Appendix B. Simi Valley Double Track and Platform Project Air Quality and Greenhouse Gas Technical Report

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METROLINK

Air Quality and Greenhouse Gas Technical Report

Simi Valley Double Track and Platform Project

March 2021

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Appendix A. Emissions Estimates

Acronyms

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AQMP	air quality management plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CP	control point
DPM	diesel particulate matter
EO	Executive Order
EPA	Environmental Protection Agency
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
MP	mile post
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_X	nitrogen oxide
O_3	ozone
PM_{10}	particulate matter less than or equal to 10 microns
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
Project	Simi Valley Double Track and Platform Project
ROG	reactive organic gas
ROW	right-of-way
RTP	regional transportation plan
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCAB	Sounth Central Coast Air Basin
SCRRA	Southern California Regional Rail Authority
SCS	sustainable communities strategy
SIP	state implementation plan
SLCP	Short-Lived Climate Pollutant
SO_2	sulfur dioxide

SO_x	sulfur oxide
TAC	toxic air contaminant
U.S.	United States
UPRR	Union Pacific Railroad
VCAPCD	Ventura County Air Pollution Control District
VCL	Ventura County Line
VMT	vehicle miles traveled

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1 Introduction

At the request of Southern California Regional Rail Authority (SCRRA), HMMH conducted an air quality and greenhouse gas (GHG) analysis for the proposed Simi Valley Double Track and Platform Project (Project), within Metrolink's Ventura Subdivision (Figure 2-1). The purpose of this report is to document the existing air quality and GHG conditions and potential impacts on those conditions resulting from Project implementation. Two geographic scales define the air quality study area—the local study area is the Project footprint plus areas within 1,000 feet of the Project improvements, and the regional study area is the affected air basin. Both air quality study areas are within the South Central Coast Air Basin (SCCAB). As discussed further below, GHG impacts are inherently cumulative, and the GHG study area includes the entire state and global atmosphere.

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2 Project Description

2.1 Project Overview

SCRRA is proposing the Simi Valley Double Track and Platform Project to improve safety at the Simi Valley Station and to increase operational capacity on Metrolink's Ventura County Line (VCL). The Project includes at-grade crossing improvements and the construction of new rail infrastructure. The Project would occur primarily within existing railroad right-of-way (ROW) owned by SCRRA and Union Pacific Railroad (UPRR) from Sequoia Avenue east to the Arroyo Simi Railroad Bridge just south of Stearns Street in the City of Simi Valley, California. The Project would add 2.20 miles of main track and increase the passenger capacity at the Simi Valley Station by adding an additional platform and pedestrian undercrossing. In addition, an existing signal at Sycamore Drive would be relocated, and a new signal would be installed approximately 2,000 feet west of Erringer Road.

The objectives of the Project are to improve safety by adding pedestrian safety features and improve reliability by allowing more efficient train operations; allow for an hourly bidirectional service, a half-hourly regional train to dispatch in the peak direction, and an hourly express train in the peak direction along Metrolink's VCL, which operates on the Ventura Subdivision between Moorpark and Los Angeles Union Station; and include at-grade crossing improvements at Sequoia Avenue, Tapo Canyon Road, Tapo Street, East Los Angeles Avenue, and Hidden Ranch Drive in support of the city's future application with the Federal Railroad Administration for quiet zone status along the alignment.

2.2 Goals and Objectives

The Project includes the following objectives:

- Objective 1: Improve safety and reliability of the existing rail system
- Objective 2: Increase operational capacity of the existing VCL passenger rail system and increase passenger capacity at the Simi Valley Station
- Objective 3: Implement infrastructural improvements that will support the city's future applications to the Federal Railroad Administration for quiet zone status along the alignment

2.3 Project Location

For the purposes of the environmental impact report, SCRRA defined a Project study area, which comprises the Project's physical footprint along the approximately 2.20-mile segment of SCRRA's Ventura Subdivision with a 500-foot buffer. The Project study area begins at its western terminus at Sequoia Avenue and ends east of Hidden Ranch Drive, just west of the Arroyo Simi Railroad Bridge, within the City of Simi Valley. Figure 2-1 shows the regional location of the Project. Figure 2-2 shows the Project's location in southern Simi Valley, the extent of the proposed improvements, and the Project study area. The Project study area is part of the Simi Land Grant on the United States (U.S.) Geological Survey *Simi Valley East, California* 7.5-minute series topographical quadrangle. As shown on Figure 2-2, the Project is located between Mile Post (MP) 436.20 and MP 438.40.

2.4 Project Components

As shown on Figure 2-3 (Sheet 1 through 9), the Project would include construction of a new side platform (south of the existing platform) and pedestrian underpass at the existing Simi Valley Station, the construction of a second main track along a 2.20-mile stretch of Metrolink's existing Ventura Subdivision from MP 436.20 to MP 438.40, and the implementation of two new control points (CP) at MP 436.30 (CP Sequoia) and MP 438.40 (CP Arroyo) (Figure 2-3). New intermediate signals would be installed at MP 433.96, MP 435.13, and MP 437.30. Additionally, Project improvements would include supplemental safety measures at the existing grade crossings at Sequoia Avenue, Tapo Canyon Street, Tapo Street, East Los Angeles Avenue, and Hidden Ranch Drive, which would support future applications by the city to the Federal Railroad Administration for quiet zone status along the alignment.[1] Existing wet and dry utilities (above and below grade) within the Project study area would also be protected in place or relocated pending final engineering design and final placement of the proposed infrastructure.

2.4.1 Physical Improvements

The Project would include multiple improvements to the existing Simi Valley Station, including construction of a second platform, a supporting pedestrian undercrossing (or underpass), and passenger emergency egress to enhance passenger safety. The existing platform would also be reconfigured to remove the curvature within the existing platform to the north side of the main line tracks. In conjunction with these station improvements, SCRRA proposes the installation of approximately 2.20 miles of new main track within existing rail ROW, new railroad signals and positive train control towers, and related supplemental safety measures at existing at-grade crossings. These improvements are described in more detail below.

Track and Civil

SCRRA proposes the construction of an approximately 2.20-mile segment of second mainline track, from Barnes Street in the west to Hidden Ranch Road in the east, to enhance operational capacity on Metrolink's VCL. The track improvements are described in further detail below:

- Approximately 900 feet of the main track would be reprofiled east of CP Sequoia.
- West of Tapo Street (to Barnes Street), a new second track would be placed within SCRRA ROW. The new track would be constructed north of the existing main line track and would connect to the existing track east of Tapo Street to form Main Track 1.
- Approximately 900 feet of existing track between East Los Angeles Avenue and Tapo Street would be shifted to accommodate the new tracks tying into the existing track. In addition, an existing UPRR spur track between East Los Angeles Avenue and Tapo Street, within SCRRA ROW, would be shifted to accommodate the second track on the north side.
- Approximately 1,400 feet of existing track would be shifted between East Los Angeles Avenue to Simi Valley Station to accommodate the installation of a second track south of the existing track, within UPRR ROW. These two main tracks are shown and labeled as MT-1 and MT-2 on

[1] Upon completion of the Project, the City of Simi Valley would be required to complete the Quiet Zone Creation Process in accordance with the regulations, policies, and procedures established by the Federal Railroad Administration in its Train Horn Final Rule, as amended on August 17, 2006 (49 Code of Federal Regulations [CFR] Part 222).

Figure 2-3 (Sheets 3 through 6). The new track on the south side of the ROW would connect to the existing track just east of Tapo Street, such that the new track east of Tapo Street and existing track west of Tapo Street form Main Track 2.

At the Simi Valley Station, the existing and proposed station platforms would be shifted eastward to maintain approximately 19-foot track centers for 150 feet beyond the platforms to accommodate the inter-track fence. The 19-foot track spacing through station limits would avoid placing track curvature within Hidden Ranch Drive, avoid the need to obtain more ROW through the station, and maintain clearance from the Arroyo Simi Bike Path. The 780-foot length of the existing platform would be maintained, and the new platform would be a minimum of 680 feet. The existing track alignment would be maintained at four of the at-grade crossings (Sequoia Avenue, Tapo Canyon Street, Tapo Street, and East Los Angeles Avenue), but the track alignment would be shifted approximately 6 inches south at the Hidden Ranch Drive crossing to eliminate curvature between the platform and the crossing.

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Figure 2-1. Regional Location

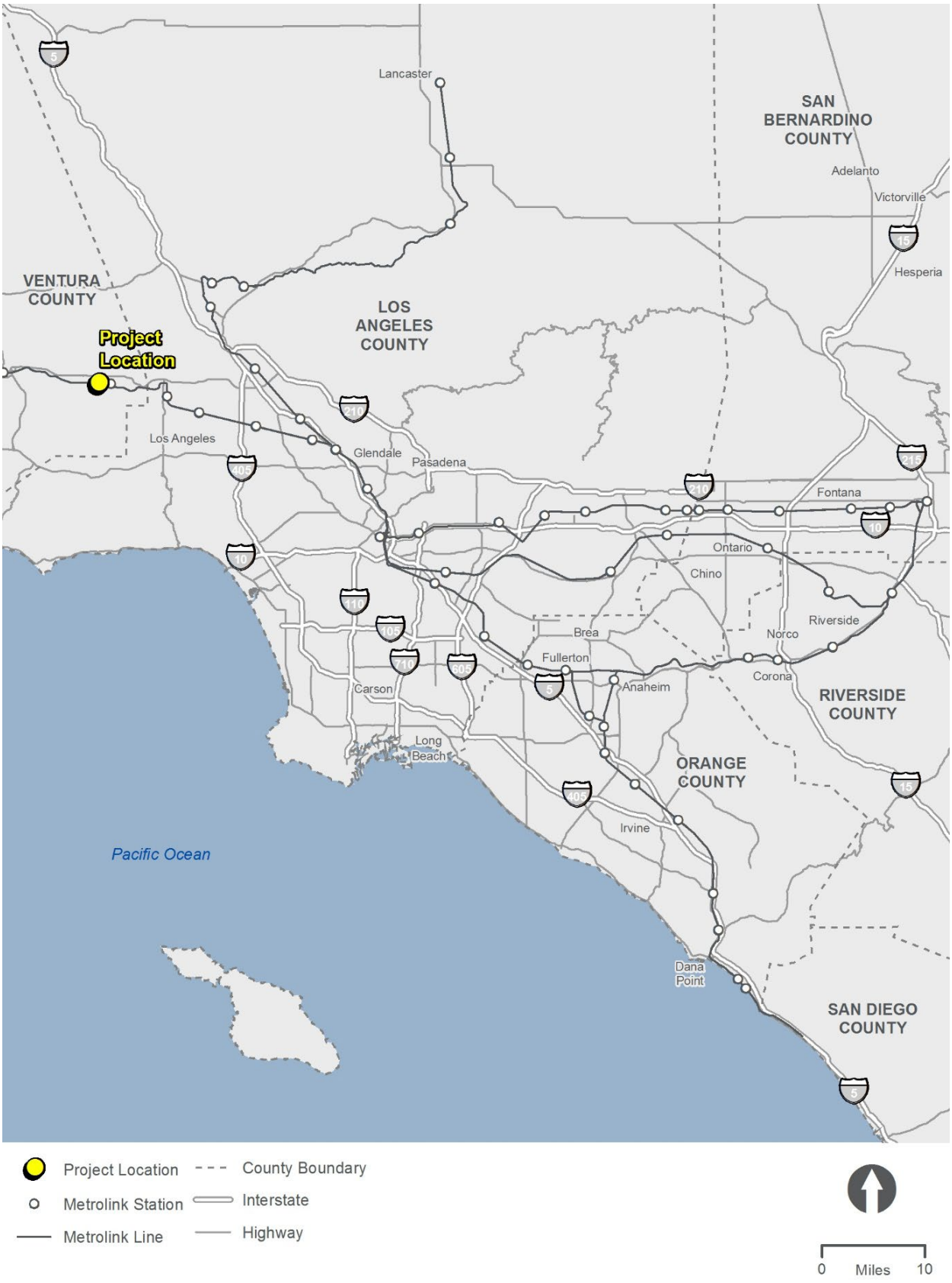

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Figure 2-2. Project Location

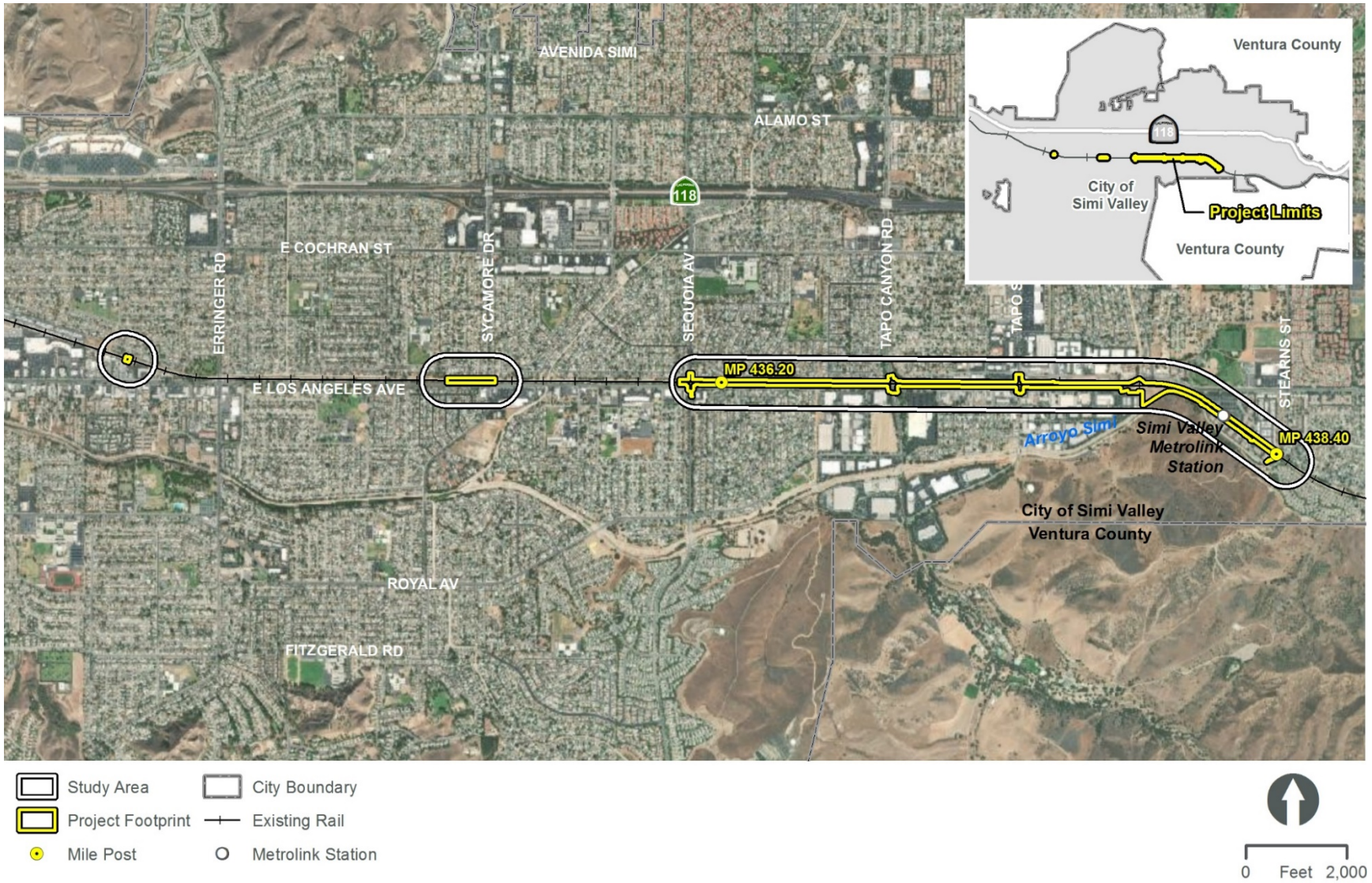

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Figure 2-3. Project Detail Map

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Figure 2-3. Project Detail Map

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Figure 2-3. Project Detail Map

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Figure 2-3. Project Detail Map

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Figure 2-3. Project Detail Map

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Figure 2-3. Project Detail Map

(Sheet 6 of 9)

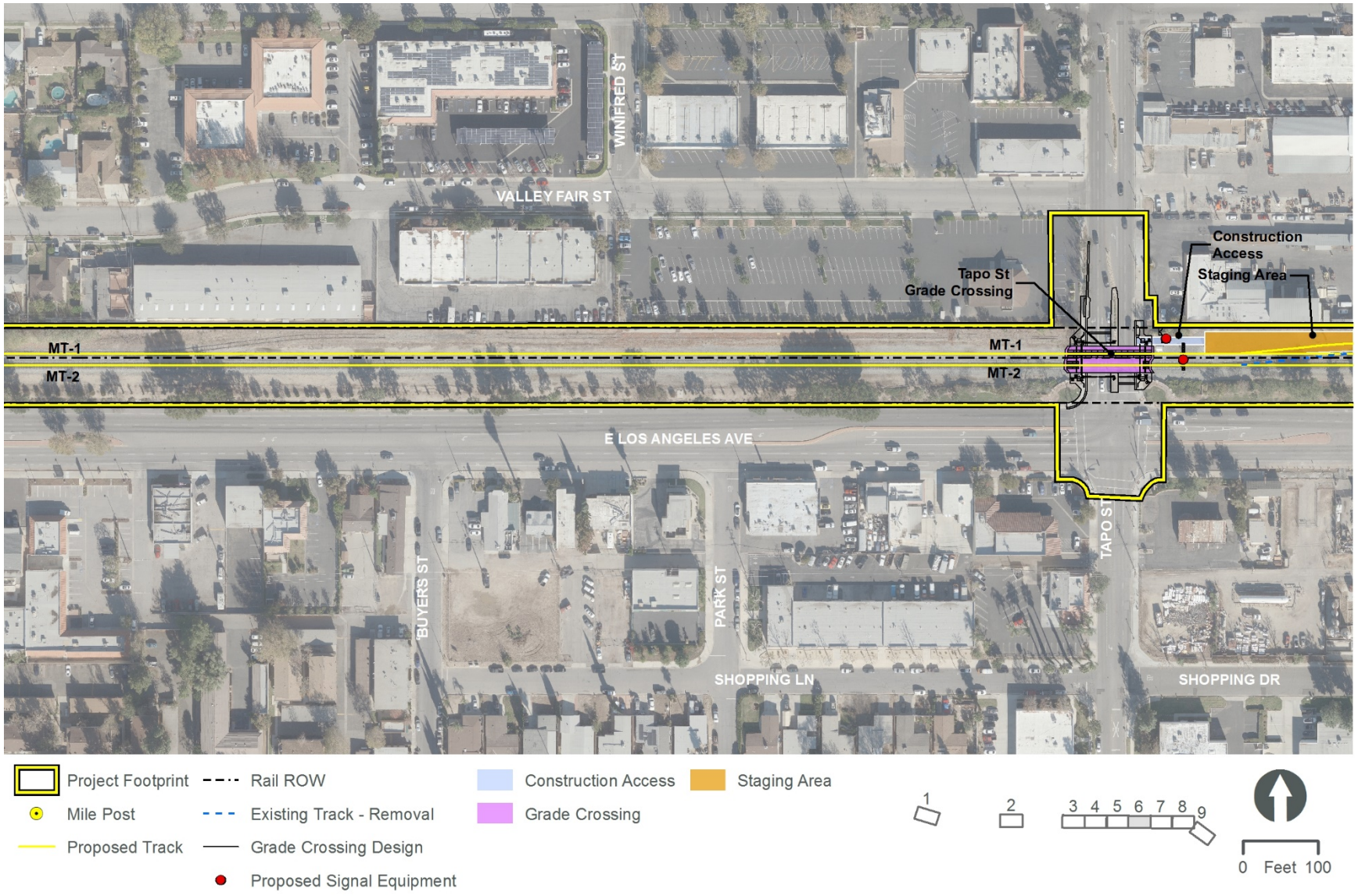

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Figure 2-3. Project Detail Map

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Figure 2-3. Project Detail Map

(Sheet 8 of 9)

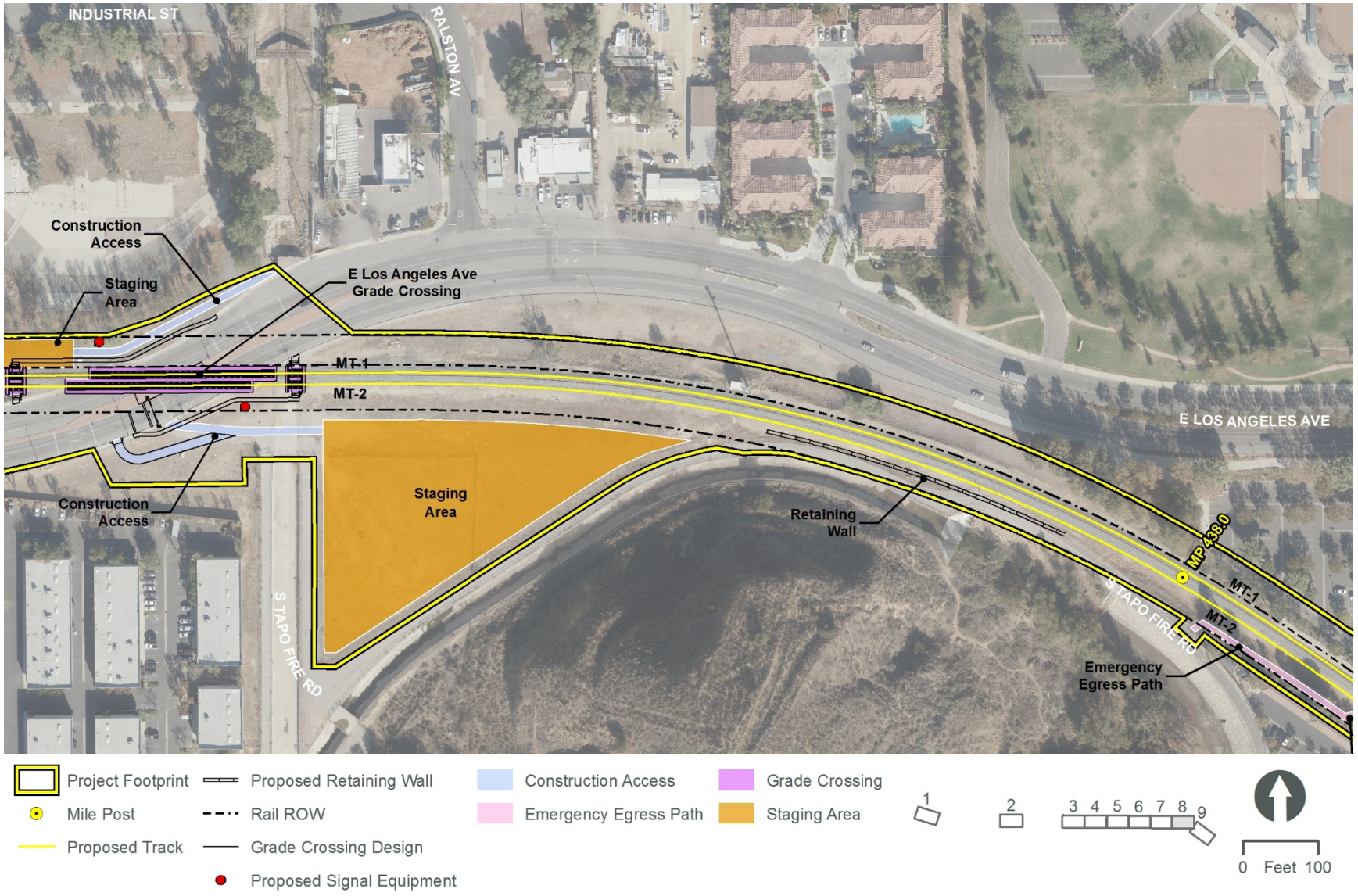

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Figure 2-3. Project Detail Map

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At-Grade Crossings

The Project would include improvements and related SSMs at existing at-grade crossings within the Project study area to facilitate future quiet zone implementation. These at-grade crossing improvements would generally include the accommodation of the second mainline track and related ancillary improvements, except for at the Sequoia at-grade crossing, where a second track would not be constructed. These improvements would include sidewalk and pavement reconstruction; installation of pedestrian gates and warning signals; roadway restriping; pedestrian channelization; construction, of or modification to, a raised roadway median; and installation/modification of the roadway gates. Each at-grade crossing is further described below.

- **Sequoia Avenue.** The improvements at Sequoia Avenue include those described above, except a second mainline track crossing would not be constructed. A new railroad signal house would also be installed at this location.
- **Tapo Canyon Street.** In addition to the improvements described above, a new signal house would also be constructed at Tapo Canyon Street.
- **Tapo Street.** In addition to the improvements described above, a new signal house would also be constructed at Tapo Street.
- **East Los Angeles Avenue.** In addition to the improvements described above, a new signal house would also be constructed at East Los Angeles Avenue. Additionally, the existing access roads leading from the Arroyo Simi Bike Path would be modified to accommodate the proposed pedestrian improvements and the existing retaining wall located in the southeast quadrant would be reconstructed.
- **Hidden Ranch Drive.** In addition to the improvements described above, a new signal house would also be constructed at Hidden Ranch Drive.

Railroad Signals and Communications

The track improvements would require new track panels, signals, and warning devices at the existing at-grade crossings. At Sequoia Avenue, Tapo Canyon Road, and Tapo Street, the presignals on the southwest quadrants would be located outside of the exit gates to improve visibility for southbound traffic approaching the tracks. Additional safety improvements would include adding flashers to the warning devices for vehicles turning onto Tapo Canyon Road from East Los Angeles Avenue. Maintenance access to the new signal houses would also be added.

The Project would include two new CPs. At the western limit of the new track, CP Sequoia would be installed approximately 0.20 mile east of Sequoia Avenue. CP Arroyo would be installed directly west of Arroyo Simi. The existing signal at Tapo Street would be modified to accommodate the second track. In order to account for the proximity to the new CP Sequoia, the existing signal at Sycamore Drive would be relocated approximately 700 feet west. To reduce headway times to CP Strathern, an additional signal would be added approximately 2,000 feet west of Erringer Road.

At each new signal site, the following improvements would be installed:

- 6-foot by 8-foot signal house with a security fence
- Wayside signal
- 40-foot positive train control antenna tower

- 200-amp Southern California Edison power meter pedestal
- Underground railroad fiber optic cable with vault

Simi Valley Station Enhancements

The existing Simi Valley Station consists of one side platform on the north side of the main line track with custom passenger canopies, a ticket vending machine, and an at-grade parking lot north of the platform. The existing path of travel to the station extends south from a bus stop at the platform entrance and from the adjacent parking lot. Station access would remain unchanged under the Project.

The Project would change the existing platform configuration by demolishing approximately 250 feet of the curved portion of the platform on the west end of the station. To maintain the 780-foot length of the existing platform, the remaining platform would be extended approximately 95 feet to the west and 155 feet to the east, so that the entire length of the platform is along tangent track (i.e., where the track is not curved). At the east end of the station, a pedestrian underpass would be installed with ramp and stair access. The new underpass would provide access to a new, second platform on the south side of the main line tracks, which would be a minimum of 680 feet long.

The Project would match the existing platform amenities (canopies, seating, signage, and lighting), and would include aesthetic treatments to the ramps, stairs, and underpass walls and ceiling. The Project would implement crime prevention through environmental design principles, which would include natural surveillance, natural access control, territorial reinforcement, and maintenance. The proposed station improvements would also meet National Fire Protection Association standards by providing passengers egress capabilities to vacate the platform within 4 minutes and to reach a point of safety within 6 minutes.

Drainage Improvements

The Project would include the following drainage improvements:

- Underdrains at the at-grade crossings where ditches are infeasible, and between the tracks at the platforms with the subgrade sloping toward the underdrain
- Trackside ditches between at-grade crossings
- Storm drain extensions or encasements where existing drainage systems intersect the proposed track infrastructure
- A new pump station at the low point of the pedestrian underpass at Simi Valley Station

The proposed drainage improvements would be coordinated with the City of Simi Valley to provide the new track infrastructure with adequate flood protection and to maintain existing drainage patterns to the extent practical throughout the Project study area.

Structures

The Project would construct a new pedestrian underpass, stairs, and ramps at the Simi Valley Station. The design of the pedestrian underpass would be in accordance with the most recent SCRRA design criteria manual. The proposed structure type is a precast concrete box structure, composed of sections, selected to minimize construction track windows (i.e., minimize impacts on train schedules). The internal dimensions of the proposed structure would be 14 feet wide by 9 feet, 10 inches high. The depth of cover (i.e., amount of fill between the structure and the tracks) would be minimized to facilitate construction and maintenance of the structure, as well as to reduce the length of approach ramps and the number of stairs needed to reach the station platform. The design of the approach ramp retaining wall would be in accordance with the most recent SCRRA design criteria manual.

Utilities

Utilities within the Project study area include gas lines, electrical power lines, communications/fiber optic lines, and municipal water and sewer pipes. The Project would result in multiple utility conflicts, and impacted utilities would either be protected in place, extended, or relocated. Specifically, the Project may require relocation or casing extensions for the following utilities:

- Crimson Pipeline gasoline pipeline (6- to 12-inch pipeline) at East Los Angeles Avenue and Topo Canyon Road
- Southern California Edison electrical transmission and distribution (above and below ground) lines at Sequoia Avenue, East Los Angeles Avenue, Goddard Avenue, and Hidden Ranch Drive
- City of Simi Valley sewer and potable water lines at Sequoia Avenue, East Los Angeles Avenue, Tapo Canyon Road, and Hidden Ranch Drive
- Southern California Gas natural gas lines at Sequoia Avenue, East Los Angeles Avenue, Tapo Street, Arroyo lane, and Hidden Ranch Drive
- Golden State Water Company potable water lines at Sequoia Street, Goddard Avenue, Hietter Avenue, Tapo Street, and East Los Angeles Avenue
- Fiber optic cables parallel to the ROW owned by the following communications companies:
    - Lumen Technologies (formerly CenturyLink)
    - Verizon
    - AT&T
    - Sprint
    - Wilshire Communication
    - Charter Communications

Potholing would be implemented in conjunction with final design to verify the locations of all existing utilities within the Project study area and to determine which utilities would be protected in place and which utilities would require relocation or abandonment.

Right-of-Way

The majority of proposed improvements (including the proposed pedestrian underpass at the Simi Valley Station) would be constructed within the railroad ROW (Figure 2-3, Sheet 1 through 9).The northern 40 feet of ROW are owned by SCRRA, while the southern 60 feet are owned by UPRR. The ramp and stair access from the undercrossing to the new platform would extend south of the existing UPRR ROW and require acquisition of a portion of the adjacent multifamily parcel.

Roadway improvements would generally be located outside of the railroad ROW and within the City of Simi Valley's roadway ROW. Improvements at Hidden Ranch Drive would require acquisition of portions of two adjacent multifamily parcels at the southern and western corners of the crossing. Additionally, potential sidewalk crossing improvements that would extend into unimproved areas of private properties near Hidden Ranch Drive would require temporary construction easements in order to access the proposed CP Arroyo area.

To connect with the Arroyo Simi Bike Path, the egress path from the new platform may also extend south of the ROW onto the Ventura County Flood Control District's property, or it could extend further west to connect to the bike path within UPRR ROW. Final ROW needs would be confirmed during final design.

2.4.2 Construction

Project construction would begin as early as April 2022 and last for approximately 19 months. The work would be accomplished over four phases, beginning with construction of the pedestrian underpass and new platform at the station, and ending with reconstruction of 250 feet of the existing station platform. Construction may involve multiple crews working simultaneously and would include equipment such as track stabilizers, excavators, front-end loaders, rubber-tired dozers, cranes, haul trucks, and water trucks.

Construction would generally proceed in the following four phases over the 19-month construction schedule:

- Phase 1:
    - A number of third-party utility lines would be relocated in order to make way for the improvements of the Project. These utilities include fiber optic lines that run parallel to the Project study area, as well as many crossing utilities, such as water, gas, electric, and others. The relocations are due to the addition of a second main track, added second platform, inadequate depth underneath the rail, or insufficient casing length that spans the entire railroad ROW.
- Phase 2:
    - Construct structures, including the pedestrian underpass and new platform at Simi Valley Station and the retaining wall near the Arroyo Simi Bike Path
    - Construct track work, including the new main track (Main Track 1) outside of grade crossing limits and new turnouts, while maintaining service on the existing track
    - ~~o~~ Construct signal houses, signal foundations, grade crossing warning devices and associated conduits

- Phase 3:
  - Construct track and roadway improvements at the at-grade crossings
  - Transfer rail service onto the newly constructed Main Track 1; take the existing track out of service for the second main track (Main Track 2) improvements
  - Finish installing signals at new CP Sequoia and CP Arroyo
- Phase 4:
  - Construct Main Track 2 track and upgrade existing from timber to concrete ties
  - Activate Main Track 2 track into service
  - Remove and reconstruct 250 feet of the existing Simi Valley Station platform and finish upgrading any remaining timber ties to concrete ties

Material and equipment imports and construction personnel would access the Project study area via walking points from the nearest fence access or staging area. Potential construction access points and staging areas have been identified within the ROW and are shown on Figure 2-3 (Sheets 3, 6, 7, 8, and 9). An additional staging area outside the ROW was identified between East Los Angeles Avenue and Arroyo Simi, as shown on Figure 2-3. The final construction staging area locations would be confirmed during design development.

Construction activities would be scheduled during time frames that allow for exclusive track occupancy by construction crews to minimize effects on Metrolink operations. To the greatest extent possible, construction activities would be scheduled during the daytime; however, nighttime work would be required to maximize construction work windows. The Project would also include weekend work when Metrolink service is reduced.

Prior to construction, coordination would be needed with regard to the bike trail and potential temporary construction closures. Dewatering is expected to be necessary during construction of the pedestrian underpass at the station and would be completed in accordance with applicable regulations.

2.4.3 Operation

The Project would improve safety and reliability on the VCL and at the Simi Valley Station and adds capacity to accommodate growth of Metrolink commuter train operations through the Project study area. The Project would install safety improvements at four grade crossings and create a new 2.20-mile double track segment through southern Simi Valley, which would reduce the distance of single-track territory through the Project study area. Passenger trains running along the Ventura Subdivision on the Metrolink VCL would be able to use this double track segment to pass uninterrupted through the Project study area rather than idling at the nearest location with two tracks, waiting for trains in the opposite direction to cross the single-track segment.

Project operation is projected to start in 2025. The Project would also provide faster, more frequent, and more reliable service by increasing on-time performance. As the population of Southern California increases, it is likely that additional passenger rail service would be added to the Metrolink VCL in the future to ease traffic congestion on freeways and local streets.

With Project implementation, as well as completion of the other VCL projects, Metrolink service would increase, providing up to 48 revenue trains per day on the VCL (Table 2-1).

Table 2-1. 2019 Schedules and Proposed Service Schedules: Ventura County Line

Schedule	Existing Service (2019)			Proposed Service (2025)		
	To Los Angeles[a]	From Los Angeles[a]	All	To Los Angeles[a]	From Los Angeles[a]	All
Weekday (total VCL)	16	17	33	24	24	48
Weekday (extending through Project study area)[b]	7	7	14	19	19	38
Saturday	0	0	0	1[c]	1[c]	2[c]
Sunday	0	0	0	0	0	0

Notes:

[a] VCL trains to or from Los Angeles originate or terminate in Ventura, Moorpark, Chatsworth, or Burbank. Future service includes trains originating and terminating in Van Nuys.

[b] Existing and proposed VCL train counts for the Project only consider train service extending to Moorpark and Ventura (i.e., traversing the Project study area).

[c] VCL Saturday service would operate between April and October only.

VCL=Ventura County Line

3 Regulatory Framework

Air quality and GHG emissions in the Project study area are regulated by the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Ventura County Air Pollution Control District (VCAPCD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation, maintain or improve air quality, and reduce GHG emissions. This section identifies key federal, state, and regional and local regulations, laws, and policies relevant to air quality and GHG emissions in the Project study area.

3.1 Federal Regulations

3.1.1 Clean Air Act

The federal Clean Air Act (CAA) and its subsequent amendments form the basis for the nation's air pollution control effort. The U.S. EPA is responsible for implementing most aspects of the CAA and has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants—ozone (O_3), particulate matter (both particulate matter less than or equal to 10 microns [PM_{10}] and particulate matter less than or equal to 2.5 microns [$PM_{2.5}$]), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. The NAAQS identify levels of air quality that are considered the maximum safe levels of ambient (background) air pollutants, within an adequate margin of safety, to protect public health and welfare.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The CAA mandates that the states submit and implement a state implementation plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met.

Table 3-1 shows the NAAQS currently in effect for each criteria pollutant, as well as the California ambient air quality standards (CAAQS) (discussed in Section 3.2.1).

Table 3-1. Federal and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards[a]	
			Primary	Secondary
O_3	1-hour	0.09 ppm	—[b]	—[b]
	8-hour	0.070 ppm	0.070 ppm	0.070 ppm
PM_{10}	24-hour	50 μg/m^3	150 μg/m^3	150 μg/m^3
	Annual mean	20 μg/m^3	—	—
$PM_{2.5}$	24-hour	—	35 μg/m^3	35 μg/m^3
	Annual mean	12 μg/m^3	12.0 μg/m^3	15 μg/m^3
CO	8-hour	9.0 ppm	9 ppm	—
	1-hour	20 ppm	35 ppm	—

Table 3-1. Federal and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards[a]	
			Primary	Secondary
NO_2	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	—
SO_2[c]	Annual mean	—	0.030 ppm	—
	24-hour	0.04 ppm	0.014 ppm	—
	3-hour	—	—	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	—
Lead	30-day average	1.5 $\mu g/m^3$	—	—
	Calendar quarter	—	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$
	3-month average	—	0.15 $\mu g/m^3$	0.15 $\mu g/m^3$
Sulfates	24-hour	25 $\mu g/m^3$	—	—
Visibility-reducing particles	8-hour	—[d]	—	—
Hydrogen sulfide	1-hour	0.03 ppm	—	—
Vinyl chloride	24-hour	0.01 ppm	—	—

Source: CARB 2016

Notes:

[a] National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

[b] The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for SIPs.

[c] The annual and 24-hour NAAQS for SO_2 only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual NAAQS.

[d] CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

$\mu g/m^3$=micrograms per cubic meter; CAAQS=California Ambient Air Quality Standard; CO=carbon monoxide; NAAQS=National Ambient Air Quality Standard; NO_2=nitrogen dioxide; O_3=ozone; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; ppm=parts per million; SO_2=sulfur dioxide; SIP=state implementation plan

3.1.2 Nonroad Diesel Rule

The U.S. EPA established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft. New construction equipment used to implement the Project, including heavy-duty trucks and off-road construction equipment, will be required to comply with the emission standards.

3.1.3 Locomotive Emissions Standards

In March 2008, the U.S. EPA adopted a three-part emissions standard program to reduce emissions from diesel locomotives. The regulation tightens emission standards for existing, remanufactured locomotives and sets exhaust emission standards for newly built locomotives of model years 2011 through 2014 (Tier 3) and 2015 and beyond (Tier 4). The regulation is expected to reduce

particulate matter emissions from locomotive engines by as much as 90 percent and nitrogen oxide (NO_X) emissions by as much as 80 percent when fully implemented.

3.1.4 Corporate Average Fuel Economy Standards

The Corporate Average Fuel Economy Standards were first enacted in 1975 to improve the average fuel economy of cars and light-duty trucks. However, on August 2, 2018, the National Highway Traffic Safety Administration (NHTSA) and U.S. EPA proposed to amend the fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient [SAFE] Vehicles Rule). On September 19, 2019, the U.S. EPA and NHTSA issued a final action on the One National Program Rule, which is considered Part One of the SAFE Vehicles Rule and a precursor to the proposed fuel efficiency standards. The One National Program Rule enables the U.S. EPA/NHTSA to provide nationwide uniform fuel economy and GHG vehicle standards, specifically by clarifying that federal law preempts state and local tailpipe GHG standards, affirming NHTSA's statutory authority to set nationally applicable fuel economy standards, and withdrawing the California Clean Air Act (CCAA) preemption waiver to set state-specific standards.

The U.S. EPA and NHTSA published their decisions to withdraw California's waiver and finalize regulatory text related to the preemption on September 27, 2019 (84 *Federal Register* 51310). California, 22 other states, the District of Columbia, and 2 cities filed suit against Part One of the SAFE Vehicles Rule on September 20, 2019 (*California v. Chao*). The lawsuit requests a "permanent injunction prohibiting Defendants from implementing or relying on the Preemption Regulation."

The U.S. EPA and NHTSA issued final rules to amend and establish national carbon dioxide (CO_2) and fuel economy standards on March 30, 2020 (Part Two of the SAFE Vehicles Rule). The revised rule changes the national fuel economy standards for light-duty vehicles from 54.5 to 40.5 miles per gallon in future years. Legal challenges against Part Two of the SAFE Vehicles Rule have not been filed as of the time of this analysis but are likely forthcoming. The fate of the SAFE Vehicles Rule remains uncertain in the face of pending legal deliberations.

3.1.5 Hazardous Air Pollutants

In February 2007, the U.S. EPA finalized a rule (Control of Hazardous Air Pollutants from Mobile Sources) to reduce hazardous air pollutants from mobile source air toxics. The rule limits the benzene content of gasoline and reduces toxic emissions from passenger vehicles and gas cans. The U.S. EPA estimates that in 2030, this rule would reduce total emissions of mobile source air toxics by 330,000 tons and reactive organic gas (ROG) emissions (precursors to O_3 and $PM_{2.5}$) by more than 1 million tons. The latest revision to this rule, which added specific benzene control technologies, occurred in October 2008. The U.S. EPA has not established NAAQS or provided ambient standards for hazardous air pollutants.

3.1.6 Greenhouse Gas Regulations

There is currently no federal overarching law specifically related to climate change or the reduction of GHG emissions. However, the U.S. EPA issued an endangerment and cause or contribute finding, as well as issued a mandatory reporting rule and fuel economy standards (discussed below).

The Endangerment Finding and the Cause or Contribute Finding

On December 7, 2009, the U.S. EPA signed the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA. Under the Endangerment Finding, the U.S. EPA finds that the current and projected concentrations of the six key well-mixed GHGs—CO_2, methane (CH_4), nitrous oxide (N_2O), perfluorocarbons, sulfur hexafluoride, and hydrofluorocarbons (HFC)—in the atmosphere threaten the public health and welfare of current and future generations. Under the Cause or Contribute Finding, the U.S. EPA finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare. However, unlike some criteria pollutants and toxic air contaminants (TAC), GHG emissions do not directly impact human health. Rather, elevated GHG concentrations in excess of natural levels induce large-scale climate shifts, which can expose individuals to increased public health risks. For example, increases in ambient temperature can lead to heat-related illnesses and death, whereas changes in disease vectors may lead to increased risk of infectious diseases. Climate change and air pollution are also closely coupled. O_3 and particulate pollution, both of which can negatively impact human health, are strongly influenced by weather and can be concentrated near Earth's surface during extreme heat events. These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite to finalizing U.S. EPA's Corporate Average Fuel Economy Standards for light-duty vehicles (discussed in Section 3.1.4).

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the U.S. EPA released its final Mandatory GHG Reporting Rule. The Mandatory GHG Reporting Rule is a response to the fiscal year 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), which required the U.S. EPA to develop "mandatory reporting of greenhouse gasses above appropriate thresholds in all sectors of the economy…" The Mandatory GHG Reporting Rule would apply to most entities that emit 25,000 metric tons of carbon dioxide equivalent (CO_2e) or more per year. Starting in 2010, facility owners were required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The reporting rule also would mandate recordkeeping and administrative requirements for the U.S. EPA to verify annual GHG emissions reports.

Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

On September 15, 2011, the U.S. EPA and NHTSA issued a final rule of *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles* (76 *Federal Register* 7106). This final rule is tailored to each of three regulatory categories of heavy-duty vehicles—combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles—and applies to model years 2014 through 2018. The U.S. EPA and NHTSA signed Phase 2 of these standards on August 16, 2016, which apply to model years 2019 through 2027 medium- and heavy-duty vehicles.

3.2 State Regulations

3.2.1 California Clean Air Act

In 1988, the state legislature adopted the CCAA, which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. The CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 3-1.

The CARB and local air districts bear responsibility for meeting the CAAQS, which are to be achieved through district-level air quality management plans (AQMP) incorporated into the SIP. In California, the U.S. EPA has delegated authority to prepare SIPs to the CARB, which, in turn, has delegated that authority to individual air districts. The CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of indirect and area-wide sources of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

3.2.2 Truck and Bus Regulation

Originally adopted in 2005, the on-road truck and bus regulation requires heavy trucks to be retrofitted with particulate matter filters. The regulation applies to privately and federally owned diesel-fueled trucks with a gross vehicle weight rating greater than 14,000 pounds. Compliance with the regulation can be reached through one of two paths: vehicle retrofits according to engine year or phase in schedule. Compliance paths ensure that by January 2023, nearly all trucks and buses will have 2010 model-year engines or newer.

3.2.3 Tailpipe Emissions Standards

Like the U.S. EPA at the federal level, the CARB has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft operating in California. New equipment used to construct the Project would be required to comply with the standards.

3.2.4 Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program is a voluntary program that offers grants to owners of heavy-duty vehicles and equipment. The program is a partnership between the CARB and local air districts throughout the state to reduce air pollution emissions from heavy-duty engines. Locally, the air districts administer the Carl Moyer Memorial Air Quality Standards Attainment Program.

3.2.5 Toxic Air Containment Identification and Control Act

California regulates TACs (equivalent to the federal hazardous air pollutants) primarily through the Toxic Air Contaminant Identification and Control Act and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Hot Spots Act). The act created California's program to reduce exposure to air toxics. The Hot Spots Act supplements the Toxic Air Contaminant Identification and Control Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, the CARB identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC. In September 2000, the CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan was to reduce DPM (respirable particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identifies 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines (e.g., stand-by power generators).

The CARB has adopted regulations to reduce emissions from both on-road and off-road heavy-duty diesel vehicles (e.g., equipment used in construction). These regulations, known as airborne toxic control measures, reduce the idling of school buses and other commercial vehicles, control DPM, and limit the emissions of ocean-going vessels in California waters. The regulations also include measures to control emissions of air toxics from stationary sources. The California toxics inventory, developed by interpolating from CARB estimates of total organic gases and particulate matter, provides emissions estimates by stationary, area-wide, on-road mobile, off-road mobile, and natural sources.

3.2.6 Greenhouse Gas Regulations

California established various regulations to address GHG emissions. The most relevant of these regulations to the Project are described below.

Legislative Reduction Targets

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, requires the state to reduce GHG emissions to 1990 levels by 2020. Senate Bill (SB) 32 (2016) requires the state to reduce emissions to 40 percent below the 1990 level by 2030. The state's plan to reach these targets is presented in periodic scoping plans. The CARB adopted the *2017 Climate Change Scoping Plan* in November 2017 to meet the GHG reduction requirement set forth in SB 32 (CARB 2017a). It proposes continuing the major programs of the previous scoping plan, including cap-and-trade regulation; low carbon fuel standards; more efficient cars, trucks, and freight movement; Renewables Portfolio Standard; and reducing CH_4 emissions from agricultural and other wastes. The current scoping plan articulates a key role for local governments, recommending they establish GHG reduction goals for both their municipal operations and the community consistent with those of the state.

Executive Order Reduction Targets

In 2005, Executive Order (EO) S-3-05 established goals to reduce California's GHG emissions to 2000 levels by 2010 (achieved), 1990 levels by 2020, and 80 percent below the 1990 levels by 2050. In 2018, EO B-55-18 established a new state goal to achieve carbon neutrality as soon as possible, and no later than 2045, achieve and maintain net negative emissions thereafter. EOs are

binding on state government agencies but are not legally binding on cities and counties or on private development.

Scoping Plan

The AB 32 Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires the CARB and other state agencies to develop and enforce regulations and other initiatives to reduce GHG emissions. The AB 32 Scoping Plan, first adopted in 2008, comprises the state's roadmap for meeting AB 32's reduction target. Specifically, the scoping plan articulates a key role for local governments by recommending that they establish GHG emissions-reduction goals for both their municipal operations and the community that are consistent with those of the state (i.e., approximately 15 percent below current levels) (CARB 2008). The AB 32 Scoping Plan was updated in 2014 to reflect the economic downturn (CARB 2014).

The 2017 Scoping Plan Update represents the state's roadmap to achieving long-term GHG reduction targets of SB 32. The scoping plan integrates various CARB regulations and strategies, including Cap-and-Trade, Low Carbon Fuel Standard, SB 350, Sustainable Freight Action Plan, Mobile Source Strategy, and the Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The Scoping Plan Update proposes meeting the 2030 goal by accelerating the focus on zero and near-zero technologies for moving freight, continued investment in renewables, greater use of low-carbon fuels including electricity and hydrogen, stronger efforts to reduce emissions of SLCPs (CH_4, black carbon, and fluorinated gases), further efforts to create walkable communities with expanded mass transit and other alternatives to traveling by car, continuing the Cap-and-Trade Program, and ensuring that natural lands become carbon sinks to provide additional emissions reductions and flexibility in meeting the target. The Scoping Plan Update also recommends that local governments aim to achieve community-wide efficiency of 6 metric tons of CO_2e per capita by 2030 and 2 metric tons of CO_2e per capita by 2050 to be used in local climate action planning (CARB 2017a).

Renewables Portfolio Standard

SBs 1078 (2002), 107 (2006) 2 (2011) and 100 (2015) govern California's Renewables Portfolio Standard under which investor-owned utilities, energy service providers, and Community Choice Aggregators must procure additional retail sales per year from eligible renewable sources. The current goals for renewable sources are 33 percent by 2020, 40 percent by 2024, 50 percent by 2026, 60 percent by 2030, and 100 percent carbon-free by 2045.

Vehicle Efficiency Standards

AB 1493 (2002) (Pavley I) requires the CARB to develop and implement regulations to reduce automobile and light-truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the model year 2009. Additional strengthening of the Pavley standards (referred to previously as *Pavley II* and now referred to as the *Advanced Clean Cars* measure) was adopted for vehicle model years 2017–2025 in 2012. Together, the two standards are expected to increase average fuel economy to roughly 54.5 miles per gallon in 2025.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard mandates a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In September 2018, the

Low Carbon Fuel Standard regulation was amended to increase the statewide goal to a 20 percent reduction in carbon intensity of California's transportation fuels by at least by 2030.

Regional Land Use and Transportation Planning to Reduce Vehicle Miles Travelled

SB 375 requires the state's 18 metropolitan planning organizations to develop the sustainable communities strategies (SCS) as part of their regional transportation plans (RTP) through integrated land use and transportation planning and to demonstrate an ability to attain the GHG emissions reduction targets that the CARB established for the region by 2020 and 2035. This would be accomplished through either the financially constrained SCS as part of the RTP or an unconstrained alternative planning strategy. A financially constrained SCS refers to an SCS with committed, available, or reasonably available revenue sources for implementation. If regions develop integrated land use, housing, and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain California Environmental Quality Act (CEQA) review requirements.

CEQA Requirements to Assess Vehicle Miles Travelled

SB 743 (2013) requires revisions to the CEQA Guidelines that establish new impact analysis criteria for the assessment of a project's transportation impacts. The intent behind SB 743 and revising the CEQA Guidelines is to integrate and better balance the needs of congestion management, infill development, active transportation, and GHG emissions reduction. The Office of Planning and Research recommends that vehicle miles traveled (VMT) serve as the primary analysis metric, replacing the existing criteria of delay and level of service. In 2018, the Office of Planning and Research released a technical advisory outlining potential VMT significance thresholds for different project types.

Short-Lived Climate Pollutants

SB 605 directed the CARB, in coordination with other state agencies and local air districts, to develop a comprehensive SLCP Reduction Strategy. SB 1383 directed the CARB to approve and implement the SLCP Reduction Strategy to achieve the following reductions in SLCPs:

- 40 percent reduction in CH_4 below 2013 levels by 2030
- 40 percent reduction in HFC gases below 2013 levels by 2030
- 50 percent reduction in anthropogenic black carbon below 2013 levels by 2030

The bill also establishes the following targets for reducing organic waste in landfills and CH_4 emissions from dairy and livestock operations:

- 50 percent reduction in organic waste disposal from the 2014 level by 2020
- 75 percent reduction in organic waste disposal from the 2014 level by 2025
- 40 percent reduction in CH_4 emissions from livestock manure management operations and dairy manure management operations below the dairy sector's and livestock sector's 2013 levels by 2030

The CARB adopted the SLCP Reduction Strategy in March 2017 as a framework for achieving the CH_4, HFC, and anthropogenic black carbon reduction targets set by SB 1383. The SLCP Reduction Strategy includes 10 measures to reduce SLCPs, which fit within a wide range of ongoing planning

efforts throughout the state. The CARB and CalRecycle are currently developing regulations to achieve these goals.

3.3 Local Regulations

3.3.1 Ventura County Air Pollution Control District

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that the NAAQS and CAAQS are met.

The CARB's *2017 Climate Change Scoping Plan* states that local governments are "essential partners" in the effort to reduce GHG emissions (CARB 2017a). The plan also acknowledges that local governments have "broad influence and, in some cases, exclusive jurisdiction" over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce GHG emissions rely on local government actions.

The Project falls under the jurisdiction of the VCAPCD. The VCAPCD is the agency principally responsible for air pollution control in Ventura County, which is a part of the SCCAB. The SCCAB includes all of San Luis Obispo County, Santa Barbara County, and Ventura County. The VCAPCD prepares plans to attain the CAAQS and NAAQS. These plans include the regional AQMP and elements of the SIP that apply to the SCCAB.

The VCAPCD adopted the current 2016 AQMP which incorporates the latest scientific and technological information and planning assumptions, as well as updated emission inventory methodologies for various emission source categories (VCAPCD 2016). The 2016 AQMP was prepared to satisfy federal CAA planning requirements for areas designated as serious federal 8-hour O_3 nonattainment areas, including, but not limited to, updated air quality information, an updated emissions inventory, local and state air pollutant control measures, new emission forecasts and projections, a new federal conformity budget for transportation projects, a reasonable further progress demonstration for precursors of O_3 (ROGs and NO_Xs), a demonstration that Ventura County will attain the 2008 federal 8-hour O_3 standard, and contingency measures.. The 2016 AQMP presents Ventura County's strategy to attain 2008 federal 8-hour O_3 standard by 2020, as required by the federal CAA Amendments of 1990 and applicable U.S. EPA clean air regulations. The VCAPCD also prepared a SIP to address the lead NAAQS, as well as the clean communities plan (formerly known as the air toxics control plan) to reduce toxic emissions and risk from both mobile and stationary sources.

The VCAPCD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures though educational programs or fines, when necessary. The following sections summarize the VCAPCD rules and regulations that may be applicable to the Project:

- **Regulation II – Permits**. This regulation requires that a permit be obtained from the VCAPCD prior to construction and operation of certain stationary equipment and facilities that emit air pollutants.

- **Rule 26- New Source Review**. This regulation sets forth preconstruction review requirements for new, modified, or relocated stationary facilities to ensure that the operation of such facilities does not interfere with progress toward attainment of the NAAQS.
- **Regulation IV – Prohibitions**. This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air pollutant emissions, fuel contaminants, and start-up/shutdown exemptions.
- **Rule 51 – Nuisance**. This rule restricts the discharge of any contaminant in quantities that cause or have a natural ability to cause injury, damage, nuisance, or annoyance to businesses, property, or the public.
- **Rule 55 – Fugitive Dust**. This rule requires the prevention, reduction, or mitigation of fugitive dust emissions from a project site.
- **Rule 74.4 – Cutback Asphalt**. This rule limits the emissions of vapors of organic compounds from the use of cutback and emulsified asphalts.
- **Rule 74.2 – Architectural Coatings**. This rule limits the amount of volatile organic compounds from architectural coatings and solvents, which lowers the emissions of odorous compounds.

3.3.2 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the metropolitan planning organization for Los Angeles, Orange, Riverside, San Bernardino, Imperial, and Ventura Counties. It is a regional planning agency and serves as a forum for regional issues relating to transportation, the economy and community development, and the environment. SCAG is the federally designated metropolitan planning organization for most of the Southern California region and is the largest metropolitan planning organization in the nation. With regard to air quality planning, SCAG prepares the RTP and Federal Transportation Improvement Program, which address regional development and growth forecasts and form the basis for the land use and transportation control portions of the AQMP (discussed in Section 3.3.1). They are also used in the preparation of the air quality forecasts and consistency analysis included in the AQMPs. The RTP, the Federal Transportation Improvement Program, and the AQMPs are based on projections originating within local jurisdictions. Although SCAG is not an air quality management agency, it is responsible for developing transportation, land use, and energy conservation measures that affect air quality.

On September 3, 2020, SCAG adopted the 2020–2045 RTP/SCS (SCAG 2020). The 2020-2045 RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the NAAQS as set forth by the CAA. The RTP/SCS would successfully achieve and exceed the GHG emission-reduction targets set by the CARB by achieving an 8 percent reduction by 2020 and 19 percent reduction by 2035 compared with the 2005 level on a per capita basis. This RTP/SCS also meets criteria pollutant emission budgets set by the U.S. EPA.

3.3.3 Metrolink

Metrolink is committed to the goal of cleaner air in Southern California. By implementing such programs as the Tier 4 Locomotive Engine Program, Fuel Conservation Program, and Plug-In Program, Metrolink has reduced locomotive NO_X and particulate matter emissions by 85 percent, reduced train idling by 35 percent systemwide, and added 55 percent more plug-in stations that supply electric ground power to railcars during testing and inspection. In addition, an electric railcar mover was purchased to perform the testing and inspections. These programs have reduced the fuel use and emissions associated with these operational activities.

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4 Environmental Setting

Air quality describes the amount of air pollution to which the public is exposed. GHGs are gaseous compounds that limit the transmission of Earth's radiated heat out to space. Air quality and GHGs are important considerations for the Project because of current regional air quality conditions, which exceed certain federal and state ambient air quality standards, and because GHGs generated by the alternatives may contribute to global climate change.

This section describes criteria pollutants and their precursors, TACs, and GHGs that may be generated by the Project. It also defines global climate change and describes ambient air quality conditions, including regional meteorology, existing pollutant concentrations, and locations of sensitive receptors in the local air quality study area.

4.1 Pollutants of Concern

4.1.1 Criteria Pollutants

Criteria pollutants are a group of six common air pollutants for which the federal and state governments have set NAAQS and CAAQS, respectively. O_3 is considered a regional pollutant because its precursors affect air quality on a regional scale; NO_X and ROG react photochemically to form O_3, and this reaction occurs at some distance downwind of the emissions source. Pollutants such as CO, NO_2, SO_2, and lead are considered local pollutants that tend to accumulate in the air locally. Particulate matter is both a local and regional pollutant.

Concentrations of criteria pollutants are commonly used indicators of ambient air quality for which acceptable levels of exposure can be determined. The ambient air quality standards for these pollutants are set with an adequate margin of safety for public health and the environment (CAA Section 109). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria pollutants and form the scientific basis for new and revised ambient air quality standards.

The primary criteria pollutants generated by the Project are O_3 precursors (NO_X and ROG), CO, NO_2, SO_2, and particulate matter.[2] Additional narrative on sources and health effects of these pollutants is provided in the following sections.

Ozone

O_3, or smog, is a photochemical oxidant that is formed when ROGs and NO_X (both by-products of the internal combustion engine) react with sunlight. ROGs are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROGs are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. The two major forms of NO_X are nitric oxide and NO_2. Nitric oxide is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of nitric oxide and oxygen.

[2] Lead is also a criteria pollutant, and there are state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility particulates. However, these pollutants are typically associated with industrial sources, which are not included as part of the Project. Accordingly, they are not evaluated further.

In addition to serving as an integral participant in O_3 formation, NO_X also directly acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens due to impairments to the immune system.

O_3 poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma), children, older adults, and people who are active outdoors. Exposure to O_3 at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggravate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary disease. Studies show associations between short-term O_3 exposure and nonaccidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to O_3 may increase the risk of respiratory-related deaths (U.S. EPA 2019). The concentration of O_3 at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion (ppb) of O_3 and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum O_3 concentration reaches 80 ppb (U.S. EPA 2016).

In addition to human health effect, O_3 has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. O_3 can also act as a corrosive and oxidant, resulting in property damage such as the degradation of rubber products and other materials.

Carbon Monoxide

CO is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. In the Project study area, high CO levels are of greatest concern during the winter, when periods of light winds combine with the formation of ground-level temperature inversions from evening through early morning. These conditions trap pollutants near the ground, reducing the dispersion of vehicle emissions. Moreover, motor vehicles exhibit increased CO emission rates at low air temperatures. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation. Exposure to CO at high concentrations can also cause fatigue, headaches, confusion, dizziness, and chest pain. There are no ecological or environmental effects associated with ambient CO (CARB 2020a).

Nitrogen Dioxide

NO_2 can be directly emitted from combustion sources, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Much of the NO_2 in the ambient air, however, is photochemically formed by the combination of nitric oxide and other air pollutants. For this reason, NO_2 levels can vary depending on direct emissions levels and changes in atmospheric conditions, particularly the amount of sunlight.

A large body of scientific literature suggests that NO_2 exposure can intensify responses to allergens in asthmatics. Epidemiological studies have also demonstrated an association between NO_2 and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Like other pollutants, children and individuals with underlying respiratory conditions (e.g., asthma) are at greater risk of experiencing adverse effects following exposure to NO_2. In addition to potential human health impacts,

NO_2 can reduce visibility. High NO_2 concentrations (greater than 0.2 parts per million [ppm]) over prolonged periods (100 hours or more) have also been reported to injure crops. (CARB 2020b)

Sulfur Dioxide

SO_2 is generated by burning of fossil fuels, industrial processes, and natural sources, such as volcanoes. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. Controlled human and epidemiological studies show that exposure to SO_2 near the 1-hour NAAQS of 0.075 ppm can result in asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation, such as wheezing, shortness of breath, and chest tightness. These symptoms can be more pronounced during exercise or physical activity. Exposure at elevated levels of SO_2 (above 1 ppm) may result in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality, especially among the elderly and people with cardiovascular disease or chronic lung disease. In addition to potential human health impacts, SO_2 deposition contributes to soil and surface water acidification and acid rain (CARB 2020c).

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. PM_{10} is about 1/7th the thickness of a human hair, while $PM_{2,5}$ is roughly 1/28th the diameter of a human hair. Major sources of PM_{10} include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. $PM_{2.5}$ results from fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. Particulate matter also forms when gases emitted from industries and motor vehicles, such as SO_2, NO_X, and ROG, undergo chemical reactions in the atmosphere.

Particulate pollution can be transported over long distances and may adversely affect humans, especially people who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked particulate matter exposure to premature death in people with preexisting heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Depending on its composition, PM_{10} and $PM_{2.5}$ can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain (U.S. EPA 2020a).

4.1.2 Toxic Air Contaminants

Although ambient air quality standards have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or their acute or chronic health risks. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment. The primary TAC of concern associated with the Project is DPM.

DPM is generated by diesel-fueled equipment and vehicles. The CARB estimates that DPM emissions are responsible for about 70 percent of the total ambient air toxics risk (CARB 2020d). Short-term exposure to DPM can cause acute irritation (e.g., eye, throat, and bronchial), neurophysiological

symptoms (e.g., lightheadedness and nausea), and respiratory symptoms (e.g., cough and phlegm). The International Agency for Research on Cancer (2012) has classified diesel engine exhaust as "carcinogenic to humans, based on sufficient evidence that exposure is associated with an increased risk for lung cancer."

4.1.3 Greenhouse Gases

The principal anthropogenic (human made) GHGs contributing to global warming are CO_2, CH_4, N_2O, sulfur hexafluoride, HFCs, and perfluorocarbons. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic sources. The primary GHGs of concern associated with the Project are CO_2, CH_4, and N_2O, as described below.

- CO_2 enters the atmosphere via the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and as a result of other chemical reactions (e.g., manufacture of cement). CO_2 is also removed from the atmosphere (or sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and the decay of organic waste in municipal solid waste landfills.
- N_2O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in Intergovernmental Panel on Climate Change (IPCC) reference documents. IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e, which compares the gas in question with that of the same mass of CO_2 (CO_2 has a GWP of 1 by definition).

Table 4-1 lists the GWP of CO_2, CH_4, and N_2O and their lifetimes in the atmosphere. The GWPs are from the IPCC's fourth assessment report, consistent with statewide GHG emissions reporting protocol (CARB 2020e).

Table 4-1. Lifetimes and Global Warming Potentials of Key Greenhouse Gases

GHG	GWP (100 years)	Lifetime (years)
CO_2	1	—
CH_4	25	12
N_2O	298	114

Source: CARB 2020e
CH_4=methane; CO_2=carbon dioxide; GHG=greenhouse gas; GWP=global warming potential; N_2O=nitrous oxide

All GWPs used for CARB's GHG inventory and to assess attainment of the state's GHG reduction targets are considered over a 100-year timeframe (as shown in Table 4-1). However, the CARB recognizes the importance of SLCPs and reducing these emissions to achieve the state's overall climate change goals. SLCPs have atmospheric lifetimes on the order of a few days to a few decades, and their relative climate forcing impacts, when measured in terms of how they heat the atmosphere,

can be tens, hundreds, or even thousands of times greater than that of CO_2 (CARB 2017b). Recognizing their short-term lifespan and warming impact, SLCPs are measured in terms of CO_2e using a 20-year time period. The use of GWPs with a time horizon of 20 years better captures the importance of the SLCPs and gives a better perspective on the speed at which SLCP emission controls will impact the atmosphere relative to CO_2 emission controls. The SLCP Reduction Strategy, which is discussed further below, addresses the three primary SLCPs—CH_4, HFC gases, and anthropogenic black carbon. CH_4 has lifetime of 12 years and a 20-year GWP of 72. HFC gases have lifetimes of 1.4 to 52 years and a 20-year GWP of 437 to 6,350. Anthropogenic black carbon has a lifetime of a few days to weeks and a 20-year GWP of 3,200 (CARB 2017b).

4.2 Global Climate Change

The process known as the greenhouse effect keeps the atmosphere near Earth's surface warm enough for the successful habitation of humans and other life forms. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHGs. Human activities that generate GHGs increase the amount of infrared radiation absorbed by the atmosphere, thus enhancing the greenhouse effect and amplifying the warming of Earth.

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution (IPCC 2007). Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures—a process commonly referred to as global warming. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events (IPCC 2018). Large-scale changes to Earth's system are collectively referred to as climate change.

The IPCC was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that human-induced warming reached approximately 1 degree Celsius above preindustrial levels in 2017, increasing at 0.2 degree Celsius per decade. Under the current nationally determined contributions of mitigation from each country until 2030, global warming is expected to rise to 3 degrees Celsius by 2100, with warming to continue afterward (IPCC 2018). Large increases in global temperatures could have substantial adverse effects on the natural and human environments worldwide and in California.

4.3 Regional Climate and Meteorology

Air quality is affected by the rate and location of pollutant emissions and meteorological conditions that influence movement and dispersal of pollutants in the atmosphere. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and local air quality levels. Elevation and topography can affect localized air quality.

The SCCAB covers approximately 9,613 square miles and includes all of San Luis Obispo County, Santa Barbara County, Ventura County, and the Project study area within Simi Valley. The City of Simi Valley is located 16 miles from the Pacific Ocean and is dominated by the high-pressure zone that persists due to the proximity of the ocean. This pressure zone induces regional subsidence and

temperature inversion layers. Temperate conditions persist with warm summers, mild winters, limited rainfall, and moderate humidity with a diurnal land to sea wind cycle having daytime winds from the west.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. In the winter, the greatest pollution problems are CO and NO_X because of low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

The annual average temperature varies slightly throughout the region, ranging from the low to mid-60s, measured in degrees Fahrenheit. With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. Most of the annual rainfall in the South Coast Air Basin (SCAB) occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB and along the coastal side of the mountains. Average monthly rainfall during that period varies from 3.80 inches in February to 0.01 inch or less between June and July, with an annual total of 16.35 inches. Patterns in monthly and yearly rainfall totals are unpredictable because of fluctuations in the weather.

The SCAB intermittently experiences a temperature inversion (increasing temperature with increasing altitude) as a result of the Semi-Permanent Pacific High. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

4.4 Existing Air Quality Conditions

4.4.1 Ambient Concentrations

The existing conditions in the local air quality study area can be characterized by regional monitoring data. The CARB and VCAPCD collect and maintain ambient air quality data through a network of air monitoring stations throughout the state. The Project site is in Simi Valley which is located in Ventura County. The closest monitoring station in Simi Valley is the Simi Valley-Cochran Street Station (CARB 56434), located approximately 1 mile east/northeast of the eastern boundary of the Project site. The Simi-Valley-Cochran Street Station only monitors O_3, NO_2, PM_{10}, and $PM_{2.5}$. The closest station that monitors CO is the one in Reseda, California, which is located approximately 20 miles east of the western terminus of the Project site.

Table 4-2 presents the results of the ambient monitoring at the Simi-Cochran Street Station and at the Reseda Station, where available, for the most recent 3 years (2016 through 2018). Air quality concentrations are expressed in terms of ppm or micrograms per cubic meter ($\mu g/m^3$).

Between 2016 and 2018, monitored CO and NO_2 concentrations did not exceed any federal or state standards. However, the state or federal standards for O_3, PM_{10}, and $PM_{2.5}$ were exceeded. As discussed above, the ambient air quality standards define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on people and the environment. Existing violations of the O_3 and particulate matter ambient air quality standards indicate

that certain individuals exposed to this pollutant may experience certain health effects, including increased incidence of cardiovascular and respiratory ailments.

Table 4-2. Ambient Criteria Air Pollutant Monitoring Data (2016–2018) from the Simi Valley-Cochran Street Station and the Reseda Station

Pollutant Standards	2016	2017	2018
O_3 Simi Valley-Cochran			
Maximum 1-hour concentration (ppm)	0.101	0.103	0.101
Maximum 8-hour concentration (ppm)	0.083	0.094	0.092
Number of days standard exceeded [a]			
CAAQS 1-hour standard (> 0.09 ppm)	1	3	2
NAAQS/CAAQS 8-hour standard (> 0.070 ppm)	7/8	20/22	14/14
CO Reseda			
Maximum 8-hour concentration (ppm)	1.9	2.5	2.1
Maximum 1-hour concentration (ppm)	2.4	3.0	3.4
Number of days standard exceeded [a]			
NAAQS/CAAQS 8-hour standard (≥ 9 ppm/≥ 9.0 ppm)	0	0	0
NAAQS/CAAQS 1-hour standard (≥ 35 ppm/≥ 20 ppm)	0	0	0
NO_2 Simi Valley-Cochran			
State maximum 1-hour concentration (ppb)	39	46	43
State second-highest 1-hour concentration (ppb)	39	43	42
Annual average concentration (ppb)	18.9	17.8	19.1
Number of days standard exceeded			
CAAQS 1-hour standard (0.18 ppm)	0	0	0
PM_{10} Simi Valley-Cochran			
National[b] maximum 24-hour concentration (μg/m^3)	166.1	154.3	110.5
National[b] second-highest 24-hour concentration (μg/m^3)	63.0	82.0	97.0
State[c] maximum 24-hour concentration (μg/m^3)	156.3	149.8	107.6
State[c] second-highest 24-hour concentration (μg/m^3)	64.8	70.1	50.5
National annual average concentration (μg/m^3)	24.1	25.2	24.4
State annual average concentration (μg/m^3)[d]	22.9	24.0	23.5
Number of days standard exceeded[e]			
NAAQS 24-hour standard (>150 μg/m^3) *estimated*	1.0	0.0	0.0
CAAQS 24-hour standard (>50 μg/m^3)	4	9	6.1
$PM_{2.5}$ Simi Valley-Cochran			
National[b] maximum 24-hour concentration (μg/m^3)	34.9	31.3	29.6

Table 4-2. Ambient Criteria Air Pollutant Monitoring Data (2016–2018) from the Simi Valley-Cochran Street Station and the Reseda Station

Pollutant Standards	2016	2017	2018
National[b] second-highest 24-hour concentration (μg/m^3)	31.4	30.3	27.5
State[c] maximum 24-hour concentration (μg/m^3)	35.3	31.3	29.6
State[c] second-highest 24-hour concentration (μg/m^3)	38.3	55.4	58.2
National annual average concentration (μg/m^3)	8.7	9.1	8.7
State annual average concentration (μg/m^3)[d]	8.7	9.1	8.7
Number of days standard exceeded[e]			
NAAQS 24-hour standard (> 35 μg/m^3)	0	0	0
SO_2 Simi Valley-Cochran			
No data	—	—	—

Sources: CARB 2020f; U.S. EPA 2020b

Notes:

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the SCCAB, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[d] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[e] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

μg/m^3=micrograms per cubic meter; CAAQS=California Ambient Air Quality Standards; CO=carbon monoxide; NAAQS=National Ambient Air Quality Standards; NO_2=nitrogen dioxide; O_3=ozone; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; ppb=parts per billion; ppm=parts per million; SCAB=South Coast Air Basin; SO_2=sulfur dioxide

4.4.2 Regional Attainment Status

Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the ambient air quality standards.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question

Table 4-3 summarizes the current attainment status of Ventura County.

Table 4-3. Federal and State Attainment Status for the Project Study Area

Criteria Pollutant	Federal Designation	State Designation
O_3 (8-hour)	Serious nonattainment	Nonattainment
CO	Attainment	Attainment
PM_{10}	Attainment	Attainment
$PM_{2.5}$	Attainment	Nonattainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment

Sources: CARB 2020g; U.S. EPA 2020c

Notes:

CO=carbon monoxide; NO_2=nitrogen dioxide; O_3=ozone; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; SO_2=sulfur dioxide

4.5 Sensitive Receptors

People in some locations are considered more sensitive to the adverse impacts of air pollution than in others. These locations are termed sensitive receptors and include schools, daycare facilities, elderly care establishments, medical facilities, and other areas with people considered particularly vulnerable to the effects of poor air quality (VCAPCD 2003). Residential uses are also considered sensitive because people in residential areas are often at home—and therefore exposed to pollutants—for extended periods of time. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

There are numerous sensitive receptors within 1,000 feet of the Project study area, particularly single and multifamily residential areas. The CARB analyses indicate that providing a separation of at least 1,000 feet from diesel sources and high-traffic areas would substantially reduce exposure to air contaminants and decrease asthma symptoms in children (CARB 2005). The Project alignment is within an urban area, and there are sensitive uses, particularly residential areas, on both sides of the alignment. The closest residences are adjacent to the Project study area at various points along the Project alignment.

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5 Analysis Method and Thresholds

This section describes the methods used to quantify criteria pollutants and GHG emissions generated during Project construction and operation and discusses the thresholds used to evaluate whether an impact would be significant.

5.1 Analysis Method

Air quality and GHG impacts associated with construction and operation of the Project were assessed and quantified (where applicable) using standard and accepted software tools, techniques, and emission factors. A summary of the methodology is provided below. A full list of assumptions can be found in Appendix A. Model outputs are also provided in Appendix A.

5.1.1 Project Construction

Construction of the Project would generate emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ that would temporarily change ambient air quality in the Project study area. Emissions would originate from mobile and stationary construction equipment exhaust, employee vehicle exhaust, dust from land clearing, paving activities, and application of architectural coatings.

Construction is expected to begin in 2023 and would continue for 19 months. The construction schedule is shown in Table 5-1.

Construction emissions were estimated using a combination of emission factors and methodologies from the California Emissions Estimator Model, version 2016.3.2, CARB's EMFAC2017 model, U.S. EPA's AP 42 *Compilation of Air Pollutant Emission Factors,* and U.S. EPA locomotive emission factors based on Project-specific construction data (e.g., schedule, equipment types and numbers, and truck volumes) provided by SCRRA.

Emission estimates assume that all excavated materials would be hauled off site, that truck capacity is 16 cubic yards, and that all ballast material would be imported from the SCAB boundary via freight rail. Construction assumptions are summarized in Table 5-2.

Emissions for air quality are presented at the daily time scale (i.e., pounds per day) and compared with VCAPCD's thresholds. Consistent with SCAQMD guidance, construction GHG emissions were summed and amortized over the life of the Project, defined as 30 years, and added to operational emissions (described below).

Table 5-1. Construction Schedule

Phase Name	Phase Start Date	Phase End Date	Days
Construct structures	1/1/2023	4/11/2023	72
Construct track work and new turnouts	4/1/2023	7/11/2023	72
Construct signal houses, signal foundations, grade crossing warning devices and associated conduits	7/1/2023	9/6/2023	48
Construct track and roadway improvements at-grade crossings	8/22/2023	11/30/2023	72

Table 5-1. Construction Schedule

Phase Name	Phase Start Date	Phase End Date	Days
Transfer rail service onto the newly constructed Main Track 1	11/15/2023	12/19/2023	24
Finish installing signals at new CP Sequoia and CP Arroyo	12/9/2023	2/14/2024	48
Construct Main Track 2 track and upgrade existing from timber to concrete ties	2/4/2024	5/14/2024	72
Activate Main Track 2 track into service	5/4/2024	6/6/2024	24
Remove and reconstruct 250 feet of the existing Simi Valley Station platform and finish upgrading any remaining timber ties for concrete ties	5/27/2024	8/1/2024	48

Notes:
CP=control point

Table 5-2. Construction Assumptions

Phase Name	Equipment	Amount	Hours/ Day	Material Volumes	Truck Hauls	Workers
Construct structures	Air compressor	2	8	—	—	12
	Welder	2	8			
	Crane	1	8			
	Miscellaneous rail equipment	3	8			
Construct track work and new turnouts	Excavator	1	8	1,882 cubic yards of ballast import	—	6
	Front-end loader	1	8			
	Rubber tired dozer	1	8			
	Crane	1	8			
Construct signal houses, signal foundations, grade crossing warning devices and associated conduits	Excavator	1	8	—	—	9
	Front-end loader	1	8			
	Rubber tired dozer	1	8			
	Grader	2	8			
	Roller	1	8			
Construct track and roadway improvements at-grade crossings	Air compressor	2	8	6,453 cubic yards of excavation export and 1,882 cubic yards of ballast import	403	12
	Welder	2	8			
	Crane	1	8			
	Miscellaneous rail equipment	3	8			

Table 5-2. Construction Assumptions

Phase Name	Equipment	Amount	Hours/ Day	Material Volumes	Truck Hauls	Workers
Transfer rail service onto the newly constructed Main Track 1	—	—	—	—	—	6
Finish installing signals at new CP Sequoia and CP Arroyo	—	—	—	—	—	6
Construct Main Track 2 track and upgrade existing from timber to concrete ties	Air compressor	2	8	3,764 cubic yards of ballast import	0	12
	Welder	2	8			
	Crane	1	8			
	Miscellaneous rail equipment	3	8			
Activate Main Track 2 track into service	—	—	—	—	—	6
Remove and reconstruct 250 feet of the existing Simi Valley Station platform and finish upgrading any remaining timber ties for concrete ties	Excavator	1	8	—	—	15
	Front-end loader	1	8			
	Rubber tired dozer	1	8			
	Grader	2	8			
	Roller	1	8			
	Air compressor	2	8			
	Welder	2	8			

Notes:
CP=control point

5.1.2 Project Operation

The Project is expected to become fully operational in 2025. Once operational, the Project would help provide for increased service capacity on Metrolink's VCL Lines. The increase in service would affect regional emissions by increasing diesel fuel consumption associated with operating Metrolink's locomotive fleet. In addition, because the Project would offer an alternative to passenger vehicle travel on the regional transportation network, the Project could affect regional emissions by reducing emissions from passenger vehicle travel on the regional roadway network.

Train Activity

Emissions were estimated based on the net increase in fuel consumption provided by the Project engineer, which were based on 0.3425 miles per gallon (or 2.9197 gallons per mile) fuel efficiency based on Metrolink's 2018 reporting (National Transit Database 2020), Metrolink train fleet by tier by operational year (as obtained from the Project engineer), and default U.S. EPA emission factors by engine tier type (U.S. EPA 2009). U.S. EPA emission factors were converted from grams per

brake-horsepower-hour into grams per gallon using the U.S. EPA conversion factor of 20.8 for large line haul and passenger trains. The sulfur oxide (SO_X) emission factor was calculated using U.S. EPA methodology assuming a 15-ppm sulfur content, consistent with CARB and U.S. EPA requirements. CH_4 and N_2O emissions were estimated using CH_4 and N_2O emission factors for locomotives within the most recent air emissions inventory from the Port of Los Angeles (Port of Los Angeles 2019).

For baseline/existing conditions, the Metrolink train fleet is assumed to be a mix of pre-Tier 0 (10 locomotives), Tier 2 (22 locomotives), and Tier 4 (22 locomotives) locomotives; for Project buildout, the fleet is expected to be comprised of entirely Tier 4 locomotives (Metrolink 2014, 2016)

The change in emissions is based on the existing and Project (2025) weekday and annual train miles, fuel consumption in gallons per mile, and emission factors for Metrolink's fleet under existing (2019) and 2024 conditions (i.e., the year that Metrolink's fleet is anticipated to be composed of entirely Tier 4 locomotives).

Displaced Passenger Vehicles

The Project would cause some commuters to mode-shift from automobile use to transit use. This would result in a reduction in VMT associated with weekday commuter travel. Reductions in on-road vehicle emissions were quantified using average daily displaced vehicle trips and VMT in the CARB EMFAC2017 model.

The EMFAC2017 emission factors are based on a weighted average for all vehicle speeds and fuel types (gasoline, diesel, electric, and natural gas) for EMFAC's light- and medium-duty (LDA, LDT1, LDT2, MDV, MCY) vehicle operating categories. Emission factors for running exhaust (i.e., vehicle movement) are weighted by VMT, whereas emission factors for starting, resting loss, running loss, hot soak, and idle processes are weighted by vehicle trips. CARB's (2019) SAFE Rule adjustment factors were applied to the 2024 emission factors for gasoline-powered vehicles. Fugitive re-entrained road dust emissions were estimated using the U.S. EPA's *Compilation of Air Pollutant Emission Factors* (AP 42), Section 13.2.1 (U.S. EPA 2011).

Displaced passenger trips and miles were estimated for each line based on existing annual train miles and the change in weekday boardings by line under Project conditions. It is assumed that each train mile traveled by a passenger displaces a mile the passenger would have traveled in a motor vehicle.

5.2 Analysis Thresholds

In accordance with Appendix G of the CEQA Guidelines, the Project would be considered to have a significant impact if it would result in any of the conditions listed below:

- Conflict with or obstruct implementation of the applicable air quality plan
- A cumulatively considerable net increase of any criteria pollutant for which the Project region is a nonattainment area for an applicable federal or state ambient air quality standard
- Expose sensitive receptors to substantial pollutant concentrations
- Other emissions (such as those leading to odors) affecting a substantial number of people
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs

According to the CEQA Guidelines Section 15064.7, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make significance determinations for potential impacts on environmental resources. The VCAPCD is responsible for ensuring that state and federal ambient air quality standards are not being violated within the SCCAB. The following sections summarize VCAPCD thresholds (where applicable) for each of the six impact criteria.

5.2.1 Conflict with Regional Air Quality Plans

Projects that propose development that is consistent with the growth anticipated by SCAG and local plans, including the current *Simi Valley General Plan*, would be consistent with VCAPCD's AQMP.

5.2.2 Cumulatively Considerable Increase in Emissions

The VCAPCD has developed air quality significance thresholds that are applicable to CEQA projects within its jurisdiction. These thresholds are published in the *Ventura County Air Quality Assessment Guidelines* (VCAPCD 2003). The air quality significance thresholds were derived using regional emissions modeling to determine maximum allowable emission quantities that could be generated by individual projects without adversely affecting air quality and creating public health concerns.

Table 5-3 presents VCAPCD recommended criteria pollutant thresholds. Long-term operational emissions can be determined by a screening analysis, which identifies if a detailed run should be conducted if the screening analysis exceeds the short-term emission thresholds. The thresholds are applicable to regional emissions, which refer to emissions of all regulated pollutants generated both on and off a project site.

Table 5-3. Ventura County Air Pollution Control District Air Quality Significance Thresholds

Pollutant (pounds per day)					
ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
25	*	25	*	*	*

Source: VCAPCD 2003

Notes:

* VCAPCD has not extablished numeric thresholds for CO, SO_2, PM_{10} and PM $_{2.5.}$

Per guidance of the VCAPCD, fugitive dust is to be minimized during grading and excavation operations rather than quantifying emissions.

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; SO_X=sulfur oxide; ROG=reactive organic gas

5.2.3 Exposure of Receptors to Increased Air Pollution

All pollutants that would be generated by the Project are associated with some form of health risk (e.g., lower respiratory problems). Pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and can affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. As noted above, the primary pollutants of concern generated by the Project are O_3 precursors (NO_X and ROG), CO, NO_2, SO_2, particulate matter, and DPM. Other than DPM, the following sections discuss thresholds and analysis considerations for these Project-generated pollutants with respect to their human health implications. DPM is addressed in the Project's health risk assessment (ICF 2020).

5.2.4 Exposure of Receptors to Substantial Odors

The VCAPCD does not have an explicit odor threshold. The potential for significant air quality impacts related to odors is addressed in the context of compliance with VCAPCD Rule 51 (Nuisance).

5.2.5 Generation of Greenhouse Gas Emissions

VCAPCD doesn't specify a GHG threshold; therefore, SCAQMD thresholds and guidance were used. The SCAQMD (2008) issued draft bright line thresholds of 3,000 and 10,000 metric tons of CO_2e for nonindustrial and industrial projects, respectively, where construction emissions are amortized over the life of the project (30 years) and added to operational emissions.

5.2.6 Conflict with Greenhouse Gas Reduction Plans

SB 32 outlines the state's GHG emissions reduction target for 2030. While not legislatively adopted, EO S-03-05 establishes the state's long-term goal to reduce GHG emissions 80 percent from 1990 levels by 2050. EO B-55-18 sets a more ambitious state goal of net zero GHG emissions by 2045. Projects that propose development that are consistent with the state's GHG emissions reduction trajectory, as articulated by these targets, would not conflict with associated GHG reduction plans.

6 Impacts Analysis

Impacts from construction and operation of the Project are discussed below.

6.1 Conflict with Regional Air Quality Plans

Project construction would occur within the Ventura County portion of the SCCAB, which is under the jurisdiction of the VCAPCD while Project operation would traverse two air basins: SCCAB and SCAB. The VCAPCD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the basin is in nonattainment. The VCAPCD's most recent plan to achieve air quality standards is the 2016 AQMP.

The 2016 AQMP was adopted by the VCAPCD Governing Board on February 14, 2017. The 2016 AQMP outlines comprehensive control strategies to attain the 2008 federal 8-hour O_3 standard by 2020, as required by the federal CAA Amendments of 1990 and applicable U.S. EPA clean air regulations. The Ventura County AQMP is based on growth projections for Ventura County and subareas within the County that have been agreed to by both the County and SCAG (City of Simi Valley 2012).

These strategies are based, in part, on the regional population, housing, and employment projections (and related transportation-source emissions) prepared by the region's cities and counties and adopted by SCAG (SCAQMD 2017). As such, projects that propose development consistent with the growth anticipated in the relevant land use plans that were used in the formulation of the AQMP are therefore considered to be consistent with the AQMP. The governing land use document relevant to the Project study area is the SCAG 2020–2045 RTP/SCS (SCAG 2020).

The Project is identified in the SCAG 2020–2045 RTP/SCS under project number 720001. As such, the Project is considered consistent with the region's AQMP. Accordingly, the Project would not conflict with or obstruct implementation of the applicable air quality plan. This impact is considered less than significant. Therefore, no mitigation is proposed.

6.2 Cumulatively Considerable Increase in Emissions

6.2.1 Construction

Maximum daily emissions (pounds per day) during each year of construction of the Project are presented in Table 6-1. As shown, Project construction would result in emissions above VCAPCD regional significance thresholds for NO_X during the 2023 construction year. The majority of NO_X emissions are due to off-road construction equipment activity, with rubber-tired dozers being the largest single source. Mitigation recommended to reduce NO_x emissions during construction includes the use of Tier 4 equipment (Section 7).

The estimates of daily construction emissions after mitigation are presented in Table 6-2. As shown, emissions after inclusion of Tier 4 equipment would be below VCAPCD regional significance thresholds. Therefore, after mitigation, construction-related criteria pollutant emissions would not exceed significance thresholds for pollutants for which the region is nonattainment under the NAAQS or CAAQS. Impacts would be less than significant with the implementation of Mitigation Measure AQ-1.

Table 6-1. Unmitigated Regional Construction Emission Estimates

Construction Year	Pollutant (pounds per day)					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_X
2023	4	49	32	2	2	<1
2024	3	38	27	2	1	<1
VCAPCD regional thresholds	25	25	—	—	—	—
Threshold exceeded	No	Yes	—	—	—	—

Source: Appendix A

Notes:

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; VCAPCD=Ventura County Air Pollution Control District SO_X=sulfur oxide; ROG=reactive organic gas

Table 6-2. Mitigated Regional Construction Emission Estimates

Construction Year	Pollutant (pounds per day)					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_X
2023	1	13	38	1	<1	<1
2024	1	16	31	1	<1	<1
VCAPCD regional thresholds	25	25	—	—	—	—
Threshold exceeded	No	No	—	—	—	—

Source: Appendix A

Notes:

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; VCAPCD= Ventura County Air Pollution Control District; SO_X=sulfur oxide; ROG=reactive organic gas

6.2.2 Operation

Project operation has the potential to generate long-term emissions from transit operations and changes in regional traffic patterns. Transit operations would generate emissions through locomotive diesel fuel use. Changes in regional traffic would primarily affect emissions levels through changes in fuel consumption associated with the diversion of private automobile trips to passenger rail. Project conditions take into account Metrolink's locomotive fleet turnover, which is expected to be comprised entirely of Tier 4 locomotives by 2024.

Estimated net operational emissions under existing and Project conditions are presented in Table 6-3. As shown, Project implementation would be accompanied by a decrease in rail emissions due to SCRRA's implementation of Tier 4 locomotives. While the Project would increase rail fuel consumption along the VCL Line, the emission reductions associated with the new locomotive fleet on a per gallon consumed basis more than offsets the increase in fuel consumption. In addition, the emissions associated with displaced VMT from the mode shift from passenger cars to rail would lead to additional emissions reductions. Overall, the Project would reduce emissions of criteria air pollutants

and provide a net air quality and environmental benefit to the region. As such, operational impacts would be less than significant.

Table 6-3. Regional Mass Emission Estimates

Emissions Scenario		Pollutant (pounds per day)					
		ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_X
Existing train emissions (2019)	Total	15	316	81	9	9	0
	Ventura County (SCCAB)	2	33	8	1	1	0
	Los Angeles County (SCAB)	13	284	73	8	8	0
Project train emissions (2024)	Total	7	172	221	3	3	1
	Ventura County (SCCAB)	1	18	23	0	0	0
	Los Angeles County (SCAB)	7	155	198	2	2	1
Net change in train emissions	Total	-7	-144	139	-7	-6	0
	Ventura County (SCCAB)	-1	-15	14	-1	-1	0
	Los Angeles County (SCAB)	-7	-129	125	-6	-6	0
Existing displaced VMT (2019)	Total	-20	-28	-340	-86	-23	-1
	Ventura County (SCCAB)	-9	-12	-146	-37	-10	0
	Los Angeles County (SCAB)	-1	-1	-17	-4	-1	0
Displaced VMT at Project buildout	Total	-14	-16	-238	-187	-24	-1
	Ventura County (SCCAB)	-13	-14	-213	-80	-22	-1
	Los Angeles County (SCAB)	-1	-2	-24	-9	-2	0
Net change in displaced VMT	Total	6	12	102	-101	-1	0
	Ventura County (SCCAB)	-4	-2	-67	-43	-12	-1
	Los Angeles County (SCAB)	0	-1	-7	-5	-1	0
Net change overall	Total	-1	-132	241	-108	-7	0
	Ventura County (SCCAB)	-5	-17	-53	-44	-13	-1
	Los Angeles County (SCAB)	-7	-130	118	-11	-7	0
VCAPCD threshold		25	25	—	—	—	—
Threshold exceeded?		No	No	No	No	No	No
SCAQMD threshold		55	55	550	150	55	150
Threshold exceeded?		No	No	No	No	No	No

Table 6-3. Regional Mass Emission Estimates

Emissions Scenario	Pollutant (pounds per day)					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_X

Source: Appendix A

Notes:

CO=carbon monoxide; NO_x=nitrogen oxide; PM_{10}=particulate matter less than or equal to 10 microns; $PM_{2.5}$=particulate matter less than or equal to 2.5 microns; ROG=reactive organic gas; SO_X=sulfur oxide; SCAB=South Coast Air Basin; SCCAB=South Central Coast Air Basin; VMT=vehicle miles traveled

6.3 Exposure of Receptors to Increased Air Pollution

The discussion of pollutant concentrations associated with both the construction and operation of the various Project components is provided below.

6.3.1 Diesel Particulate Matter

The following sections provide summaries of the construction and operational DPM analysis for the Project. Operational DPM emissions are documented in detail in the health risk assessment for the Project (ICF 2020).

Construction

DPM, which is classified as a carcinogenic TAC by the CARB, is the primary exhaust pollutant of concern with regard to health risks to sensitive receptors. Diesel-powered construction equipment, as well as heavy-duty truck movement, and hauling both on and off site would emit DPM that could potentially expose nearby sensitive receptors to pollutant concentrations. For purposes of analysis, diesel PM_{10} exhaust emissions presented in this analysis are used as a surrogate for DPM, consistent with Office of Environmental Health Hazard Assessment guidance (2015). As discussed, nearby sensitive land uses include numerous residential uses along the Project alignment.

Construction activities associated with the Project components would be linear, occurring from east to west along the 2.2-mile corridor over the 19-month construction period. This 19-month duration is much shorter than the assumed 9-, 30-, or 70-year exposure period typically used to estimate lifetime cancer risks. Specific receptors along the Project alignment would only be exposed to emissions for a short duration when construction activities are nearby. Diesel exhaust associated with construction activities would be minimal, as diesel-vehicle activity on public roadways and within the Project boundary would be minimal and scattered, comprising delivery and material haul trips through the entire construction area. Furthermore, diesel-equipment activity on site would be short term and transitory, resulting in minimal emissions and occurring at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations. Therefore, pollutant emission concentrations would be expected to be well dispersed and minimal at any given location and would not expose any receptors to substantial pollutant concentrations. Impacts would be less than significant.

Mitigation Measure AQ-1 is recommended to further reduce regional pollutant emissions during construction, including DPM emissions.

Operation

Detailed calculations of operational DPM are provided in the Project health risk assessment (ICF 2020). The analysis indicates that there would be an 85 percent decrease in DPM emissions in the future relative to existing conditions even though the Project would increase the number of commuter rail trips. The decrease would occur from changing the Metrolink locomotive fleet from a mix of pre-Tier 0, Tier 2, and Tier 4 locomotives to be composed of all Tier 4 locomotives. As such, impacts because of Project operation would be less than significant, and no mitigation is required.

6.4 Exposure of Receptors to Substantial Odors

According to the *Ventura County Air Quality Assessment Guideline* (2003), land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing facilities, chemical manufacturing operations and facilities, composting facilities, petroleum rendering plants, sanitary landfills, food lots/dairies, and fiberglass operations. The Project, which is a passenger rail project, includes none of these land uses. Thus, Project operation is not expected to result in objectionable odors for the neighboring uses and would not adversely affect a substantial number of people.

In addition, the only potential odor source during construction would be associated with equipment exhaust. Such odors would temporary and not expected to affect a substantial number of people. Material deliveries and heavy-duty haul truck trips could create an occasional whiff of diesel exhaust for nearby receptors. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with Project construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people. Impacts would be less than significant. No mitigation is required.

6.5 Generation of Greenhouse Gas Emissions

Project construction would generate direct emissions of CO_2, CH_4, and N_2O from mobile and stationary construction equipment exhaust, as well as employee haul truck vehicle exhaust. Estimated construction emissions associated with the Project are summarized in Table 6-4. As shown, construction of the Project would generate a total of 523 metric tons of CO_2e during the 19-month construction period. VCAPCD recommends using the California Air Pollution Control Office Association guideline documents for quantifying and mitigation GHG emissions. The document *Quantifying Greenhouse Gas Mitigation Measures* (California Air Pollution Control Office Association 2010) states that thresholds are set by the Lead Agency and since VCAPCD does not have a threshold, SCAQMD thresholds and guidance has been applied. Consistent with SCAQMD guidance, emissions are amortized over a 30-year project life and added to operational emissions below.

Table 6-4. Construction Greenhouse Gas Emissions Estimates

Year	CO_2e (total metric tons)
2023	333
2024	190
Total	523

Table 6-4. Construction Greenhouse Gas Emissions Estimates

Year	CO_2e (total metric tons)
Amortized emissions	17

Source: Appendix A
Notes:
CO_2e=carbon dioxide equivalent

Project operation has the potential to generate long-term GHG emissions from transit operations and changes in regional traffic patterns. Transit operations would generate GHG through locomotive diesel fuel use. Changes in regional traffic would primarily affect emissions levels through changes in fuel consumption associated with the diversion of private automobile trips to passenger rail.

Estimated net operational emissions under existing and Project conditions are presented in Table 6-5. As shown, Project implementation would result in an increase in rail emissions in addition to emissions from construction, but this increase in rail emissions would be more than offset by emissions displaced by removing passenger rails from the roadway network. The Project would reduce operational GHG emissions and provide a net GHG and environmental benefit to the region. This impact would be less than significant. No mitigation is required.

Table 6-5. Regional Greenhouse Gas Impact of the Proposed Action

Source	CO_2e (metric tons per year)
Amortized construction	**17**
Annual train emissions	—
Existing (2019)	9,307
Project (2024)	16,751
Change in train emissions	**7,444**
Displaced vehicles	—
Existing (2019)	-10,147
Project (2024)	-18,826
Change in displaced vehicles	**-8,679**
Net change with Project	**-1,218**

Source: Appendix A
Notes:
VCL=Ventura County Line; CO_2e=carbon dioxide equivalent; VMT=vehicle miles traveled

6.6 Conflict with Greenhouse Gas Reduction Plans

California adopted AB 32 in 2006 and SB 32 in 2016, which codified the state's short-term (2020) and mid-term (2030) GHG reduction targets, respectively. Several jurisdictions in the Project study area have adopted or are currently preparing climate action plans to reduce community GHG emissions. The local metropolitan planning organizations (e.g., SCAG) have also developed transportation plans with policies and goals that are relevant to transportation and rail projects. Consistency with these

documents is evaluated in this impact. This analysis also considers the long-range (2045 and 2050) reduction targets outlined in California EO S-55-18 and EO S-3-05.

AB 32 codifies the state's GHG reduction target for 2020, and SB 32 establishes the state's GHG reduction target for 2030. The CARB adopted the 2008 Scoping Plan and 2014 First Update as a framework for achieving AB 32. The 2008 Scoping Plan and 2014 First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. Some reductions would need to come in the form of changes pertaining to vehicle emissions and mileage standards. Some would come from changes pertaining to sources of electricity and increased energy efficiency at existing facilities. The remainder would need to come from state and local plans, policies, or regulations that will lower carbon emissions, such as those adopted by local government throughout the state. The 2017 Scoping Plan Update for achieving SB 32 extends and furthers much of the policies and programs included in the AB 32 Scoping Plan. SB 375 was enacted to reduce GHG emissions from automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. Under the law, SCAG was tasked with developing a SCS that provides a plan for meeting emissions reduction targets set forth by the CARB. The regional reduction target for the SCAG region is 8 percent and 19 percent for the years 2020 and 2035, respectively.

Project operation would provide new commuter rail service and offer opportunities for commuters to mode-shift from passenger vehicles to transit. The scoping plans and local climate action plans include strategies to reduce single-occupancy vehicle usage and increase alternative transportation. These Project benefits also would support implementation SCAG's 2020–2045 RTP/SCS, which was adopted pursuant to SB 375. The GHG emission reductions achieved by Project operation (Table 6-5) would facilitate attainment of state and local GHG reduction goals and is consistent with the trajectory of statewide climate change planning, as represented by the California EO S-03-05 long-term goal of reducing statewide emissions by 80 percent below 1990 levels by 2050 and the California EO S-55-18 long-term goal of being carbon neutral by 2045.

Since the Project is identified in the SCAG 2020–2045 RTP/SCS (Project number 720001), Project emissions would not conflict with any plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant. No mitigation is required.

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7 Mitigation Measures

Mitigation Measure AQ-1 is required to minimize regional air quality emissions during construction and the potential for conflicts with SCAQMD's daily thresholds for NOx.

AQ-1 **Use Tier 4 construction equipment.** Prior to all construction activities, SCRRA will ensure that all dozing equipment; including, but not limited to, rubber-tired or front-end dozers; will be equipped with U.S. EPA Tier 4 or cleaner engines. SCRRA will document and submit evidence to Metrolink prior to construction that Tier 4 or cleaner dozing equipment will be used during Project construction.

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8 Conclusion

Construction of the Project would generate emissions of criteria and NO_x precursor pollutants that would exceed VCAPCD regional significance thresholds, which would be a significant impact under CEQA prior to mitigation. With the implementation of Mitigation Measure AQ-1, construction impacts would be less than significant under CEQA.

Long-term operational emissions of criteria pollutant and GHG emissions would be reduced relative to existing conditions due to Metrolink's transition to Tier 4 locomotives, as well as projected increases in commuter rail ridership. Such reductions in emissions would be a net benefit of the Project and supportive of regional and statewide air quality management and GHG reduction efforts. Impacts associated with operation would be less than significant under CEQA.

Criteria pollutant emissions associated with short-term construction and long-term operation would not exceed *de minimis* thresholds, and, therefore, no general conformity determination is required for the Project. Project-related GHG emissions would also not exceed the threshold for the U.S. EPA Mandatory GHG Reporting Rule.

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Appendix A. Emissions Estimates

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Construction Modeling Outputs (CalEEMod Results)

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Simi Valley Extension

Ventura County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	9.30	406,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2025
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Construction Phase - SCORE's assumption

Off-road Equipment -

Off-road Equipment - SCORE's assumption

Off-road Equipment - SCORE's assumption

Off-road Equipment - From SCORE's

Off-road Equipment - SCORE's assumption

Off-road Equipment - From SCORE's assumption

Off-road Equipment -

Off-road Equipment - SCORE's assumption

Off-road Equipment -

Trips and VMT - SCORE's assumption

Grading - 9 acres graded

Area Coating -

Construction Off-road Equipment Mitigation - mitigation Tier 4 for NOx reductions

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	75	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	230.00	42.00
tblConstructionPhase	NumDays	230.00	73.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	10.00	48.00
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	10.00	24.00
tblConstructionPhase	NumDays	230.00	49.00
tblLandUse	LandUseSquareFeet	0.00	406,560.00
tblLandUse	LotAcreage	0.00	9.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	4.0925	41.5159	29.9851	0.0650	0.3674	1.7598	2.0215	0.0976	1.6191	1.6844	0.0000	6,217.6550	6,217.6550	1.9180	0.0000	6,257.9297
2024	2.9482	25.8894	22.8040	0.0486	0.3451	1.0665	1.4116	0.0915	1.0018	1.0933	0.0000	4,619.0457	4,619.0457	1.1141	0.0000	4,646.8970
Maximum	**4.0925**	**41.5159**	**29.9851**	**0.0650**	**0.3674**	**1.7598**	**2.0215**	**0.0976**	**1.6191**	**1.6844**	**0.0000**	**6,217.6550**	**6,217.6550**	**1.9180**	**0.0000**	**6,257.9297**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.8899	5.1471	35.2813	0.0650	0.3674	0.1015	0.4652	0.0976	0.1014	0.1952	0.0000	6,217.6550	6,217.6550	1.9180	0.0000	6,257.9297
2024	0.6877	4.1501	26.7623	0.0486	0.3451	0.0721	0.4171	0.0915	0.0719	0.1634	0.0000	4,619.0457	4,619.0457	1.1141	0.0000	4,646.8970
Maximum	**0.8899**	**5.1471**	**35.2813**	**0.0650**	**0.3674**	**0.1015**	**0.4652**	**0.0976**	**0.1014**	**0.1952**	**0.0000**	**6,217.6550**	**6,217.6550**	**1.9180**	**0.0000**	**6,257.9297**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	77.59	86.21	-17.53	0.00	0.00	93.86	74.30	0.00	93.39	87.09	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.2818	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**11.2818**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.2818	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**11.2818**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Construct Structure	Building Construction	1/1/2023	4/11/2023	5	72	
2	Construct tract work and new turnouts	Building Construction	4/1/2023	7/11/2023	5	72	
3	Construct signal houses, grade crossing warning devices and associated conduits	Building Construction	7/11/2023	9/6/2023	5	42	
4	Construct track and roadway improvements atgrade crossings	Building Construction	8/22/2023	11/30/2023	5	73	
5	Transfer rail service onto the newly constructed MT-1	Site Preparation	11/15/2023	12/19/2023	5	25	
6	Finish installing signals at new CP Squoia,CP Arroyo	Site Preparation	12/9/2023	2/14/2024	5	48	
7	Construct MT-2 track,upgrade timber to concrete ties	Building Construction	2/4/2024	5/14/2024	5	72	
8	Activate MT-2 track into service	Site Preparation	5/4/2024	6/6/2024	5	24	
9	Remove,construct existing platform, finish upgrading ties	Building Construction	5/27/2024	8/1/2024	5	49	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Simi Valley Extension - Ventura County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Construct Structure	Air Compressors	2	8.00	78	0.48
Construct Structure	Cranes	1	8.00	231	0.29
Construct Structure	Other General Industrial Equipment	3	8.00	88	0.34
Construct Structure	Welders	2	8.00	46	0.45
Construct tract work and new turnouts	Cranes	1	7.00	231	0.29
Construct tract work and new turnouts	Excavators	1	8.00	158	0.29
Construct tract work and new turnouts	Rubber Tired Dozers	1	8.00	247	0.74
Construct tract work and new turnouts	Tractors/Loaders/Backhoes	1	8.00	97	0.20
Construct signal houses, grade crossing warning devices and associated conduits	Cranes	1	7.00	231	0.29
Construct signal houses, grade crossing warning devices and associated conduits	Excavators	1	8.00	158	0.38
Construct signal houses, grade crossing warning devices and associated conduits	Graders	2	8.00	187	0.41
Construct signal houses, grade crossing warning devices and associated conduits	Rollers	1	8.00	80	0.38
Construct signal houses, grade crossing warning devices and associated conduits	Rubber Tired Dozers	1	8.00	247	0.40
Construct track and roadway improvements atgrade crossings	Air Compressors	2	8.00	78	0.48
Construct track and roadway improvements atgrade crossings	Cranes	1	8.00	231	0.29
Construct track and roadway improvements atgrade crossings	Other General Industrial Equipment	3	8.00	88	0.34
Construct track and roadway improvements atgrade crossings	Welders	2	8.00	46	0.45
Construct MT-2 track,upgrade timber to concrete ties	Air Compressors	2	8.00	78	0.48
Construct MT-2 track,upgrade timber to concrete ties	Cranes	1	8.00	231	0.29
Construct MT-2 track,upgrade timber to concrete ties	Other General Industrial Equipment	3	8.00	88	0.34
Construct MT-2 track,upgrade timber to concrete ties	Welders	2	8.00	46	0.45

Remove,construct existing platform, finish upgrading ties	Air Compressors	2	8.00	78	0.48
Remove,construct existing platform, finish upgrading ties	Excavators	1	8.00	158	0.38
Remove,construct existing platform, finish upgrading ties	Graders	2	8.00	187	0.41
Remove,construct existing platform, finish upgrading ties	Rollers	1	8.00	80	0.38
Remove,construct existing platform, finish upgrading ties	Rubber Tired Dozers	1	8.00	247	0.40
Remove,construct existing platform, finish upgrading ties	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Remove,construct existing platform, finish upgrading ties	Welders	2	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Construct Structure	0	24.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT
Construct tract work and new turnouts	0	12.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT
Construct signal houses ,grade crossin	0	18.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Construct track and roadway improvement	0	24.00	0.00	75.00	10.80	7.30	25.00	LD_Mix	HDT_Mix	HHDT
Transfer rail service onto the newly constru	0	12.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Finish installing signals at new CP Sou	0	12.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Construct MT-2 track upgrade timber t	0	24.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT
Activate MT-2 track into service	0	12.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Remove,construct existing platform, finis	0	30.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Construct Structure - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8584	14.7601	15.7935	0.0265		0.7252	0.7252		0.6911	0.6911		2,468.3573	2,468.3573	0.5116		2,481.1460
Total	**1.8584**	**14.7601**	**15.7935**	**0.0265**		**0.7252**	**0.7252**		**0.6911**	**0.6911**		**2,468.3573**	**2,468.3573**	**0.5116**		**2,481.1460**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	1.2100e-003	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.2806	0.2806	3.0000e-005		0.2814
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0727	0.0387	0.5244	1.7200e-003	0.1972	13000e-003	0.1985	0.0523	1.2000e-003	0.0535		1 7 1826	171.1826	3.7800e-003		171.2772
Total	**0.0728**	**0.0399**	**0.5246**	**1.7200e-003**	**0.1972**	**1.3000e-003**	**0.1985**	**0.0523**	**1.2000e-003**	**0.0535**		**171.4632**	**171.4632**	**3.8100e-003**		**171.5586**

3.2 Construct Structure - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3327	3.0701	16.3369	0.0265		0.0385	0.0385		0.0385	0.0385	0.0000	2,468.3573	2,468.3573	0.5116		2,481.1460
Total	**0.3327**	**3.0701**	**16.3369**	**0.0265**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**2,468.3573**	**2,468.3573**	**0.5116**		**2,481.1460**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	1.2100e-003	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.2806	0.2806	3.0000e-005		0.2814
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0727	0.0387	0.5244	1.7200e-003	0.1972	1.3000e-003	0.1985	0.0523	1.2000e-003	0.0535		171.1826	171.1826	3.7800e-003		171.2772
Total	**0.0728**	**0.0399**	**0.5246**	**1.7200e-003**	**0.1972**	**1.3000e-003**	**0.1985**	**0.0523**	**1.2000e-003**	**0.0535**		**171.4632**	**171.4632**	**3.8100e-003**		**171.5586**

3.3 Construct tract work and new turnouts - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7999	18.5358	11.0442	0.0265		0.8320	0.8320		0.7654	0.7654		2,563.5920	2,563.5920	0.8291		2,584.3200
Total	**1.7999**	**18.5358**	**11.0442**	**0.0265**		**0.8320**	**0.8320**		**0.7654**	**0.7654**		**2,563.5920**	**2,563.5920**	**0.8291**		**2,584.3200**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	1.2100e-003	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.2806	0.2806	3.0000e-005		0.2814
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0364	0.0194	0.2622	8.6000e-004	0.0986	6.5000e-004	0.0992	0.0262	6.0000e-004	0.0268		85.5913	85.5913	1.8900e-003		85.6386
Total	**0.0364**	**0.0206**	**0.2624**	**8.6000e-004**	**0.0986**	**6.5000e-004**	**0.0993**	**0.0262**	**6.0000e-004**	**0.0268**		**85.8719**	**85.8719**	**1.9200e-003**		**85.9200**

3.3 Construct tract work and new turnouts - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3245	1.4060	13.6226	0.0265		0.0433	0.0433		0.0433	0.0433	0.0000	2,563.5920	2,563.5920	0.8291		2,584.3200
Total	**0.3245**	**1.4060**	**13.6226**	**0.0265**		**0.0433**	**0.0433**		**0.0433**	**0.0433**	**0.0000**	**2,563.5920**	**2,563.5920**	**0.8291**		**2,584.3200**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	1.2100e-003	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.2806	0.2806	3.0000e-005		0.2814
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0364	0.0194	0.2622	8.6000e-004	0.0986	6.5000e-004	0.0992	0.0262	6.0000e-004	0.0268		85.5913	85.5913	1.8900e-003		85.6386
Total	**0.0364**	**0.0206**	**0.2624**	**8.6000e-004**	**0.0986**	**6.5000e-004**	**0.0993**	**0.0262**	**6.0000e-004**	**0.0268**		**85.8719**	**85.8719**	**1.9200e-003**		**85.9200**

3.4 Construct signal houses, grade crossing warning devices and associated conduits - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1015	22.9305	13.2067	0.0346		0.9262	0.9262		0.8521	0.8521		3,351.8912	3,351.8912	1.0841		3,378.9929
Total	**2.1015**	**22.9305**	**13.2067**	**0.0346**		**0.9262**	**0.9262**		**0.8521**	**0.8521**		**3,351.8912**	**3,351.8912**	**1.0841**		**3,378.9929**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	.0000		0.0000
Worker	0.0546	0.0290	0.3933	1.2900e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		128.3870	128.3870	2.8400e-003		128.4579
Total	**0.0546**	**0.0290**	**0.3933**	**1.2900e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**128.3870**	**128.3870**	**2.8400e-003**		**128.4579**

3.4 Construct signal houses, grade crossing warning devices and associated conduits - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4246	1.8397	17.9596	0.0346		0.0566	0.0566		0.0566	0.0566	0.0000	3,351.8912	3,351.8912	1.0841		3,378.9929
Total	**0.4246**	**1.8397**	**17.9596**	**0.0346**		**0.0566**	**0.0566**		**0.0566**	**0.0566**	**0.0000**	**3,351.8912**	**3,351.8912**	**1.0841**		**3,378.9929**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0546	0.0290	0.3933	1.2900e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		128.3870	128.3870	2.8400e-003		128.4579
Total	**0.0546**	**0.0290**	**0.3933**	**1.2900e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**128.3870**	**128.3870**	**2.8400e-003**		**128.4579**

3.5 Construct track and roadway improvements atgrade crossings - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8584	14.7601	15.7935	0.0265		0.7252	0.7252		0.6911	0.6911		2,468.3573	2,468.3573	0.5116		2,481.1460
Total	**1.8584**	**14.7601**	**15.7935**	**0.0265**		**0.7252**	**0.7252**		**0.6911**	**0.6911**		**2,468.3573**	**2,468.3573**	**0.5116**		**2,481.1460**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3100e-003	0.1696	0.0672	8.9000e-004	0.0224	3.8000e-004	0.0228	6.1300e-003	3.6000e-004	6.4900e-003		97.8369	97.8369	8.7500e-003		98.0557
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0727	0.0387	0.5244	1.7200e-003	0.1972	1.3000e-003	0.1985	0.0523	1.2000e-003	0.0535		171.1826	171.1826	3.7800e-003		171.2772
Total	**0.0780**	**0.2082**	**0.5916**	**2.6100e-003**	**0.2195**	**1.6800e-003**	**0.2212**	**0.0584**	**1.5600e-003**	**0.0600**		**269.0195**	**269.0195**	**0.0125**		**269.3329**

3.5 Construct track and roadway improvements atgrade crossings - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3327	3.0701	16.3369	0.0265		0.0385	0.0385		0.0385	0.0385	0.0000	2,468.3573	2,468.3573	0.5116		2,481.1460
Total	**0.3327**	**3.0701**	**16.3369**	**0.0265**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**2,468.3573**	**2,468.3573**	**0.5116**		**2,481.1460**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.3100e-003	0.1696	0.0672	8.9000e-004	0.0224	3.8000e-004	0.0228	6.1300e-003	3.6000e-004	6.4900e-003		97.8369	97.8369	8.7500e-003		98.0557
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0727	0.0387	0.5244	1.7200e-003	0.1972	1.3000e-003	0.1985	0.0523	1.2000e-003	0.0535		171.1826	171.1826	3.7800e-003		171.2772
Total	**0.0780**	**0.2082**	**0.5916**	**2.6100e-003**	**0.2195**	**1.6800e-003**	**0.2212**	**0.0584**	**1.5600e-003**	**0.0600**		**269.0195**	**269.0195**	**0.0125**		**269.3329**

3.6 Transfer rail service onto the newly constructed MT-1 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0364	0.0194	0.2622	8.6000e-004	0.0986	6.5000e-004	0.0992	0.0262	6.0000e-004	0.0268		85.5913	85.5913	1.8900e-003		85.6386
Total	**0.0364**	**0.0194**	**0.2622**	**8.6000e-004**	**0.0986**	**6.5000e-004**	**0.0992**	**0.0262**	**6.0000e-004**	**0.0268**		**85.5913**	**85.5913**	**1.8900e-003**		**85.6386**

3.6 Transfer rail service onto the newly constructed MT-1 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0364	0.0194	0.2622	8.6000e-004	0.0986	6.5000e-004	0.0992	0.0262	6.0000e-004	0.0268		85.5913	85.5913	1.8900e-003		85.6386
Total	**0.0364**	**0.0194**	**0.2622**	**8.6000e-004**	**0.0986**	**6.5000e-004**	**0.0992**	**0.0262**	**6.0000e-004**	**0.0268**		**85.5913**	**85.5913**	**1.8900e-003**		**85.6386**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0364	0.0194	0.2622	8.6000e-004	0.0986	6.5000e-004	0.0992	0.0262	6.0000e-004	0.0268		85.59 13	85. 59 13	1.8900e-003		85.6386
Total	**0.0364**	**0.0194**	**0.2622**	**8.6000e-004**	**0.0986**	**6.5000e-004**	**0.0992**	**0.0262**	**6.0000e-004**	**0.0268**		**85.5913**	**85.5913**	**1.8900e-003**		**85.6386**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0364	0.0194	0.2622	8.6000e-004	0.0986	6.5000e-004	0.0992	0.0262	6.0000e-004	0.0268		85.5913	85.5913	1.8900e-003		85.6386
Total	**0.0364**	**0.0194**	**0.2622**	**8.6000e-004**	**0.0986**	**6.5000e-004**	**0.0992**	**0.0262**	**6.0000e-004**	**0.0268**		**85.5913**	**85.5913**	**1.8900e-003**		**85.6386**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0344	0.0176	0.2442	8.3000e-004	0.0986	6.4000e-004	0.0992	0.0262	5.9000e-004	0.0267		82.5657	82.5657	1.7300e-003		82.6088
Total	**0.0344**	**0.0176**	**0.2442**	**8.3000e-004**	**0.0986**	**6.4000e-004**	**0.0992**	**0.0262**	**5.9000e-004**	**0.0267**		**82.5657**	**82.5657**	**1.7300e-003**		**82.6088**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0344	0.0176	0.2442	8.3000e-004	0.0986	6.4000e-004	0.0992	0.0262	5.9000e-004	0.0267		82.5657	82.5657	1.7300e-003		82.6088
Total	**0.0344**	**0.0176**	**0.2442**	**8.3000e-004**	**0.0986**	**6.4000e-004**	**0.0992**	**0.0262**	**5.9000e-004**	**0.0267**		**82.5657**	**82.5657**	**1.7300e-003**		**82.6088**

3.8 Construct MT-2 track,upgrade timber to concrete ties - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7401	13.8026	15.6905	0.0265		0.6341	0.6341		0.6040	0.6040		2,468.3454	2,468.3454	0.5060		2,480.9950
Total	**1.7401**	**13.8026**	**15.6905**	**0.0265**		**0.6341**	**0.6341**		**0.6040**	**0.6040**		**2,468.3454**	**2,468.3454**	**0.5060**		**2,480.9950**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	1.1900e-003	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.2780	0.2780	3.0000e-005		0.2787
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0688	0.0352	0.4883	1.6600e-003	0.1972	1.2800e-003	0.1984	0.0523	1.1800e-003	0.0535		165.1314	165.1314	3.4500e-003		165.2177
Total	**0.0688**	**0.0364**	**0.4886**	**1.6600e-003**	**0.1972**	**1.2800e-003**	**0.1985**	**0.0523**	**1.1800e-003**	**0.0535**		**165.4093**	**165.4093**	**3.4800e-003**		**165.4964**

3.8 Construct MT-2 track,upgrade timber to concrete ties - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3327	3.0701	16.3369	0.0265		0.0385	0.0385		0.0385	0.0385	0.0000	2,468.3454	2,468.3454	0.5060		2,480.9950
Total	**0.3327**	**3.0701**	**16.3369**	**0.0265**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**2,468.3454**	**2,468.3454**	**0.5060**		**2,480.9950**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.0000e-005	1.1900e-003	2.3000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005		0.2780	0.2780	3.0000e-005		0.2787
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0688	0.0352	0.4883	1.6600e-003	0.1972	1.2800e-003	0.1984	0.0523	1.1800e-003	0.0535		165.1314	165.1314	3.4500e-003		165.2177
Total	**0.0688**	**0.0364**	**0.4886**	**1.6600e-003**	**0.1972**	**1.2800e-003**	**0.1985**	**0.0523**	**1.1800e-003**	**0.0535**		**165.4093**	**165.4093**	**3.4800e-003**		**165.4964**

3.9 Activate MT-2 track into service - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0344	0.0176	0.2442	8.3000e-004	0.0986	6.4000e-004	0.0992	0.0262	5.9000e-004	0.0267		82.5657	82.5657	1.7300e-003		82.6088
Total	**0.0344**	**0.0176**	**0.2442**	**8.3000e-004**	**0.0986**	**6.4000e-004**	**0.0992**	**0.0262**	**5.9000e-004**	**0.0267**		**82.5657**	**82.5657**	**1.7300e-003**		**82.6088**

3.9 Activate MT-2 track into service - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0344	0.0176	0.2442	8.3000e-004	0.0986	6.4000e-004	0.0992	0.0262	5.9000e-004	0.0267		82.5657	82.5657	1.7300e-003		82.6088
Total	**0.0344**	**0.0176**	**0.2442**	**8.3000e-004**	**0.0986**	**6.4000e-004**	**0.0992**	**0.0262**	**5.9000e-004**	**0.0267**		**82.5657**	**82.5657**	**1.7300e-003**		**82.6088**

3.10 Remove,construct existing platform, finish upgrading ties - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.8279	25.8261	21.9491	0.0457		1.0643	1.0643		0.9997	0.9997		4,329.6574	4,329.6574	1.1080		4,357.3566
Total	**2.8279**	**25.8261**	**21.9491**	**0.0457**		**1.0643**	**1.0643**		**0.9997**	**0.9997**		**4,329.6574**	**4,329.6574**	**1.1080**		**4,357.3566**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	1.7400e-003	3.4000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005		0.4084	0.4084	4.0000e-005		0.4095
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0860	0.0439	0.6104	2.0700e-003	0.2464	1.6000e-003	0.2481	0.0654	1.4800e-003	0.0668		206.4142	206.4142	4.3200e-003		206.5221
Total	**0.0860**	**0.0457**	**0.6108**	**2.0700e-003**	**0.2465**	**1.6000e-003**	**0.2481**	**0.0654**	**1.4800e-003**	**0.0669**		**206.8226**	**206.8226**	**4.3600e-003**		**206.9316**

3.10 Remove,construct existing platform, finish upgrading ties - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5674	4.0869	25.9074	0.0457		0.0698	0.0698		0.0698	0.0698	0.0000	4,329.6574	4,329.6574	1.1080		4,357.3566
Total	**0.5674**	**4.0869**	**25.9074**	**0.0457**		**0.0698**	**0.0698**		**0.0698**	**0.0698**	**0.0000**	**4,329.6574**	**4,329.6574**	**1.1080**		**4,357.3566**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0000e-005	1.7400e-003	3.4000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	2.0000e-005		0.4084	0.4084	4.0000e-005		0.4095
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0860	0.0439	0.6104	2.0700e-003	0.2464	1.6000e-003	0.2481	0.0654	1.4800e-003	0.0668		206.4142	206.4142	4.3200e-003		206.5221
Total	**0.0860**	**0.0457**	**0.6108**	**2.0700e-003**	**0.2465**	**1.6000e-003**	**0.2481**	**0.0654**	**1.4800e-003**	**0.0669**		**206.8226**	**206.8226**	**4.3600e-003**		**206.9316**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.600977	0.040048	0.187796	0.103033	0.016202	0.005942	0.020140	0.018239	0.001187	0.001054	0.003777	0.000394	0.001211

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	11.2818	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	11.2818	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5814					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.7004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**11.2818**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5814					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.7004					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**11.2818**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Simi Valley Extension

Ventura County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	9.30	406,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2025
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Construction Phase - SCORE's assumption

Off-road Equipment -

Off-road Equipment - SCORE's assumption

Off-road Equipment - SCORE's assumption

Off-road Equipment - From SCORE's

Off-road Equipment - SCORE's assumption

Off-road Equipment - From SCORE's assumption

Off-road Equipment -

Off-road Equipment - SCORE's assumption

Off-road Equipment -

Trips and VMT - SCORE's assumption

Grading - 9 acres graded

Area Coating -

Construction Off-road Equipment Mitigation - mitigation Tier 4 for NOx reductions

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	75	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	230.00	42.00
tblConstructionPhase	NumDays	230.00	73.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	10.00	48.00
tblConstructionPhase	NumDays	230.00	72.00
tblConstructionPhase	NumDays	10.00	24.00
tblConstructionPhase	NumDays	230.00	49.00
tblLandUse	LandUseSquareFeet	0.00	406,560.00
tblLandUse	LotAcreage	0.00	9.30

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2524	2.2304	1.8811	3.8200e-003	0.0233	0.1021	0.1254	6.2000e-003	0.0957	0.1019	0.0000	330.4835	330.4835	0.0821	0.0000	332.5348
2024	0.1376	1.1329	1.1405	2.2000e-003	0.0157	0.0490	0.0647	4.1600e-003	0.0463	0.0505	0.0000	188.4836	188.4836	0.0414	0.0000	189.5185
Maximum	**0.2524**	**2.2304**	**1.8811**	**3.8200e-003**	**0.0233**	**0.1021**	**0.1254**	**6.2000e-003**	**0.0957**	**0.1019**	**0.0000**	**330.4835**	**330.4835**	**0.0821**	**0.0000**	**332.5348**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0535	0.3233	2.1131	3.8200e-003	0.0233	5.7000e-003	0.0290	6.2000e-003	5.6900e-003	0.0119	0.0000	330.4831	330.4831	0.0821	0.0000	332.5345
2024	0.0315	0.2140	1.2608	2.2000e-003	0.0157	3.2000e-003	0.0189	4.1600e-003	3.1900e-003	7.3500e-003	0.0000	188.4834	188.4834	0.0414	0.0000	189.5183
Maximum	**0.0535**	**0.3233**	**2.1131**	**3.8200e-003**	**0.0233**	**5.7000e-003**	**0.0290**	**6.2000e-003**	**5.6900e-003**	**0.0119**	**0.0000**	**330.4831**	**330.4831**	**0.0821**	**0.0000**	**332.5345**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**78.21**	**84.03**	**-11.66**	**0.00**	**0.00**	**94.11**	**74.82**	**0.00**	**93.75**	**87.37**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	0.5383	0.1135
2	4-1-2023	6-30-2023	0.7285	0.0719
3	7-1-2023	9-30-2023	0.8419	0.1084
4	10-1-2023	12-31-2023	0.3700	0.0821
5	1-1-2024	3-31-2024	0.3198	0.0727
6	4-1-2024	6-30-2024	0.6063	0.1156
7	7-1-2024	9-30-2024	0.3290	0.0547
		Highest	0.8419	0.1156

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.0589	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0589**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.0589	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0589**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Construct Structure	Building Construction	1/1/2023	4/11/2023	5	72	
2	Construct tract work and new turnouts	Building Construction	4/1/2023	7/11/2023	5	72	
3	Construct signal houses, grade crossing warning devices and associated conduits	Building Construction	7/11/2023	9/6/2023	5	42	
4	Construct track and roadway improvements atgrade crossings	Building Construction	8/22/2023	11/30/2023	5	73	
5	Transfer rail service onto the newly constructed MT-1	Site Preparation	11/15/2023	12/19/2023	5	25	
6	Finish installing signals at new CP Squoia,CP Arroyo	Site Preparation	12/9/2023	2/14/2024	5	48	
7	Construct MT-2 track,upgrade timber to concrete ties	Building Construction	2/4/2024	5/14/2024	5	72	
8	Activate MT-2 track into service	Site Preparation	5/4/2024	6/6/2024	5	24	
9	Remove,construct existing platform, finish upgrading ties	Building Construction	5/27/2024	8/1/2024	5	49	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Construct Structure	Air Compressors	2	8.00	78	0.48
Construct Structure	Cranes	1	8.00	231	0.29
Construct Structure	Other General Industrial Equipment	3	8.00	88	0.34
Construct Structure	Welders	2	8.00	46	0.45
Construct tract work and new turnouts	Cranes	1	7.00	231	0.29

Construct tract work and new turnouts	Excavators	1	8.00	158	0.29
Construct tract work and new turnouts	Rubber Tired Dozers	1	8.00	247	0.74
Construct tract work and new turnouts	Tractors/Loaders/Backhoes	1	8.00	97	0.20
Construct signal houses, grade crossing warning devices and associated conduits	Cranes	1	7.00	231	0.29
Construct signal houses, grade crossing warning devices and associated conduits	Excavators	1	8.00	158	0.38
Construct signal houses, grade crossing warning devices and associated conduits	Graders	2	8.00	187	0.41
Construct signal houses, grade crossing warning devices and associated conduits	Rollers	1	8.00	80	0.38
Construct signal houses, grade crossing warning devices and associated conduits	Rubber Tired Dozers	1	8.00	247	0.40
Construct track and roadway improvements atgrade crossings	Air Compressors	2	8.00	78	0.48
Construct track and roadway improvements atgrade crossings	Cranes	1	8.00	231	0.29
Construct track and roadway improvements atgrade crossings	Other General Industrial Equipment	3	8.00	88	0.34
Construct track and roadway improvements atgrade crossings	Welders	2	8.00	46	0.45
Construct MT-2 track,upgrade timber to concrete ties	Air Compressors	2	8.00	78	0.48
Construct MT-2 track,upgrade timber to concrete ties	Cranes	1	8.00	231	0.29
Construct MT-2 track,upgrade timber to concrete ties	Other General Industrial Equipment	3	8.00	88	0.34
Construct MT-2 track,upgrade timber to concrete ties	Welders	2	8.00	46	0.45
Remove,construct existing platform, finish upgrading ties	Air Compressors	2	8.00	78	0.48
Remove,construct existing platform, finish upgrading ties	Excavators	1	8.00	158	0.38
Remove,construct existing platform, finish upgrading ties	Graders	2	8.00	187	0.41
Remove,construct existing platform, finish upgrading ties	Rollers	1	8.00	80	0.38

Remove,construct existing platform, finish upgrading ties	Rubber Tired Dozers	1	8.00	247	0.40
Remove,construct existing platform, finish upgrading ties	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Remove,construct existing platform, finish upgrading ties	Welders	2	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Construct Structure	0	24.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT
Construct tract work and new turnouts	0	12.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT
Construct signal houses, grade crossin	0	18.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Construct track and roadway improvement	0	24.00	0.00	75.00	10.80	7.30	25.00	LD_Mix	HDT_Mix	HHDT
Transfer rail service onto the newly constru	0	12.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Finish installing signals at new CP Sou	0	12.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Construct MT-2 track upgrade timber t	0	24.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT
Activate MT-2 track into service	0	12.00	0.00	0.00	10.80	7.30	0.00	LD_Mix	HDT_Mix	HHDT
Remove,construct existing platform, finis	0	30.00	0.00	1.00	10.80	7.30	3.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Construct Structure - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0669	0.5314	0.5686	9.5000e-004		0.0261	0.0261		0.0249	0.0249	0.0000	80.6132	80.6132	0.0167	0.0000	81.0309
Total	**0.0669**	**0.5314**	**0.5686**	**9.5000e-004**		**0.0261**	**0.0261**		**0.0249**	**0.0249**	**0.0000**	**80.6132**	**80.6132**	**0.0167**	**0.0000**	**81.0309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.9200e-003	8.9200e-003	0.0000	0.0000	8.9500e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6500e-003	1.5800e-003	0.0181	6.0000e-005	6.9700e-003	5.0000e-005	7.0100e-003	1.8500e-003	4.0000e-005	1.8900e-003	0.0000	5.3631	5.3631	1.2000e-004	0.0000	5.3661
Total	**2.6500e-003**	**1.6200e-003**	**0.0182**	**6.0000e-005**	**6.9700e-003**	**5.0000e-005**	**7.0100e-003**	**1.8500e-003**	**4.0000e-005**	**1.8900e-003**	**0.0000**	**5.3720**	**5.3720**	**1.2000e-004**	**0.0000**	**5.3750**

3.2 Construct Structure - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0120	0.1105	0.5881	9.5000e-004		1.3900e-003	1.3900e-003		1.3900e-003	1.3900e-003	0.0000	80.6131	80.6131	0.0167	0.0000	81.0308
Total	**0.0120**	**0.1105**	**0.5881**	**9.5000e-004**		**1.3900e-003**	**1.3900e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**80.6131**	**80.6131**	**0.0167**	**0.0000**	**81.0308**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.9200e-003	8.9200e-003	0.0000	0.0000	8.9500e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6500e-003	1.5800e-003	0.0181	6.0000e-005	6.9700e-003	5.0000e-005	7.0100e-003	1.8500e-003	4.0000e-005	1.8900e-003	0.0000	5.3631	5.3631	1.2000e-004	0.0000	5.3661
Total	**2.6500e-003**	**1.6200e-003**	**0.0182**	**6.0000e-005**	**6.9700e-003**	**5.0000e-005**	**7.0100e-003**	**1.8500e-003**	**4.0000e-005**	**1.8900e-003**	**0.0000**	**5.3720**	**5.3720**	**1.2000e-004**	**0.0000**	**5.3750**

3.3 Construct tract work and new turnouts - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0648	0.6673	0.3976	9.5000e-004		0.0300	0.0300		0.0276	0.0276	0.0000	83.7235	83.7235	0.0271	0.0000	84.4004
Total	**0.0648**	**0.6673**	**0.3976**	**9.5000e-004**		**0.0300**	**0.0300**		**0.0276**	**0.0276**	**0.0000**	**83.7235**	**83.7235**	**0.0271**	**0.0000**	**84.4004**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.9200e-003	8.9200e-003	0.0000	0.0000	8.9500e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	7.9000e-004	9.0700e-003	3.0000e-005	3.4800e-003	2.0000e-005	3.5100e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	2.6816	2.6816	6.0000e-005	0.0000	2.6830
Total	**1.3200e-003**	**8.3000e-004**	**9.0800e-003**	**3.0000e-005**	**3.4800e-003**	**2.0000e-005**	**3.5100e-003**	**9.3000e-004**	**2.0000e-005**	**9.5000e-004**	**0.0000**	**2.6905**	**2.6905**	**6.0000e-005**	**0.0000**	**2.6920**

3.3 Construct tract work and new turnouts - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0117	0.0506	0.4904	9.5000e-004		1.5600e-003	1.5600e-003		1.5600e-003	1.5600e-003	0.0000	83.7234	83.7234	0.0271	0.0000	84.4003
Total	**0.0117**	**0.0506**	**0.4904**	**9.5000e-004**		**1.5600e-003**	**1.5600e-003**		**1.5600e-003**	**1.5600e-003**	**0.0000**	**83.7234**	**83.7234**	**0.0271**	**0.0000**	**84.4003**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.9200e-003	8.9200e-003	0.0000	0.0000	8.9500e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	7.9000e-004	9.0700e-003	3.0000e-005	3.4800e-003	2.0000e-005	3.5100e-003	9.3000e-004	2.0000e-005	9.5000e-004	0.0000	2.6816	2.6816	6.0000e-005	0.0000	2.6830
Total	**1.3200e-003**	**8.3000e-004**	**9.0800e-003**	**3.0000e-005**	**3.4800e-003**	**2.0000e-005**	**3.5100e-003**	**9.3000e-004**	**2.0000e-005**	**9.5000e-004**	**0.0000**	**2.6905**	**2.6905**	**6.0000e-005**	**0.0000**	**2.6920**

3.4 Construct signal houses, grade crossing warning devices and associated conduits - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0441	0.4815	0.2773	7.3000e-004		0.0195	0.0195		0.0179	0.0179	0.0000	63.8565	63.8565	0.0207	0.0000	64.3728
Total	**0.0441**	**0.4815**	**0.2773**	**7.3000e-004**		**0.0195**	**0.0195**		**0.0179**	**0.0179**	**0.0000**	**63.8565**	**63.8565**	**0.0207**	**0.0000**	**64.3728**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	6.9000e-004	7.9400e-003	3.0000e-005	3.0500e-003	2.0000e-005	3.0700e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	2.3464	2.3464	5.0000e-005	0.0000	2.3477
Total	**1.1600e-003**	**6.9000e-004**	**7.9400e-003**	**3.0000e-005**	**3.0500e-003**	**2.0000e-005**	**3.0700e-003**	**8.1000e-004**	**2.0000e-005**	**8.3000e-004**	**0.0000**	**2.3464**	**2.3464**	**5.0000e-005**	**0.0000**	**2.3477**

3.4 Construct signal houses, grade crossing warning devices and associated conduits - 2023

Miti ated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	8.9200e-003	0.0386	0.3772	7.3000e-004		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	63.8564	63.8564	0.0207	0.0000	64.3727
Total	**8.9200e-003**	**0.0386**	**0.3772**	**7.3000e-004**		**1.1900e-003**	**1.1900e-003**		**1.1900e-003**	**1.1900e-003**	**0.0000**	**63.8564**	**63.8564**	**0.0207**	**0.0000**	**64.3727**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	6.9000e-004	7.9400e-003	3.0000e-005	3.0500e-003	2.0000e-005	3.0700e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	2.3464	2.3464	5.0000e-005	0.0000	2.3477
Total	**1.1600e-003**	**6.9000e-004**	**7.9400e-003**	**3.0000e-005**	**3.0500e-003**	**2.0000e-005**	**3.0700e-003**	**8.1000e-004**	**2.0000e-005**	**8.3000e-004**	**0.0000**	**2.3464**	**2.3464**	**5.0000e-005**	**0.0000**	**2.3477**

3.5 Construct track and roadway improvements atgrade crossings - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0678	0.5387	0.5765	9.7000e-004		0.0265	0.0265		0.0252	0.0252	0.0000	81.7329	81.7329	0.0169	0.0000	82.1563
Total	**0.0678**	**0.5387**	**0.5765**	**9.7000e-004**		**0.0265**	**0.0265**		**0.0252**	**0.0252**	**0.0000**	**81.7329**	**81.7329**	**0.0169**	**0.0000**	**82.1563**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	6.3000e-003	2.4900e-003	3.0000e-005	8.0000e-004	1.0000e-005	8.2000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	3.2213	3.2213	2.9000e-004	0.0000	3.2286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6800e-003	1.6000e-003	0.0184	6.0000e-005	7.0600e-003	5.0000e-005	7.1100e-003	1.8800e-003	4.0000e-005	1.9200e-003	0.0000	5.4376	5.4376	1.2000e-004	0.0000	5.4406
Total	**2.8800e-003**	**7.9000e-003**	**0.0209**	**9.0000e-005**	**7.8600e-003**	**6.0000e-005**	**7.9300e-003**	**2.1000e-003**	**5.0000e-005**	**2.1500e-003**	**0.0000**	**8.6589**	**8.6589**	**4.1000e-004**	**0.0000**	**8.6692**

3.5 Construct track and roadway improvements atgrade crossings - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0121	0.1121	0.5963	9.7000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	81.7328	81.7328	0.0169	0.0000	82.1562
Total	**0.0121**	**0.1121**	**0.5963**	**9.7000e-004**		**1.4100e-003**	**1.4100e-003**		**1.4100e-003**	**1.4100e-003**	**0.0000**	**81.7328**	**81.7328**	**0.0169**	**0.0000**	**82.1562**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	6.3000e-003	2.4900e-003	3.0000e-005	8.0000e-004	1.0000e-005	8.2000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	3.2213	3.2213	2.9000e-004	0.0000	3.2286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0000 0	0.0000	0.0000	0.0000	0.0000
Worker	2.6800e-003	1.6000e-003	0.0184	6.0000e-005	7.0600e-003	5.0000e-005	7.1100e-003	1.8800e-003	4.0000e-005	1.9200e-003	0.0000	5.4376	5.4376	1.2000e-004	0.0000	5.4406
Total	**2.8800e-003**	**7.9000e-003**	**0.0209**	**9.0000e-005**	**7.8600e-003**	**6.0000e-005**	**7.9300e-003**	**2.1000e-003**	**5.0000e-005**	**2.1500e-003**	**0.0000**	**8.6589**	**8.6589**	**4.1000e-004**	**0.0000**	**8.6692**

3.6 Transfer rail service onto the newly constructed MT-1 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	2.7000e-004	3.1500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9311	0.9311	2.0000e-005	0.0000	0.9316
Total	**4.6000e-004**	**2.7000e-004**	**3.1500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9311**	**0.9311**	**2.0000e-005**	**0.0000**	**0.9316**

3.6 Transfer rail service onto the newly constructed MT-1 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	2.7000e-004	3.1500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9311	0.9311	2.0000e-005	0.0000	0.9316
Total	**4.6000e-004**	**2.7000e-004**	**3.1500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9311**	**0.9311**	**2.0000e-005**	**0.0000**	**0.9316**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.6000e-004	1.8900e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5587	0.5587	1.0000e-005	0.0000	0.5590
Total	**2.8000e-004**	**1.6000e-004**	**1.8900e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5587**	**0.5587**	**1.0000e-005**	**0.0000**	**0.5590**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.6000e-004	1.8900e-003	1.0000e-005	7.3000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5587	0.5587	1.0000e-005	0.0000	0.5590
Total	**2.8000e-004**	**1.6000e-004**	**1.8900e-003**	**1.0000e-005**	**7.3000e-004**	**0.0000**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.5587**	**0.5587**	**1.0000e-005**	**0.0000**	**0.5590**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.3000e-004	3.8700e-003	1.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.1856	1.1856	2.0000e-005	0.0000	1.1862
Total	**5.7000e-004**	**3.3000e-004**	**3.8700e-003**	**1.0000e-005**	**1.6000e-003**	**1.0000e-005**	**1.6100e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.1856**	**1.1856**	**2.0000e-005**	**0.0000**	**1.1862**

3.7 Finish installing signals at new CP Squoia,CP Arroyo - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-004	3.3000e-004	3.8700e-003	1.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.1856	1.1856	2.0000e-005	0.0000	1.1862
Total	**5.7000e-004**	**3.3000e-004**	**3.8700e-003**	**1.0000e-005**	**1.6000e-003**	**1.0000e-005**	**1.6100e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.1856**	**1.1856**	**2.0000e-005**	**0.0000**	**1.1862**

3.8 Construct MT-2 track,upgrade timber to concrete ties - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0626	0.4969	0.5649	9.5000e-004		0.0228	0.0228		0.0217	0.0217	0.0000	80.6128	80.6128	0.0165	0.0000	81.0260
Total	**0.0626**	**0.4969**	**0.5649**	**9.5000e-004**		**0.0228**	**0.0228**		**0.0217**	**0.0217**	**0.0000**	**80.6128**	**80.6128**	**0.0165**	**0.0000**	**81.0260**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.8400e-003	8.8400e-003	0.0000	0.0000	8.8600e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5100e-003	1.4300e-003	0.0169	6.0000e-005	6.9700e-003	5.0000e-005	7.0100e-003	1.8500e-003	4.0000e-005	1.8900e-003	0.0000	5.1733	5.1733	1.1000e-004	0.0000	5.1761
Total	**2.5100e-003**	**1.4700e-003**	**0.0169**	**6.0000e-005**	**6.9700e-003**	**5.0000e-005**	**7.0100e-003**	**1.8500e-003**	**4.0000e-005**	**1.8900e-003**	**0.0000**	**5.1822**	**5.1822**	**1.1000e-004**	**0.0000**	**5.1849**

3.8 Construct MT-2 track,upgrade timber to concrete ties - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0120	0.1105	0.5881	9.5000e-004		1.3900e-003	1.3900e-003	-	1.3900e-003	1.3900e-003	- 0.0000	80.6127	80.6127	0.0165	0.0000	81.0259
Total	**0.0120**	**0.1105**	**0.5881**	**9.5000e-004**		**1.3900e-003**	**1.3900e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**80.6127**	**80.6127**	**0.0165**	**0.0000**	**81.0259**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	- 0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.8400e-003	8.8400e-003	- 0.0000	0.0000	8.8600e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5100e-003	1.4300e-003	0.0169	6.0000e-005	6.9700e-003	5.0000e-005	7.0100e-003	1.8500e-003	4.0000e-005	1.8900e-003	- 0.0000	5.1733	5.1733	1.1000e-004	0.0000	5.1761
Total	**2.5100e-003**	**1.4700e-003**	**- 0.0169**	**6.0000e-005**	**6.9700e-003**	**5.0000e-005**	**7.0100e-003**	**1.8500e-003**	**4.0000e-005**	**1.8900e-003**	**- 0.0000**	**5.1822**	**5.1822**	**1.1000e-004**	**- 0.0000**	**5.1849**

3.9 Activate MT-2 track into service - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.4000e-004	2.8100e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1700e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.8622	0.8622	2.0000e-005	0.0000	0.8627
Total	**4.2000e-004**	**2.4000e-004**	**2.8100e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.8622**	**0.8622**	**2.0000e-005**	**0.0000**	**0.8627**

3.9 Activate MT-2 track into service - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	2.4000e-004	2.8100e-003	1.0000e-005	1.1600e-003	1.0000e-005	1.1700e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.8622	0.8622	2.0000e-005	0.0000	0.8627
Total	**4.2000e-004**	**2.4000e-004**	**2.8100e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.8622**	**0.8622**	**2.0000e-005**	**0.0000**	**0.8627**

3.10 Remove,construct existing platform, finish upgrading ties - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0693	0.6327	0.5378	1.1200e-003		0.0261	0.0261		0.0245	0.0245	0.0000	96.2311	96.2311	0.0246	0.0000	96.8467
Total	**0.0693**	**0.6327**	**0.5378**	**1.1200e-003**		**0.0261**	**0.0261**		**0.0245**	**0.0245**	**0.0000**	**96.2311**	**96.2311**	**0.0246**	**0.0000**	**96.8467**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.8400e-003	8.8400e-003	0.0000	0.0000	8.8600e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1300e-003	1.2200e-003	0.0144	5.0000e-005	5.9300e-003	4.0000e-005	5.9700e-003	1.5700e-003	4.0000e-005	1.6100e-003	0.0000	4.4009	4.4009	9.0000e-005	0.0000	4.4032
Total	**2.1300e-003**	**1.2600e-003**	**0.0144**	**5.0000e-005**	**5.9300e-003**	**4.0000e-005**	**5.9700e-003**	**1.5700e-003**	**4.0000e-005**	**1.6100e-003**	**0.0000**	**4.4098**	**4.4098**	**9.0000e-005**	**0.0000**	**4.4121**

3.10 Remove,construct existing platform, finish upgrading ties - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0139	0.1001	0.6347	1.1200e-003		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	96.2310	96.2310	0.0246	0.0000	96.8466
Total	**0.0139**	**0.1001**	**0.6347**	**1.1200e-003**		**1.7100e-003**	**1.7100e-003**		**1.7100e-003**	**1.7100e-003**	**0.0000**	**96.2310**	**96.2310**	**0.0246**	**0.0000**	**96.8466**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	4 0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.8400e-003	8.8400e-003	0.0000	0.0000	8.8600e-003
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1300e-003	1.2200e-003	0.0144	5.0000e-005	5.9300e-003	4.0000e-005	5.9700e-003	1.5700e-003	4.0000e-005	1.6100e-003	0.0000	4.4009	4.4009	9.0000e-005	0.0000	4.4032
Total	**2.1300e-003**	**1.2600e-003**	**0.0144**	**5.0000e-005**	**5.9300e-003**	**4.0000e-005**	**5.9700e-003**	**1.5700e-003**	**4.0000e-005**	**1.6100e-003**	**0.0000**	**4.4098**	**4.4098**	**9.0000e-005**	**0.0000**	**4.4121**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.600977	0.040048	0.187796	0.103033	0.016202	0.005942	0.020140	0.018239	0.001187	0.001054	0.003777	0.000394	0.001211

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

Land Use	Electricity Use	Total CO2	CH4	N2O	CO2e
	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

Land Use	Electricity Use	Total CO2	CH4	N2O	CO2e
	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.0589	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	2.0589	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4711					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5878					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0589**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4711					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5878					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0589**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Locomotive Ballast Trip Calculations

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Locomotive Ballast Trips

Line Haul Emission Factors (g/bhp-hr)

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolled	0.48		13.00	1.28	0.32			494	0.04	0.013
Tier 0	0.48		8.60	1.28	0.32			494	0.04	0.013
Tier 0+	0.30		7.20	1.28	0.20			494	0.04	0.013
Tier 1	0.47		6.70	1.28	0.32			494	0.04	0.013
Tier 1+	0.29		6.70	1.28	0.20			494	0.04	0.013
Tier 2	0.26		4.95	1.28	0.18			494	0.04	0.013
Tier 2+	0.13		4.95	1.28	0.08			494	0.04	0.013
Tier 3	0.13		4.95	1.28	0.08			494	0.04	0.013
Tier 4	0.04		1.00	1.28	0.02			494	0.04	0.013

Critiera pollutant emission factors from USEPA 2009, Table 1
GHG emission factors from Port of LA 2018 Air Inventory (Table 6.4)

Line Haul Emission Factors (g/gal)

bhp-hr/gal	20.8	Large line-haul (USEPA 2009)

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolled	9.98	10.51	270.40	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 0	9.98	10.51	178.88	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 0+	6.24	6.57	149.76	26.62	4.16	4.04	0.09	10,275	0.83	0.27
Tier 1	9.78	10.29	139.36	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 1+	6.03	6.35	139.36	26.62	4.16	4.04	0.09	10,275	0.83	0.27
Tier 2	5.41	5.69	102.96	26.62	3.74	3.63	0.09	10,275	0.83	0.27
Tier 2+	2.70	2.85	102.96	26.62	1.66	1.61	0.09	10,275	0.83	0.27
Tier 3	2.70	2.85	102.96	26.62	1.66	1.61	0.09	10,275	0.83	0.27
Tier 4	0.83	0.88	20.80	26.62	0.31	0.30	0.09	10,275	0.83	0.27

ROG_HC	1.053	unitless	USEPA 2009
PM2.5_PM10	0.97	unitless	USEPA 2009
S fuel desnity	3200	g/gal	USEPA 2009
S content of fuel	15	ppm	CARB regulation
Fraction S to SO2	97.8%	%	USEPA 2009
Molar weight	2	unitless	USEPA 2009

Line Haul Annual Emission Factors (g/gal)

Year	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
2020	3.60	3.79	99.00	26.62	2.30	2.23	0.09	10,275	0.83	0.27
2021	3.40	3.58	94.00	26.62	2.20	2.13	0.09	10,275	0.83	0.27
2022	3.20	3.37	89.00	26.62	2.00	1.94	0.09	10,275	0.83	0.27
2023	3.00	3.16	84.00	26.62	1.90	1.84	0.09	10,275	0.83	0.27
2024	2.80	2.95	79.00	26.62	1.80	1.75	0.09	10,275	0.83	0.27

HC, NO2, and PM10 emission factors from USEPA 2009, Tables 5 through 7. All others calculated using USEPA method
GHG emission factors from Port of LA 2018 Air Inventory (Table 6.4)

Line Haul Annual Emission Factors (g/ton-mile)

ton-mile_gram	470	Association of American Railways 2019

Year	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
2020	0.01	0.01	0.21	0.06	0.00	0.00	0.00	22	0.00	0.00
2021	0.01	0.01	0.20	0.06	0.00	0.00	0.00	22	0.00	0.00
2022	0.01	0.01	0.19	0.06	0.00	0.00	0.00	22	0.00	0.00
2023	0.01	0.01	0.18	0.06	0.00	0.00	0.00	22	0.00	0.00
2024	0.01	0.01	0.17	0.06	0.00	0.00	0.00	22	0.00	0.00

	ton per cy ballast	0.7692308	
Assumptions	cy	Tons	
Ballast Quantity	3,764	2895.7217	
Ballast Days	22		
distance traveled each direction miles	84		
No. of Locos	1		
No. of Hopper Cars	27		
Ballast placement car	1		
Weight of empty hopper (tons)	30		
Weight of full hopper car (tons)	140		
Weight of freight locomotive (lbs)	432000		
Weight of freight locomotive (tons)	216		
Weight of Ballast placmeent car (tons)	50	estimate	
Weight of Loaded Train	4046		

Weight of Unloaded Train	1076
Ton miles Loaded	339864
Ton miles unloaded	90384
Locomotive Emissions	
Time for train to travel to site (days)	1
Year of train trips	2023
Grams per pound	453.592

Emissions Per Day from Locomotive Tranpsortof Ballast (lbs)	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Loaded Train	0.22	0.23	6.09	1.93	0.14	0.13	0.01	744.58	0.06	0.02
Unloaded Train	0.06	0.06	1.62	0.51	0.04	0.04	0.00	198.01	0.02	0.01
Total Construction Related Locomotive Emissions 2023 (lbs)	0.28	0.29	7.71	2.44	0.17	0.17	0.01	942.59	0.08	0.02
Total Construction Related Locomotive Emissions 2023 (tons)	0.0001	0.0001	0.0039	0.0012	0.0001	0.0001	0.0000	0.4713	0.0000	0.0000

Locomotive Ballast Trips

Line Haul Emission Factors (g/bhp-hr)

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolled	0.48		13.00	1.28	0.32			494	0.04	0.013
Tier 0	0.48		8.60	1.28	0.32			494	0.04	0.013
Tier 0+	0.30		7.20	1.28	0.20			494	0.04	0.013
Tier 1	0.47		6.70	1.28	0.32			494	0.04	0.013
Tier 1+	0.29		6.70	1.28	0.20			494	0.04	0.013
Tier 2	0.26		4.95	1.28	0.18			494	0.04	0.013
Tier 2+	0.13		4.95	1.28	0.08			494	0.04	0.013
Tier 3	0.13		4.95	1.28	0.08			494	0.04	0.013
Tier 4	0.04		1.00	1.28	0.02			494	0.04	0.013

Critiera pollutant emission factors from USEPA 2009, Table 1
GHG emission factors from Port of LA 2018 Air Inventory (Table 6.4)

Line Haul Emission Factors (g/gal)

bhp-hr/gal	20.8	Large line-haul (USEPA 2009)

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolled	9.98	10.51	270.40	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 0	9.98	10.51	178.88	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 0+	6.24	6.57	149.76	26.62	4.16	4.04	0.09	10,275	0.83	0.27
Tier 1	9.78	10.29	139.36	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 1+	6.03	6.35	139.36	26.62	4.16	4.04	0.09	10,275	0.83	0.27
Tier 2	5.41	5.69	102.96	26.62	3.74	3.63	0.09	10,275	0.83	0.27
Tier 2+	2.70	2.85	102.96	26.62	1.66	1.61	0.09	10,275	0.83	0.27
Tier 3	2.70	2.85	102.96	26.62	1.66	1.61	0.09	10,275	0.83	0.27
Tier 4	0.83	0.88	20.80	26.62	0.31	0.30	0.09	10,275	0.83	0.27

ROG_HC	1.053	unitless	USEPA 2009
PM2.5_PM10	0.97	unitless	USEPA 2009
S fuel desnity	3200	g/gal	USEPA 2009
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Molar weight	2	unitless	USEPA 2009

Line Haul Annual Emission Factors (g/gal)

Year	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
2020	3.60	3.79	99.00	26.62	2.30	2.23	0.09	10,275	0.83	0.27
2021	3.40	3.58	94.00	26.62	2.20	2.13	0.09	10,275	0.83	0.27
2022	3.20	3.37	89.00	26.62	2.00	1.94	0.09	10,275	0.83	0.27
2023	3.00	3.16	84.00	26.62	1.90	1.84	0.09	10,275	0.83	0.27
2024	2.80	2.95	79.00	26.62	1.80	1.75	0.09	10,275	0.83	0.27

HC, NO2, and PM10 emission factors from USEPA 2009, Tables 5 through 7. All others calculated using USEPA method
GHG emission factors from Port of LA 2018 Air Inventory (Table 6.4)

Line Haul Annual Emission Factors (g/ton-mile)

ton-mile_gram	470	Association of American Railways 2019

Year	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
2020	0.01	0.01	0.21	0.06	0.00	0.00	0.00	22	0.00	0.00
2021	0.01	0.01	0.20	0.06	0.00	0.00	0.00	22	0.00	0.00
2022	0.01	0.01	0.19	0.06	0.00	0.00	0.00	22	0.00	0.00
2023	0.01	0.01	0.18	0.06	0.00	0.00	0.00	22	0.00	0.00
2024	0.01	0.01	0.17	0.06	0.00	0.00	0.00	22	0.00	0.00

		ton per cy ballast	0.7692308
Assumptions	cy	Tons	
Ballast Quantity	3,764	2895.7217	
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Weight of full hopper car (tons)	140		
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Weight of freight locomotive (tons)	216		
Weight of Ballast placmeent car (tons)	50	estimate	
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Weight of Unloaded Train	1076
Ton miles Loaded	339864
Ton miles unloaded	90384
Locomotive Emissions	
Time for train to travel to site (days)	1
Year of train trips	2024
Grams per pound	453.592

Emissions Per Day from Locomotive Tranpsortof Ballast (lbs)	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Loaded Train	0.41	0.43	11.45	3.86	0.26	0.25	0.01	1,489.15	0.12	0.04
Unloaded Train	0.01	0.01	0.40	0.13	0.01	0.01	0.00	51.86	0.00	0.00
Total Construction Related Locomotive Emissions 2024 (lbs)	0.42	0.44	11.85	3.99	0.27	0.26	0.01	1,541.01	0.12	0.04
Total Construction Related Locomotive Emissions 2024 (tons)	0.0002	0.0002	0.0059	0.0020	0.0001	0.0001	0.0000	0.7705	0.0001	0.0000

Summary Tables

CEQA Increment - Pounds Per Day

Build over Existing

	2019 Existing						2024 Build						Increment					
Segment	ROG	NOx	CO	PM10	PM2.5	SO2	ROG	NOx	CO	PM10	PM2.5	SO2	ROG	NOx	CO	PM10	PM2.5	SO2
LA County to Chatsworth	37	814	209	23	23	1	10	238	304	4	3	1	-27	-576	95	-20	-19	0
Chatworth To Simi Station	15	316	81	9	9	0	7	172	221	3	3	1	-7	-144	139	-7	-6	0
SCAQMD portion	*2*	*33*	*8*	*1*	*1*	*0*	*1*	*18*	*23*	*0*	*0*	*0*	*-1*	*-15*	*14*	*-1*	*-1*	*0*
Ventura County portion	*13*	*284*	*73*	*8*	*8*	*0*	*7*	*155*	*198*	*2*	*2*	*1*	*-7*	*-129*	*125*	*-6*	*-6*	*0*
Total	**52**	**1,130**	**291**	**33**	**32**	**1**	**17**	**410**	**525**	**6**	**6**	**2**	**-35**	**-720**	**235**	**-26**	**-26**	**1**
SCAQMD total	**39**	**847**	**218**	**24**	**24**	**1**	**11**	**256**	**327**	**4**	**4**	**1**	**-28**	**-591**	**110**	**-21**	**-20**	**0**
Ventura County total	**13**	**284**	**73**	**8**	**8**	**0**	**7**	**155**	**198**	**2**	**2**	**1**	**-7**	**-129**	**125**	**-6**	**-6**	**0**

NEPA Increment - Tons Per Year

Build over No Build

	2024 No Build						2024 Build						Increment					
Line	ROG	NOx	CO	PM10	PM2.5	SO2	ROG	NOx	CO	PM10	PM2.5	SO2	ROG	NOx	CO	PM10	PM2.5	SO2
LA County to Chatsworth	1.3	30.9	39.6	0.5	0.4	0.1	1.3	30.9	39.6	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Chatworth To Simi Station	0.3	8.3	10.6	0.1	0.1	0.0	0.9	22.4	28.7	0.3	0.3	0.1	0.6	14.2	18.1	0.2	0.2	0.1
SCAQMD portion	*0.0*	*0.9*	*1.1*	*0.0*	*0.0*	*0.0*	*0.1*	*2.3*	*3.0*	*0.0*	*0.0*	*0.0*	*0.1*	*1.5*	*1.9*	*0.0*	*0.0*	*0.0*
Ventura County portion	*0.3*	*7.4*	*9.5*	*0.1*	*0.1*	*0.0*	*0.8*	*20.1*	*25.7*	*0.3*	*0.3*	*0.1*	*0.5*	*12.7*	*16.3*	*0.2*	*0.2*	*0.1*
Total	**1.6**	**39.2**	**50.1**	**0.6**	**0.6**	**0.2**	**2.2**	**53.3**	**68.3**	**0.8**	**0.8**	**0.2**	**0.6**	**14.2**	**18.1**	**0.2**	**0.2**	**0.1**
SCAQMD total	**1.3**	**31.8**	**40.7**	**0.5**	**0.5**	**0.1**	**1.4**	**33.2**	**42.5**	**0.5**	**0.5**	**0.1**	**0.1**	**1.5**	**1.9**	**0.0**	**0.0**	**0.0**
Ventura County total	**0.3**	**7.4**	**9.5**	**0.1**	**0.1**	**0.0**	**0.8**	**20.1**	**25.7**	**0.3**	**0.3**	**0.1**	**0.5**	**12.7**	**16.3**	**0.2**	**0.2**	**0.1**

Annual Regional Rail Emissions (metric tons)

Build over Existing

	2019 Existing				2024 Build				Increment			
Line	CO2	CH4	N2O	CO2e	CO2	CH4	N2O	CO2e	CO2	CH4	N2O	CO2e
Amortized Construction												17
LA County to Chatsworth	9,524	1	0	9,618	13,853	1	0	13,990	4,329	0	0	4,372
Chatworth To Simi Station	3,702	0	0	3,738	10,048	1	0	10,147	6,346	1	0	6,409
SCAQMD portion	382	0	0	386	1,037	0	0	1,048	655	0	0	662
Ventura County portion	3,320	0	0	3,352	9,011	1	0	9,100	5,691	0	0	5,747
Total	**13,226**	**1**	**0**	**13,356**	**23,901**	**2**	**1**	**24,137**	**10,675**	**1**	**0**	**10,781**
SCAQMD total	**9,906.2**	**0.8**	**0.3**	**10,004**	**14,890**	**1.2**	**0.4**	**15,037**	**4,984**	**0**	**0**	**5,033**
Ventura County total	**3,319.7**	**0.3**	**0.1**	**3,352**	**9,011**	**0.7**	**0.2**	**9,100**	**5,691**	**0**	**0**	**5,747**
Total with Construction												10,798

Metrolink SCORE Regional Rail Calculations

1. Fuel Consumption

Estimate of 2019, No Build, and Build Train Miles

Build and No Build are the same

Portion of VC Line	Peak Daily Train Miles			Annual Train Miles		
	Existing	No Build	Build	Existing	No Build	Build
LA County to Chatsworth	1,221	1,776	1,776	317,460	461,760	461,760
Chatworth To Simi Station	474.6	474.6	1,288.2	123,396	123,396	334,932
SCAQMD portion	*49*	*49*	*133*	*12,740*	*12,740*	*34,580*
Ventura County portion	*425.6*	*425.60*	*1,155*	*110,656*	*110,656*	*300,352*
				operating days per year		*260*

Fuel Consumption (gallons)

Portion of VC Line	Peak Daily Train Gallons			Annual Train Gallons		
	Existing	No Build	Build	Existing	No Build	Build
LA County to Chatsworth	3,565	5,185	5,185	926,888	1,348,201	1,348,201
Chatworth To Simi Station	1,386	1,386	3,761	360,279	360,279	977,901
SCAQMD portion	*143*	*143*	*388*	*37,197*	*37,197*	*100,963*
Ventura County portion	*1,243*	*1,243*	*3,373*	*323,082*	*323,082*	*876,938*

Fuel Consumption Metric	
0.34	miles per gallon
2.92	gallons per mile

2. Emission Calculations

	Existing										No Build										Build									
ANNUAL	2019										2024										2024									
Portion of VC Line	**Train Gallons**	**Annual Tons**						**Annual MT**			**Train Gallons**	**Annual Tons**						**Annual MT**			**Train Gallons**	**2024 Annual Tons**						**2024 Annual MT**		
		ROG	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**		**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**		**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**
LA County to Chatsworth	926,888	5	106	27	3	3	0	9,524	1	0	1,348,201	1	31	40	0	0	0	13853	1	0	1,348,201	1	31	40	0	0	0	13,853	1	0
Chatworth To Simi Station	360,279	2	41	11	1	1	0	3,702	0	0	360,279	0	8	11	0	0	0	3702	0	0	977,901	1	22	29	0	0	0	10,048	1	0
SCAQMD portion	37,197	0	4	1	0	0	0	382	0	0	37,197	0	1	1	0	0	0	382	0	0	100,963	0	2	3	0	0	0	1,037	0	0
Ventura County portion	323,082	2	37	9	1	1	0	3,320	0	0	323,082	0	7	9	0	0	0	3320	0	0	876,938	1	20	26	0	0	0	9,011	1	0
System Total	**1,647,447**	**9**	**188**	**48**	**5**	**5**	**0**	**16,928**	**1**	**0**	**2,068,759**	**2**	**47**	**61**	**1**	**1**	**0**	**21257**	**2**	**1**	**3,304,003**	**3**	**76**	**97**	**1**	**1**	**0**	**33,949**	**3**	**1**

DAILY	2019																				2024									
Portion of VC Line	**Train Gallons**	**Daily Pounds**						**Daily Pounds**													**Train Gallons**	**Daily Pounds**						**Daily Pounds**		
		ROG	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**												**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**
LA County to Chatsworth	3,565	37	814	209	23	23	1	80,757	7	2											5,185	10	238	304	4	3	1	117,465	10	3
Chatworth To Simi Station	1,386	15	316	81	9	9	0	31,390	3	1											3,761	7	172	221	3	3	1	85,202	7	2
SCAQMD portion	143	2	33	8	1	1	0	3,241	0	0											388	1	18	23	0	0	0	8,797	1	0
Ventura County portion	1,243	13	284	73	8	8	0	28,149	2	1											3,373	7	155	198	2	2	1	76,405	6	2
System Total	**6,336**	**67**	**1,447**	**372**	**42**	**40**	**1**	**143,537**	**12**	**4**											**12,708**	**25**	**583**	**746**	**9**	**8**	**3**	**287,868**	**23**	**8**

Simi Train Distances

Simi Project includes activity in South Coast and Ventura County APCD

Train Counts

Train Counts 2019 / 2023			
	CEQA AQ/GHG	NEPA AQ/GHG	
	VCL Daily	Ventura County	LA County (to Chatsworth)
2019 [1]	33	14	33
2023 (No Build)[2]		14	48
2023 (Build) [2]	48	38	48
Change (2023 Build vs. No Build)	15 (46%)	24 (171%)	--

Distance

Ventura Line total	70.9	miles
Line in LA County	40.5	miles
Line in Ventura	30.4	miles
VC line portion past Chatsworth in LA County	3.5	miles

Train Mile Math

	Entire Line			VC line from LA To Chatsworth			VC Line Beyond Chatsworth			Train Miles By Air District			
							Total			SCAQMD		VCAQMD	
Scenario	Trains/day	distance	train mile	Trains/day	distance*	train mile	Trains/day	distance	train mile	distance	train miles	distance	train miles
Existing	33	70.9	2,340	33	37	1,221.0	14	33.9	474.6	3.5	49.0	30.4	425.6
No Build	48	70.9	3,403	48	37	1,776.0	14	33.9	474.6	3.5	49.0	30.4	425.6
Build	48	70.9	3,403	48	37	1,776.0	38	33.9	1,288.2	3.5	133.0	30.4	1,155.2

= used in calcs

Metrolink SCORE Rail Emission Factor Math

EPA Emission Factors

Line Haul Emission Factors (g/bhp-hr)

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolled	0.48		13.00	1.28	0.32			494	0.04	0.013
Tier 0	0.48		8.60	1.28	0.32			494	0.04	0.013
Tier 0+	0.30		7.20	1.28	0.20			494	0.04	0.013
Tier 1	0.47		6.70	1.28	0.32			494	0.04	0.013
Tier 1+	0.29		6.70	1.28	0.20			494	0.04	0.013
Tier 2	0.26		4.95	1.28	0.18			494	0.04	0.013
Tier 2+	0.13		4.95	1.28	0.08			494	0.04	0.013
Tier 3	0.13		4.95	1.28	0.08			494	0.04	0.013
Tier 4	0.04		1.00	1.28	0.02			494	0.04	0.013

Critiera pollutant emission factors from USEPA 2009, Table 1

GHG emission factors from Port of LA 2018 Air Inventory (Table 6.4)

Line Haul Emission Factors (g/gal)

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolle	9.98	10.51	270.40	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 0	9.98	10.51	178.88	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 0+	6.24	6.57	149.76	26.62	4.16	4.04	0.09	10,275	0.83	0.27
Tier 1	9.78	10.29	139.36	26.62	6.66	6.46	0.09	10,275	0.83	0.27
Tier 1+	6.03	6.35	139.36	26.62	4.16	4.04	0.09	10,275	0.83	0.27
Tier 2	5.41	5.69	102.96	26.62	3.74	3.63	0.09	10,275	0.83	0.27
Tier 2+	2.70	2.85	102.96	26.62	1.66	1.61	0.09	10,275	0.83	0.27
Tier 3	2.70	2.85	102.96	26.62	1.66	1.61	0.09	10,275	0.83	0.27
Tier 4	0.83	0.88	20.80	26.62	0.31	0.30	0.09	10,275	0.83	0.27

bhp-hr/gal	20.8	Large line-haul	USEPA 2009
ROG_HC	1.053	unitless	USEPA 2009
PM2.5_PM10	0.97	unitless	USEPA 2009
S fuel desnity	3200	g/gal	USEPA 2009
S content of fuel	15	ppm	per CARB regulation
Fraction S to SO2	97.8%	%	USEPA 2009
Molar weight	2	unitless	USEPA 2009

Metrolink Fleet Mix

Tier	**2019**	**2024**	***2019***	***2024***
Uncontrolled	10	0	*19%*	*0%*
Tier 0	0	0	*0%*	*0%*
Tier 0+	0	0	*0%*	*0%*
Tier 1	0	0	*0%*	*0%*
Tier 1+	0	0	*0%*	*0%*
Tier 2	22	0	*42%*	*0%*
Tier 2+	0	0	*0%*	*0%*
Tier 3	0	0	*0%*	*0%*
Tier 4	20	52	*38%*	*100%*
Total	52	52	*100%*	*100%*

Metrolink Weighted Emission Factor (g/gallon

Existing

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolled	1.92	2.02	52.00	5.12	1.28	1.24	0.02	1,976	0.16	0.05
Tier 0	-	-	-	-	-	-	-	-	-	-
Tier 0+	-	-	-	-	-	-	-	-	-	-
Tier 1	-	-	-	-	-	-	-	-	-	-
Tier 1+	-	-	-	-	-	-	-	-	-	-
Tier 2	2.29	2.41	43.56	11.26	1.58	1.54	0.04	4,347	0.35	0.11
Tier 2+	-	-	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-	-	-
Tier 4	0.32	0.34	8.00	10.24	0.12	0.12	0.04	3,952	0.32	0.10
2019	**4.53**	**4.77**	**103.56**	**26.62**	**2.98**	**2.89**	**0.09**	**10,275**	**0.83**	**0.27**

Project

Tier	HC	ROG	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
Uncontrolle	-	-	-	-	-	-	-	-	-	-
Tier 0	-	-	-	-	-	-	-	-	-	-
Tier 0+	-	-	-	-	-	-	-	-	-	-
Tier 1	-	-	-	-	-	-	-	-	-	-
Tier 1+	-	-	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-	-	-
Tier 2+	-	-	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-	-	-
Tier 4	0.83	0.88	20.80	26.62	0.31	0.30	0.09	10275	0.83	0.27
2024	**0.83**	**0.88**	**20.80**	**26.62**	**0.31**	**0.30**	**0.09**	**10,275**	**0.83**	**0.27**