2029	5.00	274	—
Linear, Paving	Linear, Paving	9/1/2029	2/28/2030	5.00	129	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	7.00	8.00	36.0	0.38
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Linear, Grading & Excavation	Graders	Diesel	Average	4.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	5.00	8.00	36.0	0.38
Linear, Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	6.00	8.00	84.0	0.37
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	5.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	3.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43

Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	17.5	18.5	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	30.9	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	92.5	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	30.8	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	60.0	18.5	LDA,LDT1,LDT2

Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	10.2	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	32.5	18.5	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	10.2	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	19,305	0.00	23.0	0.00	—
Linear, Grading & Excavation	77,220	0.00	23.0	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	23.1	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	22.0	100%
Bridge/Overpass Construction	1.12	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	58.7	690	0.05	0.01
2028	58.7	690	0.05	0.01
2029	58.7	690	0.05	0.01
2030	29.4	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.27	annual days of extreme heat
Extreme Precipitation	5.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	40.0
AQ-PM	64.7
AQ-DPM	79.1
Drinking Water	71.7
Lead Risk Housing	21.1
Pesticides	0.00
Toxic Releases	80.8
Traffic	77.7
Effect Indicators	—
CleanUp Sites	74.4
Groundwater	86.2
Haz Waste Facilities/Generators	56.4
Impaired Water Bodies	99.6
Solid Waste	55.5
Sensitive Population	—
Asthma	13.1
Cardio-vascular	14.8
Low Birth Weights	54.8
Socioeconomic Factor Indicators	—

Education	18.8
Housing	78.1
Linguistic	41.4
Poverty	38.1
Unemployment	9.72

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.23893238
Employed	55.84498909
Median HI	76.76119595
Education	—
Bachelor's or higher	91.36404466
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	86.34672142
Active commuting	50.8020018
Social	—
2-parent households	9.80366996
Voting	64.49377647
Neighborhood	—
Alcohol availability	47.37585012
Park access	81.35506224
Retail density	58.1675863

Supermarket access	76.08109842
Tree canopy	50.8020018
Housing	—
Homeownership	50.58385731
Housing habitability	74.43859874
Low-inc homeowner severe housing cost burden	32.50352881
Low-inc renter severe housing cost burden	79.13512126
Uncrowded housing	92.9038881
Health Outcomes	—
Insured adults	81.30373412
Arthritis	17.5
Asthma ER Admissions	89.1
High Blood Pressure	15.4
Cancer (excluding skin)	6.6
Asthma	80.2
Coronary Heart Disease	17.4
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	81.4
Cognitively Disabled	26.7
Physically Disabled	45.1
Heart Attack ER Admissions	91.5
Mental Health Not Good	87.0
Chronic Kidney Disease	45.1
Obesity	75.0
Pedestrian Injuries	48.4
Physical Health Not Good	70.2

Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	71.2
Current Smoker	89.0
No Leisure Time for Physical Activity	82.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	61.9
Children	73.7
Elderly	6.3
English Speaking	52.1
Foreign-born	56.5
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	12.3
Traffic Density	74.6
Traffic Access	64.6
Other Indices	—
Hardship	20.2
Other Decision Support	—
2016 Voting	64.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	49.0
Healthy Places Index Score for Project Location (b)	78.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on data from the Roadway Construction Emissions Model
Construction: Dust From Material Movement	NA

SR-1 Lincoln 2-15-24 v8 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SR-1 Lincoln 2-15-24 v8
Construction Start Date	2/15/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	8.20
Location	33.976217100488896, -118.43260359325164
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4428
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Widening	0.79	Mile	22.0	0.00	—	—	—	—

Bridge/Overpass Construction	0.14	Mile	1.02	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.45	77.7	100	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,646
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.44	77.8	99.5	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,574
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.61	45.0	60.5	0.13	1.80	3.50	5.29	1.65	0.52	2.17	15,015
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.02	8.21	11.0	0.02	0.33	0.64	0.97	0.30	0.09	0.40	2,486

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2027	9.45	77.7	100	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,646

2028	9.07	72.6	99.6	0.21	2.95	5.73	8.67	2.71	0.87	3.58	24,571
2029	5.56	43.0	59.7	0.13	1.63	3.47	5.10	1.50	0.47	1.97	14,960
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2027	9.44	77.8	99.5	0.21	3.24	5.73	8.97	2.98	0.87	3.85	24,574
2028	9.07	72.7	98.8	0.21	2.95	5.73	8.67	2.71	0.87	3.58	24,502
2029	5.56	43.1	59.2	0.13	1.63	3.47	5.10	1.50	0.47	1.97	14,918
2030	1.31	11.8	21.8	0.03	0.36	0.42	0.78	0.33	0.10	0.43	3,508
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2027	4.12	34.5	43.7	0.09	1.43	2.63	4.06	1.32	0.41	1.73	10,986
2028	5.61	45.0	60.5	0.13	1.80	3.50	5.29	1.65	0.52	2.17	15,015
2029	3.01	23.7	33.8	0.07	0.88	1.78	2.66	0.81	0.25	1.06	8,052
2030	0.13	1.13	2.10	< 0.005	0.03	0.04	0.07	0.03	0.01	0.04	337
Annual	—	—	—	—	—	—	—	—	—	—	—
2027	0.75	6.30	7.97	0.02	0.26	0.48	0.74	0.24	0.08	0.32	1,819
2028	1.02	8.21	11.0	0.02	0.33	0.64	0.97	0.30	0.09	0.40	2,486
2029	0.55	4.32	6.18	0.01	0.16	0.32	0.49	0.15	0.05	0.19	1,333
2030	0.02	0.21	0.38	< 0.005	0.01	0.01	0.01	0.01	< 0.005	0.01	55.8

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.86	7.62	8.94	0.01	0.37	—	0.37	0.34	—	0.34	1,269
Dust From Material Movement	—	—	—	—	—	0.42	0.42	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.62	8.94	0.01	0.37	—	0.37	0.34	—	0.34	1,269
Dust From Material Movement	—	—	—	—	—	0.42	0.42	—	0.05	0.05	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.63	1.91	< 0.005	0.08	—	0.08	0.07	—	0.07	271
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.30	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	44.9
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.05	0.00	0.00	0.23	0.23	0.00	0.05	0.05	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.03	2.44	0.97	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,170
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.08	0.89	0.00	0.00	0.23	0.23	0.00	0.05	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	2.55	0.98	0.01	0.03	0.57	0.60	0.03	0.16	0.18	2,167
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.20	0.00	0.00	0.05	0.05	0.00	0.01	0.01	48.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.55	0.21	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	463
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	76.7

3.3. Linear, Grading & Excavation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.08	74.9	93.8	0.20	3.21	—	3.21	2.95	—	2.95	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	9.08	74.9	93.8	0.20	3.21	—	3.21	2.95	—	2.95	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.77	31.1	38.9	0.08	1.33	—	1.33	1.23	—	1.23	8,792
Dust From Material Movement	—	—	—	—	—	1.63	1.63	—	0.18	0.18	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	5.67	7.10	0.01	0.24	—	0.24	0.22	—	0.22	1,456
Dust From Material Movement	—	—	—	—	—	0.30	0.30	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.32	5.56	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,247
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	63.9
Hauling	0.03	2.41	0.96	0.01	0.03	0.57	0.59	0.03	0.16	0.18	2,142
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.40	4.71	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,179
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	63.8
Hauling	0.03	2.52	0.97	0.01	0.03	0.57	0.59	0.03	0.16	0.18	2,139
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.13	0.17	2.05	0.00	0.00	0.50	0.50	0.00	0.12	0.12	497
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	26.5
Hauling	0.01	1.06	0.40	0.01	0.01	0.23	0.25	0.01	0.06	0.08	888
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.37	0.00	0.00	0.09	0.09	0.00	0.02	0.02	82.3
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.38
Hauling	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	147

3.5. Linear, Grading & Excavation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	69.9	93.4	0.20	2.92	—	2.92	2.68	—	2.68	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	69.9	93.4	0.20	2.92	—	2.92	2.68	—	2.68	21,192
Dust From Material Movement	—	—	—	—	—	3.93	3.93	—	0.43	0.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.93	31.5	42.0	0.09	1.31	—	1.31	1.21	—	1.21	9,538
Dust From Material Movement	—	—	—	—	—	1.77	1.77	—	0.19	0.19	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	5.74	7.67	0.02	0.24	—	0.24	0.22	—	0.22	1,579
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.32	5.22	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,224
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	62.4
Hauling	0.03	2.34	0.93	0.01	0.03	0.57	0.59	0.03	0.16	0.18	2,092
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.36	4.44	0.00	0.00	1.21	1.21	0.00	0.28	0.28	1,158
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	62.3
Hauling	0.03	2.43	0.94	0.01	0.03	0.57	0.59	0.03	0.16	0.18	2,089
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.16	2.09	0.00	0.00	0.54	0.54	0.00	0.13	0.13	530
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	28.1
Hauling	0.01	1.11	0.42	0.01	0.01	0.25	0.27	0.01	0.07	0.08	941
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.38	0.00	0.00	0.10	0.10	0.00	0.02	0.02	87.7

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.65
Hauling	< 0.005	0.20	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	156

3.7. Linear, Drainage, Utilities, & Sub-Grade (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.55	45.8	57.1	0.13	1.77	—	1.77	1.63	—	1.63	14,183
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.55	45.8	57.1	0.13	1.77	—	1.77	1.63	—	1.63	14,183
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	12.2	15.2	0.04	0.47	—	0.47	0.43	—	0.43	3,775
Dust From Material Movement	—	—	—	—	—	0.72	0.72	—	0.08	0.08	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.27	2.23	2.77	0.01	0.09	—	0.09	0.08	—	0.08	625
Dust From Material Movement	—	—	—	—	—	0.13	0.13	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	3.38	0.00	0.00	0.78	0.78	0.00	0.18	0.18	794
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.23	2.88	0.00	0.00	0.78	0.78	0.00	0.18	0.18	751
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.80	0.00	0.00	0.21	0.21	0.00	0.05	0.05	203
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	33.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Drainage, Utilities, & Sub-Grade (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.37	42.9	56.5	0.13	1.63	—	1.63	1.50	—	1.50	14,179
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.37	42.9	56.5	0.13	1.63	—	1.63	1.50	—	1.50	14,179
Dust From Material Movement	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.60	20.8	27.4	0.07	0.79	—	0.79	0.73	—	0.73	6,882
Dust From Material Movement	—	—	—	—	—	1.30	1.30	—	0.14	0.14	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	3.80	5.01	0.01	0.14	—	0.14	0.13	—	0.13	1,139
Dust From Material Movement	—	—	—	—	—	0.24	0.24	—	0.03	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.18	3.16	0.00	0.00	0.78	0.78	0.00	0.18	0.18	780
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.21	2.68	0.00	0.00	0.78	0.78	0.00	0.18	0.18	739
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.36	0.00	0.00	0.38	0.38	0.00	0.09	0.09	364
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.07	0.07	0.00	0.02	0.02	60.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Linear, Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	12.0	20.5	0.03	0.39	—	0.39	0.36	—	0.36	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	12.0	20.5	0.03	0.39	—	0.39	0.36	—	0.36	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.74	4.69	0.01	0.09	—	0.09	0.08	—	0.08	713
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.50	0.86	< 0.005	0.02	—	0.02	0.01	—	0.01	118
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.71	0.00	0.00	0.42	0.42	0.00	0.10	0.10	423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	1.45	0.00	0.00	0.42	0.42	0.00	0.10	0.10	400
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.35	0.00	0.00	0.10	0.10	0.00	0.02	0.02	93.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	15.4

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Linear, Paving (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	11.7	20.5	0.03	0.36	—	0.36	0.33	—	0.33	3,114
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.12	1.96	< 0.005	0.03	—	0.03	0.03	—	0.03	299
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	49.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.36	0.00	0.00	0.42	0.42	0.00	0.10	0.10	394
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	2/15/2027	6/2/2027	5.00	78.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	6/3/2027	8/17/2028	5.00	316	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	8/18/2028	9/5/2029	5.00	274	—
Linear, Paving	Linear, Paving	9/6/2029	2/18/2030	5.00	118	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	7.00	8.00	36.0	0.38
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Linear, Grading & Excavation	Graders	Diesel	Average	4.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	5.00	8.00	36.0	0.38
Linear, Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	6.00	8.00	84.0	0.37
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	5.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	3.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43

Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	17.5	18.5	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	30.9	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	92.5	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	30.5	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	60.0	18.5	LDA,LDT1,LDT2

Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	10.2	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	32.5	18.5	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	10.2	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	19,305	0.00	23.0	0.00	—
Linear, Grading & Excavation	77,220	0.00	23.0	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	23.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	22.0	100%
Bridge/Overpass Construction	1.02	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	58.7	690	0.05	0.01
2028	58.7	690	0.05	0.01
2029	58.7	690	0.05	0.01
2030	29.4	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.27	annual days of extreme heat
Extreme Precipitation	5.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	40.0
AQ-PM	64.7
AQ-DPM	79.1
Drinking Water	71.7
Lead Risk Housing	21.1
Pesticides	0.00
Toxic Releases	80.8
Traffic	77.7
Effect Indicators	—
CleanUp Sites	74.4
Groundwater	86.2
Haz Waste Facilities/Generators	56.4
Impaired Water Bodies	99.6
Solid Waste	55.5
Sensitive Population	—
Asthma	13.1
Cardio-vascular	14.8
Low Birth Weights	54.8
Socioeconomic Factor Indicators	—

Education	18.8
Housing	78.1
Linguistic	41.4
Poverty	38.1
Unemployment	9.72

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.23893238
Employed	55.84498909
Median HI	76.76119595
Education	—
Bachelor's or higher	91.36404466
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	86.34672142
Active commuting	50.8020018
Social	—
2-parent households	9.80366996
Voting	64.49377647
Neighborhood	—
Alcohol availability	47.37585012
Park access	81.35506224
Retail density	58.1675863

Supermarket access	76.08109842
Tree canopy	50.8020018
Housing	—
Homeownership	50.58385731
Housing habitability	74.43859874
Low-inc homeowner severe housing cost burden	32.50352881
Low-inc renter severe housing cost burden	79.13512126
Uncrowded housing	92.9038881
Health Outcomes	—
Insured adults	81.30373412
Arthritis	17.5
Asthma ER Admissions	89.1
High Blood Pressure	15.4
Cancer (excluding skin)	6.6
Asthma	80.2
Coronary Heart Disease	17.4
Chronic Obstructive Pulmonary Disease	56.7
Diagnosed Diabetes	57.0
Life Expectancy at Birth	81.4
Cognitively Disabled	26.7
Physically Disabled	45.1
Heart Attack ER Admissions	91.5
Mental Health Not Good	87.0
Chronic Kidney Disease	45.1
Obesity	75.0
Pedestrian Injuries	48.4
Physical Health Not Good	70.2

Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	71.2
Current Smoker	89.0
No Leisure Time for Physical Activity	82.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	61.9
Children	73.7
Elderly	6.3
English Speaking	52.1
Foreign-born	56.5
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	12.3
Traffic Density	74.6
Traffic Access	64.6
Other Indices	—
Hardship	20.2
Other Decision Support	—
2016 Voting	64.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	49.0
Healthy Places Index Score for Project Location (b)	78.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

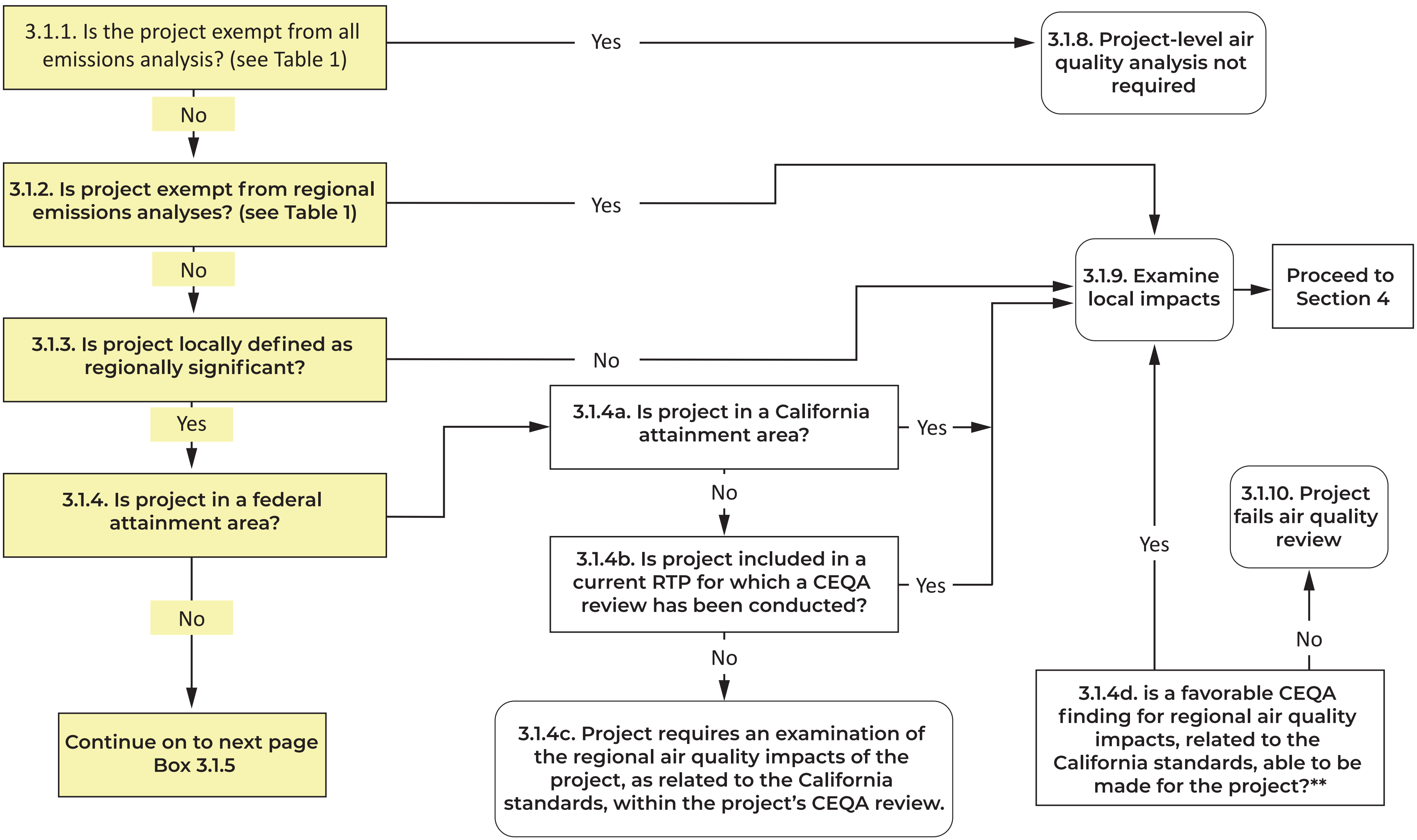
No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	—

Appendix D

CO Flow Chart (Based on the CO Protocol)



Source: Image adapted from Transportation Project-Level Carbon Monoxide Protocol Revised December (University of California, Davis 1997)

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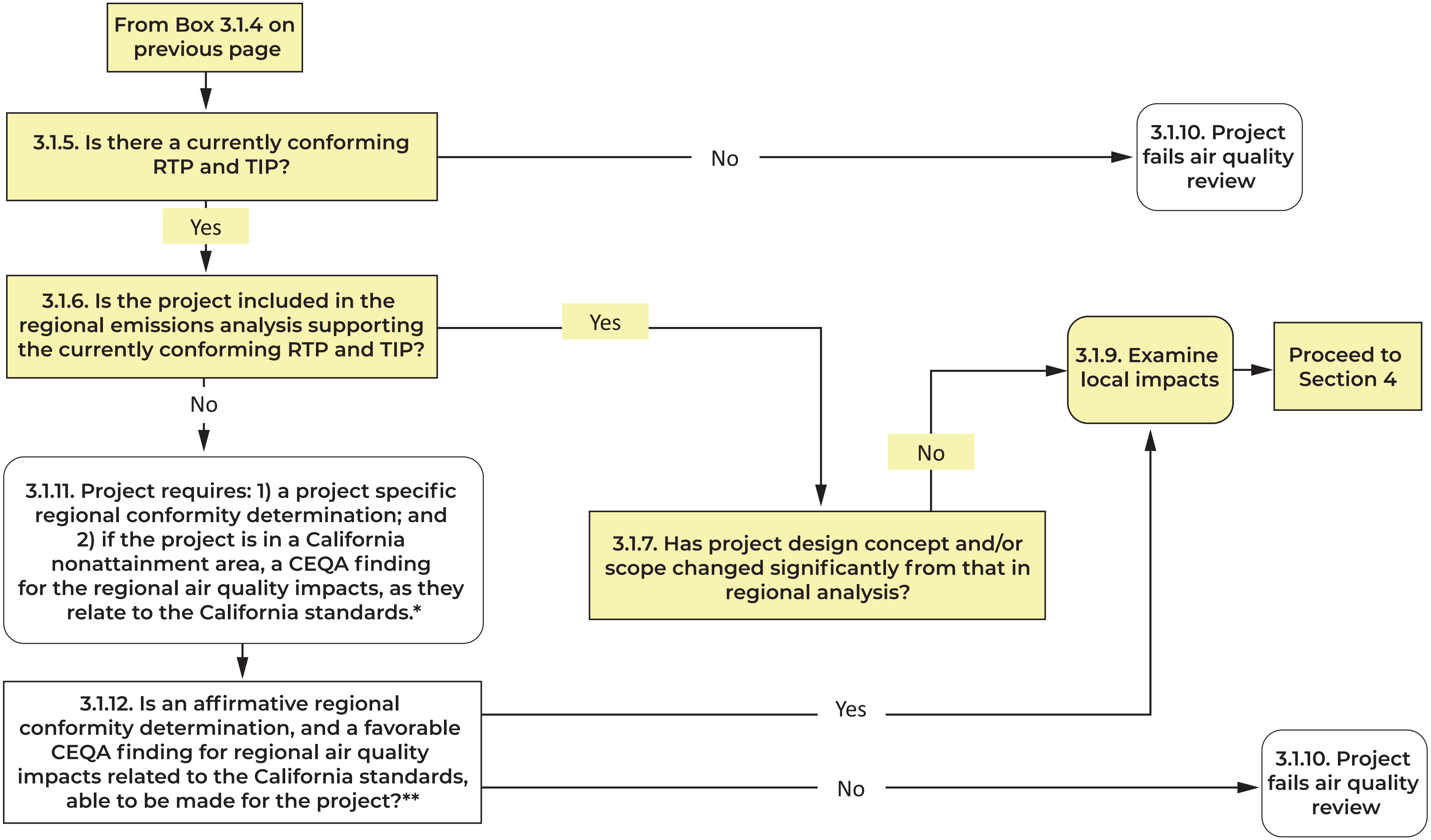
CO Protocol Requirements for New Projects

Figure 1

State Route-1/Lincoln Boulevard Bridge Multi-Modal Improvement Project

PSOMAS

(04/02/2024 SAK) R:\Projects\2LOS\010600\Graphics\AQ\Ex_CO Protocol.pdf



*In consultation w/MPO and Caltrans

**In consultation w/MPO. local air district, CARB and Caltrans

Source: Image adapted from Transportation Project-Level Carbon Monoxide Protocol Revised December (University of California, Davis 1997)

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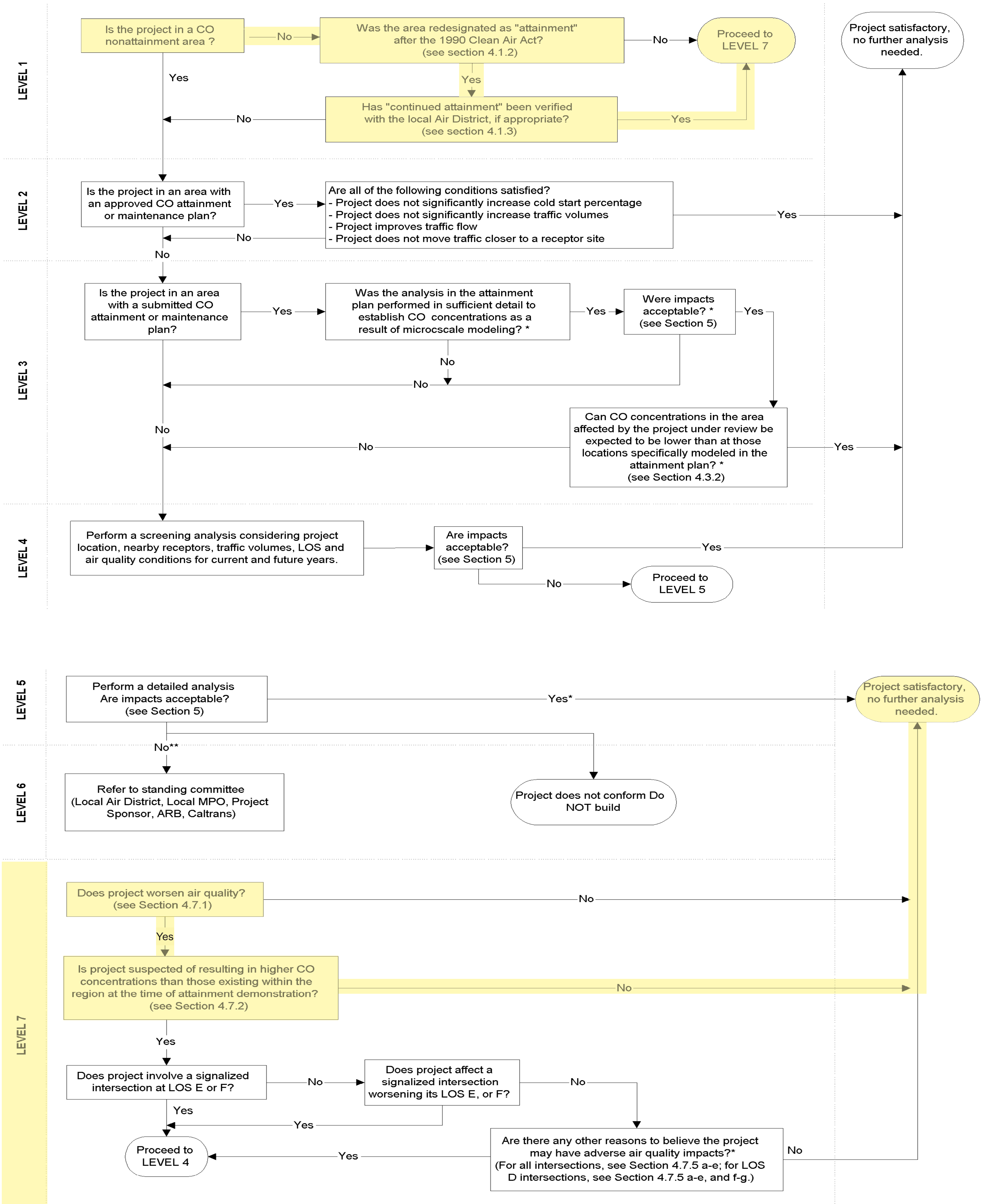
CO Protocol Requirements for New Projects

Figure 2

State Route-1/Lincoln Boulevard Bridge Multi-Modal Improvement Project

PSOMAS

(04/02/2024 SAK) R:\Projects\2LOS\010600\Graphics\AQ\Ex_CO Protocol.pdf



*Consultation with MPO and Local Air District required in addition to normal NEPA/CEQA requirements
**Consultation with MPO, Local Air District, CARB and Caltrans (District & Headquarters) required in addition to normal NEPA/CEQA requirements

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Source: Image adapted from Transportation Project-Level Carbon Monoxide Protocol Revised December (University of California, Davis 1997)

CO Protocol Level 1

Figure 3

State Route-1/Lincoln Boulevard Bridge Multi-Modal Improvement Project

PSOMAS

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Appendix E

Summary Tables for Changes in MSAT Emissions

FHWA PROJECTED NATIONAL MSAT EMISSION TRENDS 2020 – 2060
FOR VEHICLES OPERATING ON ROADWAYS

yearID	Annual Emissions (megatonnes/yr)									trillion
	Benzene	Diesel PM	Naphthalene	Butadiene	Formaldehyde	Acrolein	Acetaldehyde	Ethylbenzene	Polycyclics	VMT/yr
2020	0.008251	0.039549626	0.000893922	0.00076009	0.008217	0.000557	0.004847169	0.006741589	0.000364352	3.339572361
2025	0.005265	0.019939935	0.000431891	0.00030848	0.004488	0.000291	0.00294144	0.005412849	0.000179584	3.434535153
2030	0.003335	0.010924848	0.000205146	6.0268E-05	0.002682	0.000165	0.001970183	0.004401266	8.77641E-05	3.555872579
2035	0.002753	0.007412284	0.000118494	6.2458E-06	0.001967	0.000112	0.001654709	0.004117305	5.12578E-05	3.655898208
2040	0.002557	0.00612169	8.949E-05	0	0.001766	9.46E-05	0.001599277	0.004016811	3.93916E-05	3.792031791
2045	0.002516	0.006014145	8.91633E-05	0	0.001816	9.48E-05	0.001644279	0.00389074	3.8817E-05	3.937931063
2050	0.002519	0.006023507	9.06773E-05	0	0.001903	9.67E-05	0.0017214	0.003801348	3.92076E-05	4.080436966
2055	0.002584	0.006071154	9.33029E-05	0	0.002008	9.94E-05	0.00181307	0.003877254	4.04412E-05	4.217510812
2060	0.002679	0.006133802	9.69344E-05	0	0.002125	0.000103	0.001913534	0.003996214	4.20996E-05	4.361338729

Appendix F

Interagency Consultation Documentation

PM Conformity Hot Spot Analysis
Project Summary Form for Interagency Consultation

The purpose of this form is to provide sufficient information to allow the Transportation Conformity Working Group (TCWG) to determine if a project requires a project-level PM hot spot analysis pursuant to Federal Conformity Regulations.

The form is not required under the following circumstances:

1. The project sponsor determines that a project-level PM hot spot analysis is required or otherwise elects to perform the analysis; or
2. The project does not require a project-level PM hot spot analysis since it:
    a. Is exempt pursuant to 40 CFR 93.126; or
    b. Is a traffic signal synchronization project under 40 CFR 93.128; or
    c. Uses no Federal funds AND requires no Federal approval; or
    d. Is located in a Federal PM attainment area (note: PM10 and PM2.5 areas differ).

Projects other than those listed above may or may not need a project-level PM hot spot analysis depending on whether it is considered a "Project of Air Quality Concern" (POAQC), and should be brought before the TCWG for a determination.

It is the responsibility of the project sponsor to ensure that the form is filled out completely and provides a sufficient level of detail for the TCWG to make an informed decision on whether or not a project requires a project-level PM hot spot analysis. For example, the TCWG will be reviewing the effects of the project, and thus part of the required information includes build/no build traffic data. It is also the responsibility of the project sponsor to ensure a representative is available to discuss the project at the TCWG meeting if necessary.

Instructions:

1) Fill out form in its entirety. Enter information in gray input fields.

2) Be sure to include FTIP ID#. See http://www.scag.ca.gov/ftip/index.htm if necessary.

3) Submit completed form to your local Transportation Commission who will submit it to the MPO. Caltrans projects can be submitted by Caltrans District representatives.

The TCWG meets the fourth Tuesday of each month at SCAG Headquarters, 818 W. 7th Street, 12th Floor, Los Angeles, CA 90017. Participation is also available via teleconference. Call (213) 236-1800 prior to meeting to get the call-in number and pass-code.

Forms must be submitted by the second Tuesday of the month to be considered at that month's TCWG meeting.

REFERENCE

Criteria for Projects of Air Quality Concern (40 CFR 93.123(b)) – PM_{10} and $PM_{2.5}$ Hot Spots

(i) New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles;
(ii) Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
(v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM10 or PM2.5 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Links to more information:

http://www.fhwa.dot.gov/environment/conform.htm

http://www.epa.gov/otaq/stateresources/transconf/index.htm

TABLE 1
Type of Project

- New state highway
- Change to existing state highway
- New regionally significant street
- Change to existing regionally significant street
- New interchange
- Reconfigure existing interchange
- Intersection channelization
- Intersection signalization
- Roadway realignment
- Bus, rail, or inter-modal facility/terminal/transfer point
- Truck weight/inspection station
- At or affects location identified in the SIP as a site of actual or possible violation of NAAQS

RTIP ID# *(required)* RTP IDs: S1120157, S1160154, S1160178 (all are listed as Strategic Projects). The project is listed as a "Strategic Project" in the conforming RTP or TIP. The City is working with LA Metro to add the project as an "FTIP Project" or "Fiscally-Constrained RTP/SCS Project".

TCWG Consideration Date: 8/27/19

Project Description (clearly describe project)

The Project is located within the City of Los Angeles in Los Angeles County, California. Caltrans, in cooperation with the City of Los Angeles, proposes to improve circulation and safety along Lincoln Boulevard by constructing an additional southbound lane, installing sidewalks and bicycle lanes, and making other related improvements along an approximate 0.61-mile segment of Lincoln Boulevard between Jefferson Boulevard (PM 30.16) and just south of Fiji Way (PM 30.74). The project occurs in the City of Los Angeles and is bordered immediately to the north and northwest by unincorporated Los Angeles County.

The project's Build Alternative includes: realignment of Lincoln Boulevard to the east; addition of one southbound lane along Lincoln Boulevard for a length of approximately 1,800 feet; demolition, replacement, and widening of the Lincoln Boulevard Bridge over Ballona Creek; demolition, replacement, and widening of the Culver Boulevard Bridge; demolition, replacement, and realignment of the on- and off-ramp between Lincoln Boulevard and Culver Boulevard; construction of sidewalks and bicycle lanes on both sides of Lincoln Boulevard; and installation of landscaping, street lighting, and signage. The project would also install a center median with space to accommodate a future center-running transit facility within the project limits, which is not included as part of the project.

The replacement Lincoln Boulevard Bridge over Ballona Creek would include three 12-foot travel lanes in each direction, a 12-foot center median, and 2-foot lane buffers, 8-foot shoulders including 6-foot bicycle lanes, 6-foot sidewalks, and 1-foot edge barriers on both sides of the roadway.

The replacement Culver Boulevard Bridge would include one 12-foot travel lane in each direction as well as 5-foot shoulders, 6-foot sidewalks, and 1-foot bridge barriers on both sides of the roadway.

The Project Location Map included as an attachment to this document presents the Existing Conditions along Lincoln Bridge, as well as the lane configurations of the proposed Project. The City of Los Angeles is the project proponent, and Caltrans is the Lead Agency under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

Type of Project *(use Table 1 on instruction sheet)*
Change to existing state highway

County	Narrative Location/Route & Postmiles
Los Angeles	**Narrative Location/Route & Postmiles** The project would occur along an approximate 0.61-mile segment of Lincoln Boulevard between Jefferson Boulevard (PM 30.16) and just south of Fiji Way (PM 30.74). **Caltrans Projects – EA#** 07-33880

Lead Agency: Caltrans District 7

Contact Person	Phone#	Fax#	Email
Andrew Yoon, P.E.	213-897-6117		andrew.yoon @dot.ca.gov

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5 X** **PM10 X**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

	Categorical Exclusion	X	EA or Draft EIS		FONSI or Final EIS		PS&E or Construction		Other

<table>
<tr><td>(NEPA)</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Scheduled Date of Federal Action: 2020</td></tr>
<tr><td colspan="5">NEPA Assignment – Project Type (check appropriate box)</td></tr>
<tr><td>Exempt</td><td colspan="2">Section 326 –Categorical Exemption</td><td colspan="2">X Section 327 – Non-Categorical Exemption</td></tr>
<tr><td colspan="5">Current Programming Dates (as appropriate) <u>Not currently programmed, in process.</u></td></tr>
<tr><td></td><td>PE/Environmental</td><td>ENG</td><td>ROW</td><td>CON</td></tr>
<tr><td>Start</td><td></td><td></td><td></td><td></td></tr>
<tr><td>End</td><td></td><td></td><td></td><td></td></tr>
</table>

Project Purpose and Need (Summary): (attach additional sheets as necessary)

Purpose

The project purpose is to achieve a consistent roadway design and enhance safety and mobility for pedestrians, bicyclists, automobiles, and transit vehicles on Lincoln Boulevard in the vicinity of Ballona Creek. In furtherance of the project's purpose, the objectives of the project are to:

1. Eliminate the gap where southbound Lincoln Boulevard narrows from two to three travel lanes, generally between Fiji Way and Jefferson Boulevard;
2. Improve safety, accessibility, and connectivity between Playa Del Rey, Playa Vista, and other coastal communities in Westside Los Angeles for all modes of travel;
3. Minimize permanent and temporary impacts to Ballona Creek and other wetlands and waters, as well as sensitive plants, animals, and vegetation communities within and near the project site to the maximum extent practicable;
4. Design the project to be compatible with future transit improvements identified in local and regional plans that are planned to operate along Lincoln Boulevard within the project limits to the extent feasible;
5. Implement a project that would not preclude restoration of the Ballona Wetlands Ecological Reserve;
6. Minimize right-of-way impacts, including to the Ballona Wetlands Ecological Reserve and the Fiji Gateway Park located at the southeast quadrant of Lincoln Boulevard/Fiji Way;
7. Develop a project design that incorporates all feasible and prudent opportunities to avoid and minimize harm to Section 4(f) properties, which includes publicly-owned parks, recreation areas, wildlife and waterfowl refuges, and significant historic sites; and
8. Provide a cost-effective project solution to achieving a consistent roadway design and enhancing safety and mobility on Lincoln Boulevard.

Need

Lincoln Boulevard is an essential north-south route in the West Los Angeles transportation network and one of the primary study corridors in the Westside Mobility Plan. Lincoln Boulevard is envisioned by the City of Los Angeles to operate as a multimodal facility in the future. Lincoln Boulevard is one of the few arterial connections that provides continuous access through the Westside of Los Angeles and across Ballona Creek connecting Santa Monica, Venice, Culver City, and Del Rey on the north to Playa Del Rey, Playa Vista, Westchester, Los Angeles International Airport, and other destinations to the south.

Southbound Lincoln Boulevard narrows from three to two lanes approximately 1,050 feet north of the existing Lincoln Boulevard Bridge over Ballona Creek. The resulting merge movement for southbound drivers creates a traffic bottleneck along this roadway segment and poses a safety hazard.

The existing Lincoln Boulevard Bridge does not include sidewalks or bike lanes, which leads to conflicts between motorists, pedestrians, and bicyclists. Pedestrian and bicycle facilities along Lincoln Boulevard and on the Lincoln Boulevard Bridge are minimal and there are no other nearby options for pedestrians and bicyclists to cross Ballona Creek. The nearest crossings of Ballona Creek are 1.26 miles upstream (to the east) at Centinela Avenue and 1.46 miles downstream (to the west) at the Ballona Creek Bike Path bridge over Ballona Creek. This results in a need to improve the Lincoln Boulevard corridor for the regional mobility for pedestrians and bicyclists. There are currently no designated bicycle facilities on Lincoln Boulevard between Fiji Way and Jefferson Boulevard. Similarly, there are very few sidewalks within the project limits, with no sidewalks from just south of Fiji Way to just north of Jefferson Boulevard on the west side of Lincoln Boulevard, and just south of Fiji Way to just south of the Lincoln Boulevard Bridge over Ballona Creek on the east side of Lincoln Boulevard. The lack of pedestrian and bicycle facilities on Lincoln Boulevard prohibits safe access to the Ballona Creek Class I Bike Path that is located along the northern bank of Ballona Creek within the Project limits, leading to many pedestrians and bicyclists walking along the roadside shoulders to access the Creek. Widening the Lincoln Boulevard Bridge and the adjacent roadway is needed to improve these conditions for vehicles, pedestrians, and bicyclists.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*
Residential, recreational, office, open space, academic, commercial and hospital uses. No heavy industrial or warehousing uses in the local area.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility
Table 1 provides the LOS for Opening Year No Build and Build conditions. Based on the horizon year traffic forecasts, opening year (assumed to be 2030) volumes at the Project site will be 69,900 ADT along Lincoln Boulevard and 35,000 ADT along Culver Boulevard as shown in Table 2. This Table also presents the opening year Build and No Build LOS for intersections that would be influenced by the future configuration of the intersections affected by the Project in the year 2030. For all the intersections analyzed, the average vehicle delay would improve or stay the same for the Build Alternative when compared to the No Build Alternative, with the exception of Lincoln Boulevard/ Fiji Way. Table 2 shows opening year truck would comprise 0.5 to 2% percent of daily traffic, which corresponds to 200 to 1,300 trucks per day in the opening year.

Table 1

Opening Year 2030 Level of Service

Intersection	No Build				Build			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Lincoln Boulevard/ Fiji Way	39.0	D	32.9	C	39.1	D	33.6	C
Lincoln Boulevard/ Culver Boulevard	116.8	F	40.9	D	114.5	F	25.8	C
Lincoln Boulevard/ Jefferson Boulevard	95.8	F	46.8	D	96.0	F	47.4	D
Culver Loop to Lincoln Boulevard/ Culver Boulevard	<5.0	A	<5.0	A	<5.0	A	<5.0	A

Source: Fehr & Peers. Table 8 of the Transportation Analysis Report (TAR): Lincoln Bridge Multi-Modal Improvement Project 2023. Table 8 provides LOS for No Build and Build conditions.

Table 2

Year 2030Average Daily Traffic and Trucks

Roadway	AADT	Percent Trucks	Truck Quantity
Lincoln Boulevard	69,900	2%	1,400
Culver Boulevard	35,000	0.5%	200

Source: Fehr & Peers. Transportation Analysis Report (TAR): Lincoln Bridge Multi-Modal Improvement Project 2023.

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

The analysis horizon year is 2050. Table 3 shows the LOS for No Build and Build conditions. Table 4 provides the AADT which ranges from 36,700 to 81,800 vehicles/day. This Table also presents the horizon year Build and No Build LOS for intersections that would be influenced by the future configuration of the Project. There is a mixture of improvements and worsening of LOS which is further described in the discussion of potential traffic redistribution effects of congestion relief. Table 4 lists the trucks percentages which range from 0.5 to 2 percent of total traffic, which corresponds to 200 to 1,600 trucks per day in the analysis horizon year.

Table 3

Horizon/Design Year 2050 Level of Service

Intersection	No Build				Build			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Lincoln Boulevard/ Fiji Way	45.0	D	39.7	D	48.8	D	48.7	D
Lincoln Boulevard/ Culver Boulevard	162.0	F	70.4	E	133.2	F	52.6	D
Lincoln Boulevard/ Jefferson Boulevard	102.7	F	73.5	E	102.5	F	86.3	F
Culver Loop to Lincoln Boulevard/ Culver Boulevard	<5.0	A	<5.0	A	6.1	A	<5.0	A

Source: Fehr & Peers. Table 10 of the Transportation Analysis Report (TAR): Lincoln Bridge Multi-Modal Improvement Project 2023. . Table 10 provides LOS for No Build and Build conditions for Horizon Year 2050.

Table 4

Year 2050 Average Daily Traffic and Trucks

Roadway	AADT	Percent Trucks	Trucks Quantity
Lincoln Boulevard	81,800	2%	1,600
Culver Boulevard	36,700	0.5%	200

Source: Fehr & Peers. Transportation Analysis Report (TAR): Lincoln Bridge Multi-Modal Improvement Project 2023.

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

The Project includes realignment and improvements to the Lincoln Boulevard/Culver Loop intersections. For Opening Year Build and No Build AADT and truck data, please see Tables 1 and 2.

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

The Project includes realignment and improvements to the Lincoln Boulevard/Culver Loop intersections. For Horizon Year Build and No Build AADT and truck data, please see Tables 3 and 4.

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*

At Project buildout in 2030, improvements in LOS at the analyzed intersections due to the Project would be nominal with reductions in delay ranging from 0.0 to 0.8. For the horizon year of 2050, the analyzed intersections would involve some intersections improving and some worsening. The intersection of Lincoln Boulevard/Fiji Way would experience a worsening of LOS due to the Project with delays increasing from 39.0 to 39.1 in the AM peak hour and 32.9 to 33.6 in the PM peak hour. The intersection of Lincoln Boulevard/Culver Boulevard would experience an improvement in LOS with delays reduced from 116.8 to 114.5 in the AM peak hour and 40.9 to 25.8 in the PM peak hour. The intersection of Lincoln Boulevard/Jefferson Boulevard would experience a slight worsening in AM peak hour LOS with a delay changing from 95.8 to 96.0 in the AM peak hour and a slight worsening in PM peak hour LOS with the delay changing from 46.8 to 47.4 in the PM peak hour. The Culver Loop to Lincoln Boulevard/ Culver Boulevard would not experience a change in delay.

As a result of the Project, traffic redistribution would result in a reduction in VMT as shown in Table 5. In the study area is estimated to decrease by approximately 1.7% compared to No Build conditions in 2030, and by 4.7% in 2050. The decrease in VMT is due to the elimination of the existing southbound bottleneck on the bridge, which results in vehicles using alternate routes that, while time efficient, require traveling a greater distance. The 1.5-mile radius used for this analysis includes alternative routes across Ballona Creek, including SR-90 and Centinela Avenue, both east of the Project. VMT reductions as a result of the Project can therefore be attributed to the Project’s addition of southbound capacity, providing a more direct route for many trips.

Table 5

Vehicle Miles Traveled

Year	No Build	Build	Difference	Percent Difference
Existing (2019)	593,873			
Opening Year (2030)	632,532	621,550	-10,982	-1.74%
Design Year (2050)	700,441	667,226	-33,215	-4.74%

Source: Fehr & Peers. Transportation Analysis Report (TAR): Lincoln Bridge Multi-Modal Improvement Project 2023. Table 12.

Comments/Explanation/Details (attach additional sheets as necessary)

The proposed Project is intended improve multimodal transportation options and reduce VMT in the Project vicinity. The project is located in an area designated nonattainment for both PM10 and PM2.5 of the California Ambient Air Quality Standards and nonattainment for PM2.5 of the National Ambient Air Quality Standards. However, the proposed project would not be a project of air quality concern per 40 CFR 93.123(b)(1)(i) and (ii), for the following reasons:

-1. The proposed project is not a new highway or expressway that serves a significant volume of diesel truck traffic. As shown above, the AADT would be less than 125,000 and the truck AADT would be less than 8% (2%) of the total AADT.

-2. The project does not include highway facility improvements to connect a highway to a major freight, bus, or intermodal terminal.

-3. The project would not affect a congested intersection that has a significant increase in the number of diesel trucks.

-4. The project would not involve a significant increase in the number of diesel transit buses or diesel trucks.

Per 40 CFR 93.123(b)(1)(i), the project should be considered “not of air quality concern” because the project is intended to serve mainly gasoline fueled vehicles and would reduce areawide VMT and improve multimodal transportation options.

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

August 27, 2019
Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF THE MEETING OF THE TRANSPORTATION CONFORMITY WORKING GROUP. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Meeting of the Transportation Conformity Working Group was held at the SCAG office in Los Angeles.

In Attendance

Huddleston, Lori	Metro
Mejia, James	SBCTA

SCAG

Asuncion, John
Calderon, Karen
Luo, Rongsheng
Sangkapichai, Mana

Via Teleconference

Acosta, Brooke	IBI
Brugger, Ron	LSA
Cacatian, Ben	VCAPCD
Cheung, Tim	PSOMAS
Gallo, Ilene	Caltrans, District 11
Hall, Kara	Fehr & Peers
Kalandiyur, Nesamani	ARB
Mahadev, Shudeish	Parsons
Sun, Lijin	SCAQMD
Tavitas, Rodney	Caltrans Headquarters
Tax, Wienke	EPA Region 9
Vaughn, Joseph	FHWA
Verano, Jerusalem	Michael Baker International
Whitaker, Warren	OCTA
Wong, Jillian	SCAQMD
Yoon, Andrew	Caltrans, District 7

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

August 27, 2019
Minutes

1.0 CALL TO ORDER AND SELF-INTRODUCTION

Rongsheng Luo, SCAG, called the meeting to order at 10:05 am on behalf of TCWG Chair, James Mejia. Subsequently, Mr. Mejia chaired the meeting.

2.0 PUBLIC COMMENT PERIOD

None.

3.0 CONSENT CALENDAR

3.1. June 25, 2019 TCWG Meeting Minutes
The meeting minutes were approved.

3.2. July 23, 2019 TCWG Meeting Minutes
The meeting minutes were approved.

4.0 INFORMATION ITEMS

4.1 Review of PM Hot Spot Interagency Review Forms

1) **Lincoln Boulevard**
It was determined that this project is not a POAQC (EPA concurrence received after the meeting).

2) **RIV071254**
It was reaffirmed that this project is not a POAQC (EPA concurrence received after the meeting).

4.2 RTP Update
John Asuncion, SCAG, reported the following:

- SCAG staff continued to work hard on developing Connect SoCal.
- Draft Connect SoCal Plan was still on target for public release in November 2019.

4.3 FTIP Update
Mr. Asuncion, SCAG, reported the following:

- 2019 FTIP Administrative Modification #19-11 was anticipated to be completed by August 30, 2019.
- 2021 FTIP Guidelines were going to be presented to SCAG Transportation Committee for approval in September 2019.

4.4 EPA Update

Wienke Tax, EPA Region 9, reported the following:

- On August 27, 2019, EPA published a Federal Register notice proposing state implementation plan (SIP) requirements for Coachella Valley as a result of its reclassification as an "Extreme" nonattainment area under 1997 8-hour ozone standards. The SIP would be required to be submitted to EAP by July 10, 2020 (12 months from effective date of reclassification).
- On August 15, 2019, EPA published a Federal Register notice announcing availability of EMFAC2017 with a 1-year grace period for CO and PM hot-spot analyses until August 17, 2020 and a 2-year grace period for regional emissions analyses until August 17, 2021.

In response to questions, Wienke Tax, EPA Region 9, stated that she hoped to give an update on SAFE Vehicles Rule at September 2019 TCWG meeting; and it would be reasonable to request guidance from EPA regarding transportation conformity implications of final SAFE Vehicles Rule upon publication.

4.5 ARB Update

Nesamani Kalandiyur, ARB, reported the following:

- EMFAC2017 model and default activity data were available for download on ARB website.
- ARB was working on next version of EMFAC model and there would be a public workshop in October 2019. Notice of public workshop would be forwarded for distribution.

In response to a question, Nesamani Kalandiyur, ARB, stated that ARB was not making any changes or update to EMFAC2017 due to many uncertainties because SAFE Vehicles Rule had not been finalized.

4.6 Air Districts Update

Ben Cacatian, VCAPCD, reported that Dr. Laki Tisopulos, Deputy Executive Officer of SCAQMD, would become new Executive Officer of VCAPCD on September 3, 2019.

Rongsheng Luo, SCAG, noted that he received an email from Lijin Sun, SCAQMD, but there was no items related to transportation conformity.

5.0 INFORMATION SHARING

Rodney Tavitas, Caltrans Headquarters, announced the following:

- Introduction to Transportation Conformity Training will take place January 6-8, 2020 in San Diego and he will forward registration information once it is available.
- He was compiling and requesting questions for discussion with FHWA, FTA, and EPA after SAFE Vehicles Rule has been finalized.
- Alexus Arellano was a new Caltrans staff responsible for quality assurance for environmental documents as well as a staff backup for Statewide Conformity Working Group.

Rongsheng Luo, SCAG, introduced and welcomed Karen Calderon as a new SCAG staff who will, among other responsibilities, provide staff support to SCAG's Air Quality and Conformity Program including TCWG.

6.0 ADJOURNMENT

The meeting was adjourned at 10:35 am. The next Transportation Conformity Working Group meeting will be held on Tuesday, September 24, 2019, at the SCAG main office in downtown Los Angeles.

Appendix G

VMT Emissions Analysis

VMT Exhaust Emissions Analysis

Emission Rates (grams/mile)

	Year	CO	NOx	ROG	PM10	PM2.5	CO2	CH4	CO2e	Average Speed(mph)
		2	3	4	5	6	7	8	9	
Existing Year	2019	1.58	0.20	0.04	0.03	0.01	361.55	0.01	361.90	29
Opening Year 2030 No Project	2030	0.86	0.07	0.02	0.0220	0.01	311.70	0.02	397.45	25
Opening Year 2030 With Project	2030	0.82	0.06	0.01	0.02	0.01	290.85	0.01	370.78	28
Design Year 2050 No Project	2050	0.59	0.04	0.01	0.02	0.01	244.02	0.01	361.90	29
Design Year 2050 With Project	2050	0.59	0.04	0.01	0.02	0.01	244.02	0.01	361.90	29

Emission rates includes exhaust, tire wear, and brake wear from EMFAC, road dust calculated seperately and included below in the "Emissions (lbs.day)".

Emissions (lbs./day)

	VMT	CO	NOx	ROG	PM10	PM2.5	CO2	CH4	CO2e
Existing Year	593,873	2,066	257	52	426	111	472,946	18	472,964
Opening Year 2030 No Project	632,532	1,204	96	23	447	115	434,280	22	434,303
Opening Year 2030 With Project	621,550	1,126	87	20	439	113	398,195	19	398,214
Opening Year Difference (Project minus No Project)	98%	-78.0	-9.0	-3.0	-8.2	-2	(36,086)	(3)	(36,089)
Design Year 2050 No Project	700,441	903	57	12	494	126	376,478	21	376,499
Design Year 2050 With Project	667,226	860	54	12	470	120	358,625	20	358,645
Design Year Difference (Project minus No Project)	95%	-43	-3	0	-24	-6	(17,853)	(1)	(17,854)

Emissions (tons/day)

	CO	NOx	ROG	PM10	PM2.5	CO2	CH4	CO2e	CO2e(tonnes/year)
Existing Year	1.03	0.13	0.03	0.21	0.06	215	0	215	74,444
Opening Year 2030 No Project	0.60	0.05	0.01	0.22	0.06	197	0	197	68,358
Opening Year 2030 With Project	0.56	0.04	0.01	0.22	0.06	181	0	181	62,678
Opening Year Difference (Project minus No Project)	(0.04)	(0.00)	(0.00)	(0.00)	(0.00)	(16)	(0)	(16)	-5,680
Design Year 2050 No Project	0.45	0.03	0.01	0.25	0.06	171	0	171	59,260
Design Year 2050 With Project	0.43	0.03	0.01	0.24	0.06	163	0	163	56,450
Design Year Difference (Project minus No Project)	(0.02)	(0.00)	0.00	(0.01)	(0.00)	(8)	(0)	(8)	-2,810

	CO	PM10	PM2.5	NOx
Existing Year	1.0330	0.2129	0.0554	0.1285
Opening Year 2030 No Project	0.6020	0.2236	0.0575	0.0480
Opening Year 2030 With Project	0.5630	0.2195	0.0566	0.0435
Year 2030 Build Alternative Difference	-0.0390	-0.0041	-0.0009	-0.0045
Design Year 2050 No Project	0.4515	0.2470	0.0631	0.0285
Design Year 2050 With Project	0.4300	0.2351	0.0599	0.0270
Year 2050 Build Alternative Difference	-0.0215	-0.0119	-0.0032	-0.0015

Daily

TABLE 12
VEHICLE MILES TRAVELED (VMT) - 1.5 mile radius

Year	No Build	Build	Difference	Percent Difference
Existing (2019)	593,873	--	--	--
Opening Year (2030)	632,532	621,550	-10,982	-1.74%
Design Year (2050)	700,441	667,226	-33,215	-4.74%

Annual - Calculated

TABLE
VEHICLE MILES TRAVELED (VMT) - 1.5 mile radius

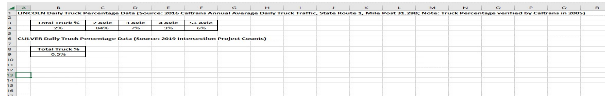
Year	No Build	Build	Difference	Percent Difference
Existing (2019)	206,073,931	--	--	--
Opening Year (2030)	219,488,604	215,677,850	-3,810,754	-1.74%
Design Year (2050)	243,053,027	231,527,422	-11,525,605	-4.74%

Idling Emissions

		NonTruck			Truck			Combined Lincoln			Combined Culver		
RUNEX		2019	2030	2050	2019	2030	2050	2019	2030	2050	2019	2030	2050
IDLEX	CO	61.9	69.6	63.2	35.0	36.3	30.3	61.4	69.0	62.6	35.1	36.5	30.4
STREX	NOx	47.8	24.2	9.1	43.2	24.4	18.2	47.7	24.3	9.3	43.2	24.4	18.1
HOTSOAK	ROG	7.1	6.4	3.9	2.9	2.3	1.9	7.0	6.4	3.9	2.9	2.3	1.9
RUNLOSS	PM10	0.203	0.027	0.019	0.131	0.030	0.017	0.2	0.0	0.0	0.1	0.0	0.0
DIURN	PM2_5	0.194	0.026	0.018	0.125	0.029	0.017	0.2	0.0	0.0	0.1	0.0	0.0
PMTW	CO2	6766.1	6492.0	5791.5	6406.8	5113.2	3800.3	6758.9	6464.5	5751.7	6408.5	5119.9	3810.1
PMBW								Combined Lincoln	Combined	Combined	Combined	Combined	Combined Culver 2050

Vehicle Fleet Composition

	NonTruck	Truck	Total
Lincoln	98.0%	2.0%	100.0%
Culver	99.5%	0.5%	100.0%


LINCOLN Daily Truck Percentage Data (Source: 2016 Caltrans Annual Average Daily Truck Traffic, State Route 1, Mile Post 31.29B; Note: Truck Percentage verified by Caltrans in 2005)

Total Truck %	2 Axle	3 Axle	4 Axle	5+ Axle
2%	84%	7%	3%	6%

CULVER Daily Truck Percentage Data (Source: 2019 Intersection Project Counts)

Total Truck %
0.5%

GWP: CO2 1, CH4 25

2019

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
NonTruck	2019	RUNEX	5	2.758962	0.251511	0.190821	0.027812536	0.016149302	808.9852	0.057854	810.4315
NonTruck	2019	RUNEX	10	2.39429	0.213835	0.123612	0.024982035	0.012609647	653.4587	0.040164	654.4628
NonTruck	2019	RUNEX	15	2.100999	0.182993	0.083414	0.023938857	0.010713261	531.8048	0.027018	532.4802
NonTruck	2019	RUNEX	20	1.878834	0.161577	0.059228	0.023955910	0.009795667	441.3459	0.019474	441.8328
NonTruck	2019	RUNEX	25	1.701331	0.146905	0.044556	0.023963531	0.009244453	377.0261	0.015066	377.4027
NonTruck	2019	RUNEX	30	1.554228	0.136272	0.035295	0.023723899	0.008814251	334.3962	0.012187	334.7009
NonTruck	2019	RUNEX	35	1.430419	0.128684	0.029382	0.023701001	0.008586468	309.7543	0.010236	310.0102
NonTruck	2019	RUNEX	40	1.325809	0.123668	0.025702	0.022128674	0.007901384	299.5127	0.00892	299.7358
NonTruck	2019	RUNEX	45	1.237829	0.120934	0.023631	0.018957318	0.006718445	300.152	0.008072	300.3538
NonTruck	2019	RUNEX	50	1.166979	0.120382	0.022843	0.015869622	0.005614619	308.6765	0.007703	308.8691
NonTruck	2019	PMBW	5	0	0	0	0.007160151	0.002506053	0		
NonTruck	2019	PMBW	10	0	0	0	0.008791589	0.003077056	0		
NonTruck	2019	PMBW	15	0	0	0	0.010421873	0.003647655	0		
NonTruck	2019	PMBW	20	0	0	0	0.012050195	0.004217568	0		
NonTruck	2019	PMBW	25	0	0	0	0.013025388	0.004558886	0		
NonTruck	2019	PMBW	30	0	0	0	0.013390874	0.004686806	0		
NonTruck	2019	PMBW	35	0	0	0	0.013751858	0.00481315	0		
NonTruck	2019	PMBW	40	0	0	0	0.012415024	0.004345259	0		
NonTruck	2019	PMBW	45	0	0	0	0.009371426	0.003279999	0		
NonTruck	2019	PMBW	50	0	0	0	0.006324751	0.002213663	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		
NonTruck	2019	PMTW					0.008041879	0.002010470	0		

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Truck	2019	RUNEX	5	4.545277	7.895586	0.990853	0.246756585	0.160100739	2604.435	0.295063	2611.812
Truck	2019	RUNEX	10	3.431105	6.396086	0.740303	0.226514783	0.140764438	2219.392	0.20639	2224.552
Truck	2019	RUNEX	15	2.460009	4.703282	0.434196	0.197045838	0.113009450	1819.388	0.123215	1822.468
Truck	2019	RUNEX	20	1.903932	3.835364	0.258495	0.176319103	0.093971622	1566.943	0.082649	1569.009
Truck	2019	RUNEX	25	1.564798	3.335111	0.19347	0.163145308	0.083327855	1378.229	0.064376	1379.839
Truck	2019	RUNEX	30	1.336243	2.992441	0.15583	0.156144450	0.077692459	1248.627	0.05311	1249.954
Truck	2019	RUNEX	35	1.168703	2.728506	0.127544	0.144940439	0.071843758	1153.394	0.045064	1154.521
Truck	2019	RUNEX	40	1.05107	2.540098	0.107041	0.138368082	0.068844754	1087.583	0.039155	1088.562
Truck	2019	RUNEX	45	0.977766	2.425318	0.093297	0.133803378	0.067765602	1048.596	0.034793	1049.466
Truck	2019	RUNEX	50	0.947047	2.38299	0.085646	0.132765404	0.069139353	1034.699	0.031641	1035.49
Truck	2019	PMBW	5	0	0	0	0.102228578	0.035780002	0		
Truck	2019	PMBW	10	0	0	0	0.102228578	0.035780002	0		
Truck	2019	PMBW	15	0	0	0	0.101534676	0.035537137	0		
Truck	2019	PMBW	20	0	0	0	0.100247513	0.03508663	0		
Truck	2019	PMBW	25	0	0	0	0.09702875	0.033960063	0		
Truck	2019	PMBW	30	0	0	0	0.095285065	0.033349773	0		
Truck	2019	PMBW	35	0	0	0	0.087262419	0.030541847	0		
Truck	2019	PMBW	40	0	0	0	0.081844478	0.028645567	0		
Truck	2019	PMBW	45	0	0	0	0.076426537	0.026749288	0		
Truck	2019	PMBW	50	0	0	0	0.072525619	0.025383967	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		
Truck	2019	PMTW					0.019615805	0.004903951	0		

Combined Lincoln

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Combined	2019	RUNEX	5	2.794689	0.404392663	0.206821827	0.032191417	0.019028331	844.8942	0.062598	846.4592
Combined	2019	RUNEX	10	2.415026	0.337479607	0.135945944	0.029012690	0.015172743	684.7774	0.043488	685.8646
Combined	2019	RUNEX	15	2.108179	0.273398888	0.090430001	0.027400996	0.012759185	557.5564	0.028942	558.28
Combined	2019	RUNEX	20	1.879336	0.235052709	0.063212894	0.027003174	0.011479187	463.8578	0.020738	464.3763
Combined	2019	RUNEX	25	1.6986	0.210669563	0.047534648	0.026747167	0.010726121	397.0501	0.016052	397.4514
Combined	2019	RUNEX	30	1.549868	0.193395115	0.037705906	0.026372310	0.010191815	352.6809	0.013006	353.006
Combined	2019	RUNEX	35	1.425185	0.180680586	0.031344877	0.026125790	0.009851614	326.6271	0.010932	326.9004
Combined	2019	RUNEX	40	1.320314	0.171996856	0.027329	0.024453462	0.009120251	315.2742	0.009525	315.5123
Combined	2019	RUNEX	45	1.232628	0.16702171	0.025024025	0.021254239	0.007939388	315.1209	0.008606	315.336
Combined	2019	RUNEX	50	1.16258	0.165634567	0.024098807	0.018207537	0.006885114	323.1969	0.008182	323.4015
				17.5864	2.339722264	0.689447929	0.258768783	0.113153749	4581.036	0.222069	
Combined	2019	PMBW	5	0	0	0	0.00906152	0.003171532	0	0	
Combined	2019	PMBW	10	0	0	0	0.010660329	0.003731115	0	0	
Combined	2019	PMBW	15	0	0	0	0.012244129	0.004285445	0	0	
Combined	2019	PMBW	20	0	0	0	0.013814142	0.00483495	0	0	
Combined	2019	PMBW	25	0	0	0	0.014705456	0.005146909	0	0	
Combined	2019	PMBW	30	0	0	0	0.015028758	0.005260065	0	0	
Combined	2019	PMBW	35	0	0	0	0.015222069	0.005327724	0	0	
Combined	2019	PMBW	40	0	0	0	0.013803613	0.004831265	0	0	
Combined	2019	PMBW	45	0	0	0	0.010712528	0.003749385	0	0	
Combined	2019	PMBW	50	0	0	0	0.007648768	0.002677069	0	0	
Combined	2019	PMTW	5	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	10	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	15	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	20	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	25	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	30	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	35	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	40	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	45	0	0	0	0.008273358	0.002068339	0	0	
Combined	2019	PMTW	50	0	0	0	0.008273358	0.002068339	0	0	

Combined Culver

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Combined	2019	RUNEX	5	2.767894	0.289732	0.194821	0.028907256	0.016869059	817.9625	0.05904	819.4384
Combined	2019	RUNEX	10	2.399474	0.244746	0.126696	0.025989699	0.013250421	661.2884	0.040995	662.3133
Combined	2019	RUNEX	15	2.102794	0.205595	0.085168	0.024804392	0.011224742	538.2427	0.027499	538.9302
Combined	2019	RUNEX	20	1.878959	0.179946	0.060224	0.024717726	0.010216547	446.9739	0.01979	447.4686
Combined	2019	RUNEX	25	1.700648	0.162846	0.045301	0.024659440	0.009614870	382.0321	0.015312	382.4149
Combined	2019	RUNEX	30	1.553138	0.150553	0.035898	0.024386001	0.009158642	338.9674	0.012392	339.2772
Combined	2019	RUNEX	35	1.42911	0.141683	0.029872	0.024307198	0.008902754	313.9725	0.01041	314.2327
Combined	2019	RUNEX	40	1.324435	0.13575	0.026109	0.022709871	0.008206101	303.4531	0.009072	303.6799
Combined	2019	RUNEX	45	1.236529	0.132456	0.023979	0.019531548	0.007023681	303.8942	0.008205	304.0993
Combined	2019	RUNEX	50	1.165879	0.131695	0.023157	0.016454100	0.005932243	312.3066	0.007822	312.5022
				17.55886	1.775002	0.651225	0.236467233	0.100399061	4419.093	0.210537	
Combined	2019	PMBW	5	0	0	0	0.007635493	0.002672423	0	0	
Combined	2019	PMBW	10	0	0	0	0.009258774	0.003240571	0	0	
Combined	2019	PMBW	15	0	0	0	0.010877437	0.003807103	0	0	
Combined	2019	PMBW	20	0	0	0	0.012491182	0.004371914	0	0	
Combined	2019	PMBW	25	0	0	0	0.013445405	0.004705892	0	0	
Combined	2019	PMBW	30	0	0	0	0.013800345	0.004830121	0	0	
Combined	2019	PMBW	35	0	0	0	0.014119411	0.004941794	0	0	
Combined	2019	PMBW	40	0	0	0	0.012762172	0.00446676	0	0	
Combined	2019	PMBW	45	0	0	0	0.009706702	0.003397346	0	0	
Combined	2019	PMBW	50	0	0	0	0.006655755	0.002329514	0	0	
Combined	2019	PMTW	5	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	10	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	15	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	20	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	25	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	30	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	35	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	40	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	45	0	0	0	0.008099749	0.002024937	0	0	
Combined	2019	PMTW	50	0	0	0	0.008099749	0.002024937	0	0	

2452
2950

2030

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
NonTruck	2030	RUNEX	5	1.300882	0.082881	0.07147	0.021767691	0.010683610	638.636	0.024417	639.2465
NonTruck	2030	RUNEX	10	1.161528	0.069769	0.045569	0.020929429	0.008978281	514.759	0.017606	515.1992
NonTruck	2030	RUNEX	15	1.044073	0.05915	0.030436	0.021135515	0.008232824	418.6364	0.013098	418.9638
NonTruck	2030	RUNEX	20	0.949106	0.051872	0.021425	0.021918629	0.008019957	347.4659	0.010552	347.7297
NonTruck	2030	RUNEX	25	0.869568	0.046724	0.01597	0.022326371	0.007866294	296.8981	0.008965	297.1223
NonTruck	2030	RUNEX	30	0.800882	0.042916	0.012553	0.022256299	0.007656817	263.3625	0.007926	263.5606
NonTruck	2030	RUNEX	35	0.740852	0.040152	0.010389	0.022302661	0.007556770	243.9397	0.007231	244.1205
NonTruck	2030	RUNEX	40	0.688126	0.038269	0.009051	0.020856710	0.006979686	235.8061	0.006767	235.9753
NonTruck	2030	RUNEX	45	0.641705	0.037169	0.008299	0.017887419	0.005901669	236.2012	0.006469	236.3629
NonTruck	2030	RUNEX	50	0.601642	0.03681	0.008009	0.014960745	0.004864056	242.7738	0.006368	242.933
NonTruck	2030	PMBW	5	0	0	0	0.006948564	0.002431998	0		
NonTruck	2030	PMBW	10	0	0	0	0.008587826	0.003005739	0		
NonTruck	2030	PMBW	15	0	0	0	0.010227416	0.003579595	0		
NonTruck	2030	PMBW	20	0	0	0	0.011864092	0.004152432	0		
NonTruck	2030	PMBW	25	0	0	0	0.012791482	0.004477019	0		
NonTruck	2030	PMBW	30	0	0	0	0.013045731	0.004566006	0		
NonTruck	2030	PMBW	35	0	0	0	0.013296	0.0046536	0		
NonTruck	2030	PMBW	40	0	0	0	0.011974614	0.004191115	0		
NonTruck	2030	PMBW	45	0	0	0	0.009073427	0.0031757	0		
NonTruck	2030	PMBW	50	0	0	0	0.006170239	0.002159583	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		
NonTruck	2030	PMTW		0	0	0	0.008035928	0.002008982	0		

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Truck	2030	RUNEX	5	1.972605	3.90746	0.115141	0.016098163	0.015360405	1914.94	0.17695	1919.364
Truck	2030	RUNEX	10	1.431499	2.834048	0.080775	0.013361890	0.012752423	1626.497	0.119984	1629.496
Truck	2030	RUNEX	15	0.99141	1.896686	0.055511	0.010681954	0.010195465	1342.216	0.072644	1344.032
Truck	2030	RUNEX	20	0.757728	1.469934	0.042402	0.008780683	0.008381417	1169.536	0.051523	1170.824
Truck	2030	RUNEX	25	0.603398	1.157508	0.034996	0.007421552	0.007084659	1037.236	0.040463	1038.248
Truck	2030	RUNEX	30	0.489787	0.90629	0.029533	0.006617371	0.006317839	942.9099	0.033408	943.7451
Truck	2030	RUNEX	35	0.403992	0.709917	0.025119	0.006319657	0.006034780	871.4956	0.028432	872.2064
Truck	2030	RUNEX	40	0.341659	0.568067	0.02162	0.006519983	0.006227538	821.5379	0.024748	822.1566
Truck	2030	RUNEX	45	0.300545	0.48056	0.018959	0.007213882	0.006891900	792.1619	0.021935	792.7103
Truck	2030	RUNEX	50	0.279495	0.447289	0.017098	0.008399551	0.008026175	782.7376	0.019756	783.2315
Truck	2030	PMBW	5	0	0	0	0.096548552	0.033791993	0		
Truck	2030	PMBW	10	0	0	0	0.096548552	0.033791993	0		
Truck	2030	PMBW	15	0	0	0	0.09591788	0.033571258	0		
Truck	2030	PMBW	20	0	0	0	0.094769739	0.033169408	0		
Truck	2030	PMBW	25	0	0	0	0.092115906	0.032240567	0		
Truck	2030	PMBW	30	0	0	0	0.090666924	0.031733423	0		
Truck	2030	PMBW	35	0	0	0	0.083456699	0.029209845	0		
Truck	2030	PMBW	40	0	0	0	0.078540248	0.027489087	0		
Truck	2030	PMBW	45	0	0	0	0.073623796	0.025768329	0		
Truck	2030	PMBW	50	0	0	0	0.070083951	0.024529383	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		
Truck	2030	PMTW		0	0	0	0.019224303	0.004806076	0		

Combined Lincoln

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Combined	2030	RUNEX	5	1.314316	0.159372	0.072344	0.021654300	0.010777146	664.1621	0.027468	664.8488
Combined	2030	RUNEX	10	1.166927	0.125054	0.046273	0.020778078	0.009053764	536.9937	0.019654	537.4851
Combined	2030	RUNEX	15	1.043019	0.095901	0.030937	0.020926444	0.008272077	437.108	0.014288	437.4652
Combined	2030	RUNEX	20	0.945278	0.080234	0.021844	0.021655870	0.008027187	363.9074	0.011372	364.1916
Combined	2030	RUNEX	25	0.864245	0.06894	0.01635	0.022028275	0.007850662	311.7049	0.009595	311.9448
Combined	2030	RUNEX	30	0.794661	0.060183	0.012893	0.021943520	0.007630038	276.9534	0.008436	277.1643
Combined	2030	RUNEX	35	0.734115	0.053547	0.010684	0.021983001	0.007526330	256.4908	0.007655	256.6822
Combined	2030	RUNEX	40	0.681196	0.048865	0.009302	0.020569975	0.006964643	247.5207	0.007126	247.6989
Combined	2030	RUNEX	45	0.634882	0.046037	0.008512	0.017673948	0.005921473	247.3204	0.006778	247.4899
Combined	2030	RUNEX	50	0.595199	0.045019	0.008191	0.014829521	0.004927299	253.5731	0.006635	253.739
Combined	2030	PMBW	5	0	0	0	0.008740564	0.003059197	0		
Combined	2030	PMBW	10	0	0	0	0.01034704	0.003621464	0		
Combined	2030	PMBW	15	0	0	0	0.011941225	0.004179429	0		
Combined	2030	PMBW	20	0	0	0	0.013522205	0.004732772	0		
Combined	2030	PMBW	25	0	0	0	0.01437797	0.00503229	0		
Combined	2030	PMBW	30	0	0	0	0.014598155	0.005109354	0		
Combined	2030	PMBW	35	0	0	0	0.014699214	0.005144725	0		
Combined	2030	PMBW	40	0	0	0	0.013305927	0.004657074	0		
Combined	2030	PMBW	45	0	0	0	0.010364435	0.003627552	0		
Combined	2030	PMBW	50	0	0	0	0.007448513	0.002606979	0		
Combined	2030	PMTW	5	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	10	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	15	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	20	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	25	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	30	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	35	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	40	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	45	0	0	0	0.008259695	0.002064924	0		
Combined	2030	PMTW	50	0	0	0	0.008259695	0.002064924	0		

Combined Culver

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Combined	2030	RUNEX	5	1.30424	0.102004	0.071689	0.021739343	0.010706994	645.0176	0.02518	645.6471
Combined	2030	RUNEX	10	1.162878	0.08359	0.045745	0.020891591	0.008997152	520.3177	0.018118	520.7706
Combined	2030	RUNEX	15	1.043809	0.068337	0.030561	0.021083248	0.008242637	423.2543	0.013395	423.5892
Combined	2030	RUNEX	20	0.948149	0.058963	0.02153	0.021852939	0.008021765	351.5763	0.010757	351.8452
Combined	2030	RUNEX	25	0.868237	0.052278	0.016065	0.022251847	0.007862386	300.5998	0.009122	300.8279
Combined	2030	RUNEX	30	0.799327	0.047233	0.012638	0.022178104	0.007650123	266.7602	0.008054	266.9615
Combined	2030	RUNEX	35	0.739168	0.0435	0.010463	0.022222746	0.007549160	247.0775	0.007337	247.2609
Combined	2030	RUNEX	40	0.686393	0.040918	0.009114	0.020785026	0.006975925	238.7348	0.006856	238.9062
Combined	2030	RUNEX	45	0.639999	0.039386	0.008352	0.017834051	0.005906620	238.981	0.006546	239.1447
Combined	2030	RUNEX	50	0.600031	0.038862	0.008055	0.014927939	0.004879867	245.4736	0.006435	245.6345
Combined	2030	PMBW	5	0	0	0	0.007396564	0.002588798	0		
Combined	2030	PMBW	10	0	0	0	0.009027629	0.00315967	0		
Combined	2030	PMBW	15	0	0	0	0.010655868	0.003729554	0		
Combined	2030	PMBW	20	0	0	0	0.01227862	0.004297517	0		
Combined	2030	PMBW	25	0	0	0	0.013188104	0.004615836	0		
Combined	2030	PMBW	30	0	0	0	0.013433837	0.004701843	0		
Combined	2030	PMBW	35	0	0	0	0.013646803	0.004776381	0		
Combined	2030	PMBW	40	0	0	0	0.012307442	0.004307605	0		
Combined	2030	PMBW	45	0	0	0	0.009396179	0.003288663	0		
Combined	2030	PMBW	50	0	0	0	0.006489807	0.002271432	0		
Combined	2030	PMTW	5	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	10	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	15	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	20	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	25	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	30	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	35	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	40	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	45	0	0	0	0.008091870	0.002022967	0		
Combined	2030	PMTW	50	0	0	0	0.008091870	0.002022967	0		

	2050		Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
NonTruck	2050	RUNEX	5	0.936171	0.042794	0.044925	0.018172381	0.007384833	548.8125	0.013949	549.1612
NonTruck	2050	RUNEX	10	0.839338	0.036307	0.028301	0.018633621	0.006872947	444.2988	0.009133	444.5271
NonTruck	2050	RUNEX	15	0.758025	0.030774	0.018689	0.019600167	0.006825353	363.1136	0.006024	363.2641
NonTruck	2050	RUNEX	20	0.690007	0.026895	0.013016	0.020838548	0.007029675	301.999	0.004342	302.1075
NonTruck	2050	RUNEX	25	0.631905	0.024138	0.009611	0.021503625	0.007122142	258.3687	0.00332	258.4517
NonTruck	2050	RUNEX	30	0.580922	0.022087	0.007495	0.021565296	0.007056197	229.389	0.002667	229.4557
NonTruck	2050	RUNEX	35	0.53576	0.020572	0.006165	0.021678960	0.007041129	212.6121	0.002241	212.6682
NonTruck	2050	RUNEX	40	0.495602	0.019508	0.005347	0.020304016	0.006526495	205.6204	0.001965	205.6695
NonTruck	2050	RUNEX	45	0.4598	0.018839	0.004891	0.017421289	0.005499339	206.0294	0.001796	206.0743
NonTruck	2050	RUNEX	50	0.42782	0.018532	0.004717	0.014558253	0.004491045	211.7108	0.001711	211.7536
NonTruck	2050	PMBW	5	0	0	0	0.00689187	0.002412154	0		
NonTruck	2050	PMBW	10	0	0	0	0.00853476	0.002987166	0		
NonTruck	2050	PMBW	15	0	0	0	0.010178352	0.003562423	0		
NonTruck	2050	PMBW	20	0	0	0	0.011818645	0.004136526	0		
NonTruck	2050	PMBW	25	0	0	0	0.012729812	0.004455434	0		
NonTruck	2050	PMBW	30	0	0	0	0.012945008	0.004530753	0		
NonTruck	2050	PMBW	35	0	0	0	0.013154895	0.004604213	0		
NonTruck	2050	PMBW	40	0	0	0	0.011838576	0.004143502	0		
NonTruck	2050	PMBW	45	0	0	0	0.008987833	0.003145742	0		
NonTruck	2050	PMBW	50	0	0	0	0.006135809	0.002147533	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		
NonTruck	2050	PMTW		0	0	0	0.008068145	0.002017036	0		

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Truck	2050	RUNEX	5	1.083514	3.554215	0.059624	0.007865863	0.007509316	1296.479	0.107323	1299.162
Truck	2050	RUNEX	10	0.804024	2.502763	0.037877	0.006582910	0.006284580	1106.348	0.073075	1108.175
Truck	2050	RUNEX	15	0.564139	1.611437	0.023688	0.005355873	0.005113149	913.8407	0.045287	914.9729
Truck	2050	RUNEX	20	0.432057	1.211644	0.017978	0.004555707	0.004349608	802.0438	0.0331	802.8713
Truck	2050	RUNEX	25	0.342006	0.925242	0.015055	0.003897886	0.003721841	722.1765	0.026221	722.832
Truck	2050	RUNEX	30	0.271521	0.689196	0.012874	0.003614431	0.003451887	665.5673	0.021761	666.1113
Truck	2050	RUNEX	35	0.214828	0.503347	0.011056	0.003737826	0.003570856	622.3848	0.018619	622.8503
Truck	2050	RUNEX	40	0.170539	0.367639	0.009587	0.004267613	0.004078324	592.2198	0.016285	592.627
Truck	2050	RUNEX	45	0.137924	0.282042	0.008463	0.005203535	0.004974055	574.7906	0.014488	575.1528
Truck	2050	RUNEX	50	0.116563	0.246537	0.00768	0.006545458	0.006257927	569.8698	0.013068	570.1965
Truck	2050	PMBW	5	0	0	0	0.092155094	0.032254283	0		
Truck	2050	PMBW	10	0	0	0	0.092155094	0.032254283	0		
Truck	2050	PMBW	15	0	0	0	0.091368522	0.031978983	0		
Truck	2050	PMBW	20	0	0	0	0.089993119	0.031497591	0		
Truck	2050	PMBW	25	0	0	0	0.08739021	0.030586574	0		
Truck	2050	PMBW	30	0	0	0	0.085936517	0.030077781	0		
Truck	2050	PMBW	35	0	0	0	0.077142368	0.026999829	0		
Truck	2050	PMBW	40	0	0	0	0.071021176	0.024857412	0		
Truck	2050	PMBW	45	0	0	0	0.064899984	0.022714994	0		
Truck	2050	PMBW	50	0	0	0	0.060492725	0.021172454	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		
Truck	2050	PMTW		0	0	0	0.021148906	0.005287227	0		

Combined Lincoln

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Combined	2050	RUNEX	5	0.939118	0.113023	0.045219	0.017966251	0.007387323	563.7659	0.015816	564.1613
Combined	2050	RUNEX	10	0.838631	0.085636	0.028492	0.018392607	0.006861179	457.5398	0.010412	457.8001
Combined	2050	RUNEX	15	0.754147	0.062387	0.018789	0.019315281	0.006791109	374.1281	0.006809	374.2983
Combined	2050	RUNEX	20	0.684848	0.05059	0.013116	0.020512891	0.006976073	311.9999	0.004917	312.1228
Combined	2050	RUNEX	25	0.626107	0.04216	0.00972	0.021151511	0.007054136	267.6449	0.003778	267.7393
Combined	2050	RUNEX	30	0.574734	0.035429	0.007603	0.021206278	0.006984111	238.1126	0.003049	238.1888
Combined	2050	RUNEX	35	0.529341	0.030228	0.006263	0.021320137	0.006971723	220.8076	0.002568	220.8718
Combined	2050	RUNEX	40	0.489101	0.02647	0.005432	0.019983288	0.006477532	213.3524	0.002251	213.4086
Combined	2050	RUNEX	45	0.453363	0.024103	0.004962	0.017176934	0.005488833	213.4046	0.00205	213.4559
Combined	2050	RUNEX	50	0.421595	0.023092	0.004776	0.014397997	0.004526383	218.874	0.001939	218.9225
Combined	2050	PMBW	5	0	0	0	0.008597134	0.003008997	0		
Combined	2050	PMBW	10	0	0	0	0.010207167	0.003572508	0		
Combined	2050	PMBW	15	0	0	0	0.011802155	0.004130754	0		
Combined	2050	PMBW	20	0	0	0	0.013382135	0.004683747	0		
Combined	2050	PMBW	25	0	0	0	0.01422302	0.004978057	0		
Combined	2050	PMBW	30	0	0	0	0.014404838	0.005041693	0		
Combined	2050	PMBW	35	0	0	0	0.014434644	0.005052125	0		
Combined	2050	PMBW	40	0	0	0	0.013022228	0.00455778	0		
Combined	2050	PMBW	45	0	0	0	0.010106076	0.003537127	0		
Combined	2050	PMBW	50	0	0	0	0.007222947	0.002528032	0		
Combined	2050	PMTW	5	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	10	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	15	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	20	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	25	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	30	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	35	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	40	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	45	0	0	0	0.008329760	0.002082440	0		
Combined	2050	PMTW	50	0	0	0	0.008329760	0.002082440	0		

Combined Culver

			Speed	CO	NOx	ROG	PM10	PM2_5	CO2	CH4	CO2e
Combined	2050	RUNEX	5	0.936908	0.060352	0.044998	0.018120849	0.007385456	552.5509	0.014415	552.9112
Combined	2050	RUNEX	10	0.839161	0.048639	0.028348	0.018573367	0.006870005	447.6091	0.009453	447.8454
Combined	2050	RUNEX	15	0.757056	0.038677	0.018714	0.019528945	0.006816792	365.8672	0.00622	366.0227
Combined	2050	RUNEX	20	0.688717	0.032819	0.013041	0.020757134	0.007016274	304.4992	0.004485	304.6114
Combined	2050	RUNEX	25	0.630456	0.028643	0.009638	0.021415597	0.007105141	260.6878	0.003435	260.7736
Combined	2050	RUNEX	30	0.579375	0.025422	0.007522	0.021475541	0.007038175	231.5699	0.002763	231.639
Combined	2050	RUNEX	35	0.534155	0.022986	0.006189	0.021589254	0.007023777	214.661	0.002323	214.7191
Combined	2050	RUNEX	40	0.493977	0.021248	0.005368	0.020223834	0.006514254	207.5534	0.002036	207.6043
Combined	2050	RUNEX	45	0.458191	0.020155	0.004909	0.017360200	0.005496713	207.8732	0.001859	207.9197
Combined	2050	RUNEX	50	0.426263	0.019672	0.004732	0.014518189	0.004499880	213.5016	0.001768	213.5458
Combined	2050	PMBW	5	0	0	0	0.007318186	0.002561365	0		
Combined	2050	PMBW	10	0	0	0	0.008952862	0.003133502	0		
Combined	2050	PMBW	15	0	0	0	0.010584303	0.003704506	0		
Combined	2050	PMBW	20	0	0	0	0.012209518	0.004273331	0		
Combined	2050	PMBW	25	0	0	0	0.013103114	0.00458609	0		
Combined	2050	PMBW	30	0	0	0	0.013309965	0.004658488	0		
Combined	2050	PMBW	35	0	0	0	0.013474832	0.004716191	0		
Combined	2050	PMBW	40	0	0	0	0.012134489	0.004247071	0		
Combined	2050	PMBW	45	0	0	0	0.009267394	0.003243588	0		
Combined	2050	PMBW	50	0	0	0	0.006407593	0.002242658	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		
Combined	2050	PMTW		0	0	0	0.008133549	0.002033387	0		

Congested Speed on Lincoln Bridge Segment (Source: City of Los Angeles Travel Demand Model) - MPH

2019 2050 2030

	2019 Base				2050 No Project				2050 Plus Project			
	AM	**MD**	**PM**	**NT**	**AM**	**MD**	**PM**	**NT**	**AM**	**MD**	**PM**	**NT**
NB	22	24	24	27	21	22	21	26	21	22	21	26
SB	25	25	21	26	22	23	20	26	25	25	24	27

2030 No Project				2030 Plus Project			
AM	**MD**	**PM**	**NT**	**AM**	**MD**	**PM**	**NT**
22	23	23		22	23	23	
24	25	22		25	25	23	

Project Difference

AM	MD	PM	NT
0	-0.1	0	0
2.8	2.4	3.7	0.5

2019	2050 NP
AM	**AM**
22	21
25	23

MD	**MD**
24	22
25	24

PM	**PM**
24	21
22	21

2019	2050 WP
AM	**AM**
22	21
25	25

MD	**MD**
24	22
25	26

PM	**PM**
24	21
22	24

MPH

	Hours per Period	2019	2030 NP	2030 WP	2050 NP	2050 WP
AM	3	29	28.00000	26	29	29
MD	6	29	24	27	29	29
PM	4	29	27	18	29	29
NT	11	30	24	33	30	30
Total	24	29.0	25.0	28.0	29.0	29.0

		2019AM	2019MD	2019PM	2019NT	2030 NPAM	2030 NPMD	2030 NPPM	2030 NPNT	2030 WPAM	2030 WPMD	2030 WPPM	2030 WPNT	2050 NPAM	2050 NPMD	2050 NPPM	2050 NPNT	2050 WPAM	2050 WPMD	2050 WPPM	2050 WPNT
Average Speed for VMT Area		29.2	29.3	29	29.9	28.05	24.1375	26.5546875	23.7953125	26.025	27.4375	17.9875	33.475	28.9	29	28.6	29.9	28.9	29	28.7	29.9

Congested Speed (Source: City of Los Angeles Travel Demand Model) - MPH

Interpolated

		2019 Base				2030 No Project				2030 Plus Project				2050 No Project				2050 Plus Project			
		2019	**2019**	**2019**	**2019**	**2030 NP**	**2030 NP**	**2030 NP**	**2030 NP**	**2030 WP**	**2030 WP**	**2030 WP**	**2030 WP**	**2050 NP**	**2050 NP**	**2050 NP**	**2050 NP**	**2050 WP**	**2050 WP**	**2050 WP**	**2050 WP**
		AM 6-9 AM	**MD 9 AM - 3 PM**	**PM 3-7 PM**	**NT 7 PM-6 AM**	**AM 6-9 AM**	**MD 9 AM - 3 PM**	**PM 3-7 PM**	**NT 7 PM-6 AM**	**AM 6-9 AM**	**MD 9 AM - 3 PM**	**PM 3-7 PM**	**NT 7 PM-6 AM**	**AM 6-9 AM**	**MD 9 AM - 3 PM**	**PM 3-7 PM**	**NT 7 PM-6 AM**	**AM 6-9 AM**	**MD 9 AM - 3 PM**	**PM 3-7 PM**	**NT 7 PM-6 AM**
Lincoln Bridge	**NB**	21.7	24.1	24.2	26.5	21.5125	23.35	23	26.425	21.5125	23.3125	23	26.425	21.2	22.1	21.0	26.3	21.2	22.0	21.0	26.3
Lincoln Bridge	**SB**	24.9	24.8	21.2	26.4	23.925	24.0875	20.825	26.2875	24.975	24.9875	22.2125	26.475	22.3	22.9	20.2	26.1	25.1	25.3	23.9	26.6
Lincoln s/o Jefferson	**NB**	24.5	24.9	24.9	25.8	24.4625	24.75	24.75	25.7625	24.4625	24.75	24.75	25.7625	24.4	24.5	24.5	25.7	24.4	24.5	24.5	25.7
Lincoln s/o Jefferson	**SB**	25.2	25.2	24.5	25.7	25.05	25.0875	24.4625	25.7	25.0125	25.05	24.35	25.7	24.8	24.9	24.4	25.7	24.7	24.8	24.1	25.7
Lincoln n/o Culver Loop	**NB**	23.7	25.4	25.6	28.0	26.25	27.3875	27.325	29.275	26.25	27.3875	27.325	29.275	30.5	30.7	30.2	31.4	30.5	30.7	30.2	31.4
Lincoln n/o Culver Loop	**SB**	25.4	25.3	16.1	27.7	27.275	27.325	21.3875	29.0875	27.2375	27.325	21.35	29.0875	30.4	30.7	30.2	31.4	30.3	30.7	30.1	31.4
Jefferson w/o Lincoln	**EB**	31.9	32.4	32.3	32.4	31.9375	32.3625	32.225	32.4	31.9375	32.3625	32.225	32.4	32.0	32.3	32.1	32.4	32.0	32.3	32.1	32.4
Jefferson w/o Lincoln	**WB**	32.4	32.4	32.2	32.4	32.3625	32.3625	32.2	32.4	32.325	32.3625	32.125	32.4	32.3	32.3	32.2	32.4	32.2	32.3	32.0	32.4
Jefferson e/o Lincoln	**EB**	43.4	43.4	43.5	43.8	43.325	43.2875	43.425	43.7625	43.325	43.2875	43.425	43.7625	43.2	43.1	43.3	43.7	43.2	43.1	43.3	43.7
Jefferson e/o Lincoln	**WB**	43.5	43.2	43.0	43.7	43.3875	43.125	42.925	43.6625	43.425	43.1625	43	43.6625	43.2	43.0	42.8	43.6	43.3	43.1	43.0	43.6
Culver w/o Culver Loop	**EB**	31.7	39.7	35.6	46.4	31.5875	38.9125	33.9125	46.25	31.5875	38.9125	33.95	46.25	31.4	37.6	31.1	46.0	31.4	37.6	31.2	46.0
Culver w/o Culver Loop	**WB**	42.0	42.3	35.6	46.3	40.6875	41.8875	35.1875	46.1875	41.25	42.075	36.5	46.1875	38.5	41.2	34.5	46.0	40.0	41.7	38.0	46.0
Culver e/o Culver Loop	**EB**	35.2	35.7	35.5	36.3	35.2375	35.6625	35.425	36.2625	35.2375	35.6625	35.3875	36.2625	35.3	35.6	35.3	36.2	35.3	35.6	35.2	36.2
Culver e/o Culver Loop	**WB**	27.9	28.3	18.4	33.7	26.025	27.4375	17.9875	33.475	26.55	27.55	18.8875	33.475	22.9	26.0	17.3	33.1	24.3	26.3	19.7	33.1
Culver Loop to Lincoln		17.8	12.8	16.3	19.6	17.3125	12.3125	16.525	19.5625	17.2375	12.3125	16.3375	19.5625	16.5	11.5	16.9	19.5	16.3	11.5	16.4	19.5
Culver Loop from Lincoln		12.5	12.3	12.0	19.5	11.975	11.325	11.8125	19.5	12.0875	11.7	11.9625	19.5	11.1	9.7	11.5	19.5	11.4	10.7	11.9	19.5
Fiji Way w/o Lincoln	**EB**	36.0	35.9	35.7	35.8	36	35.9	35.7375	35.7625	35.9625	35.9	35.625	35.7625	36.0	35.9	35.8	35.7	35.9	35.9	35.5	35.7
Fiji Way w/o Lincoln	**WB**	35.3	35.8	35.7	35.8	35.375	35.8375	35.625	35.7625	35.3375	35.8375	35.625	35.7625	35.5	35.9	35.5	35.7	35.4	35.9	35.5	35.7
Average Speed for VMT Area		29.2	29.3	29.0	29.9	29.0875	29.1875	28.85	29.9	29.0875	29.1875	28.8875	29.9	28.9	29.0	28.6	29.9	28.9	29.0	28.7	29.9

Particulates (for Column B)	Particle Size Multiplier (grams/VMT)	Road Surface Silt Loading	Average Weight (Tons)	Number of "Wet" Days	Number of Days in the Averaging Period	Emissions (grams/mile)	VMT	Scenario	Dust Emissions [grams]	Dust Emissions [pounds]	Difference (WP-NP)
PM2.5	0.25	0.1	2.4	8.2	365	0.074698075	593,873	**Existing**	44,361	98	
						0.074698075	632,532	**2030 NP**	47,249	104	
						0.074698075	621,550	**2030 WP**	46,429	102	-2
						0.074698075	700,441	**2050 NP**	52,322	115	
						0.074698075	667,226	**2050 WP**	49,840	110	-5
PM10	1					0.298792301	593,873	**Existing**	177,445	391	
						0.298792301	632,532	**2030 NP**	188,996	416	
						0.298792301	621,550	**2030 WP**	185,714	409	-7
						0.298792301	700,441	**2050 NP**	209,286	461	
						0.298792301	667,226	**2050 WP**	199,362	439	-22
									105%	105%	-5%
						Daily VMT	593,873				

5.3 Road Dust

Vehicles that drive on both paved and unpaved roads generate fugit from the roads. The following equation is used to calculate the fugiti with paved roads:

$$E_{ext} = [\ k\ (sL)^{0.91} \times (W)^{1.02}\ ]\ (1 - P/4$$

Where:

E_{ext} = annual or other long-term average emission factor in t

k = particle size multiplier for particle size range and units of

sL = road surface silt loading (grams per square meter) (g/m

W = average weight (tons) of *all the vehicles* traveling the ro

P = number of "wet" days with at least 0.254 mm (0.01 in) of averaging period

N = number of days in the averaging period (e.g., 365 for an monthly).

The above is the average emission factor by land use for paved roa required parameters are based on recommendations in AP-42. For to have no precipitation.

5.1.4 Road Dust Screen

Vehicles that drive on both paved and unpaved roads generate fugitive dust by dispersing the silt from the roads. Fugitive dust emission factors for travel on paved roads are calculated using the methodology described in Section 13.2.1 of USEPA's AP-42, as shown below (USEPA 2011).

$$EF_{paved} = (k \times (sL)^{0.91} \times (W)^{1.02}) \times (1 - P/4N)$$

Where:

EF_{paved} = paved road dust emission factor (g/mile).

k = particle size multiplier for particle size range. The AP-42 default values are 0.25 g/VMT for PM2.5 and 1.00 g/VMT for PM10.

sL = road surface silt loading (g/m^2). The AP-42 default value is 0.1 g/m^2, which corresponds to vehicle travel on roads with at least 5,000 vehicle per day under normal conditions.

W = average weight (short tons) of *all the vehicles* traveling the road. The statewide default is 2.4 short tons (CARB 2021e).

P = number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period. The precipitation frequency is based on the project location and is listed on the **Project Detail** screen.

N = number of days in the averaging period (e.g., 365 for annual, 91 for quarterly). The model does not include a precipitation adjustment in the daily calculation.

QA

632532 VMT for weekdays is consistent with 2030 NP. The resulting 448 lbs/day of road dust is comparable with the 416 lbs fo road dust from EMFAC.

F14 | fx

A	B	C	D	E	F	G	H	I	J	K
5.9. Operational Mobile Sources										
5.9.1 Unmitigated										
Land Use T	Trips/Wee	Trips/Satu	Trips/Sund	Trips/Year	VMT/Weekday	VMT/Satur	VMT/Sund	VMT/Year		
User Defin	632532	1	1	164910232	632532	1	1	164910232.85714287		

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
2. Emissions Summary																				
2.5 Operations Emissions by Sector, Unmitigated																				
Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e		
Daily, Summer (Max)																				
Mobile	1918.2961	1849.8904	628.82093	5768.5333	6.0504824	5.9922829	448.43969	454.43197	5.5522204	113.89873	119.45095		619421.74	619421.74	112.09915	60.759186	2042.7121	642373.1745464741		
Area	0.0077284	0.0310720	0.0003666	0.0434781	0.0000025	0.0000773		0.0000773	0.0000584		0.0000584		0.1788466	0.1788466	0.0000075	0.0000015		0.1794914951029926		
Energy	0	0	0	0	0	0		0	0		0		0	0	0	0		0		