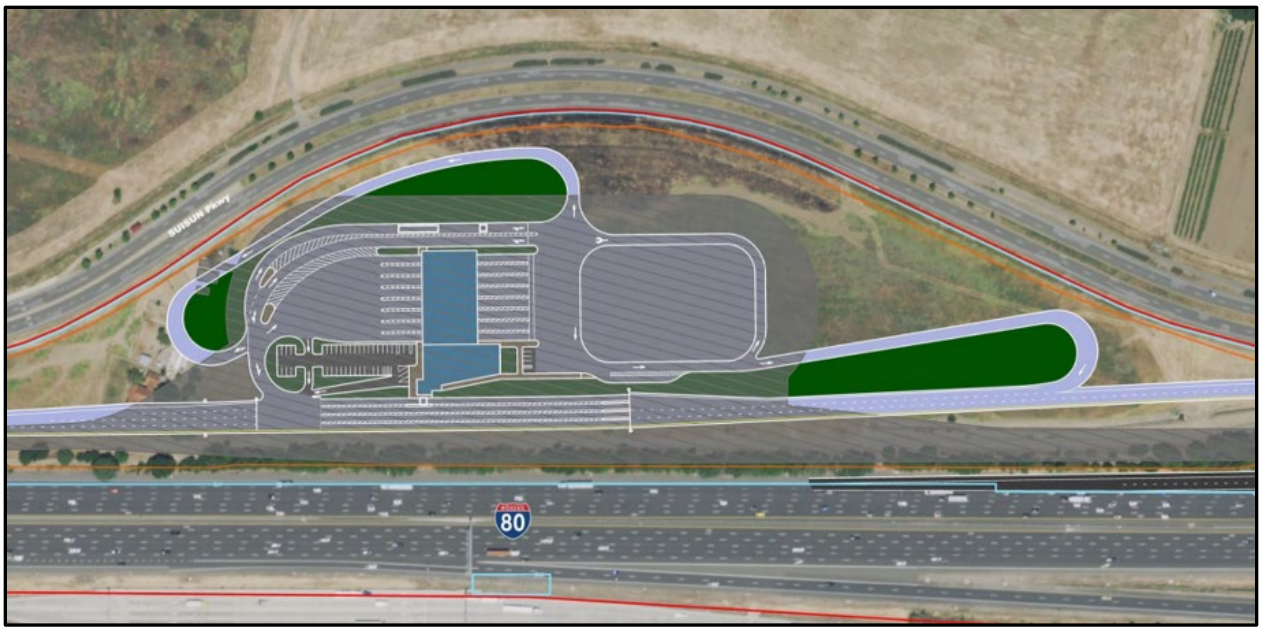
AIR QUALITY REPORT



Interstate 80 Westbound Truck Scales Project

Caltrans District 4
Solano County, California
04-SOL-80-13.4/16.7, 04-SOL-12-L1.8/L3.2

EA 04-0A53T/Project ID 0421000155

Prepared by

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March 2024

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INTERSTATE 80 WESTBOUND TRUCK SCALES PROJECT
AIR QUALITY REPORT

SOLANO COUNTY, CALIFORNIA

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 4

EA 04-0A53T

EFIS # 0421000155

Approved by: Shilpa Mareddy Date: 4/8/2024

Shilpa Mareddy
Branch Chief Air Quality and Noise
Office of Environmental Engineering
California Department of Transportation - District 4

Prepared by: Jay Witt Date: 4-8-2024

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Acronyms and Abbreviations

Term	Definition
°F	Degrees Fahrenheit
AADT	Average annual daily traffic
AB	Assembly bill
ADT	Average daily traffic
AQMP	Air Quality Management Plan
ATM	Active Traffic Management
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CalEEMod	California Emissions Estimation Model
EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
Cal-CET	Caltrans Construction Emissions Tool
CAP	Climate Action Program
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
City	San José
CT-EMFAC	Caltrans Emissions Factor Model
CO	Carbon monoxide
CO_2	Carbon dioxide
County	Santa Clara County

Term	Definition
EMFAC	CARB Emissions Factor Model
EO	Executive Order
EPA	United States Environmental Protection Agency
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
ft	Feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
IPCC	International Panel on Climate Change
LOS	Level of service
LRTP	Long Range Transportation Plan
mi	Miles
MOVES	Motor Vehicle Emission Simulator
mph	Miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MTC	Metropolitan Planning Commission
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NO_x	Nitrogen oxide
O_3	Ozone
OPR	California Office of Planning and Research
PM	Particulate matter

Term	Definition
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
ppb	Parts per billion
ppm	Parts per million
Protocol	Transportation Project-Level Carbon Monoxide Protocol
ROG	Reactive organic gases
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
SB	Senate Bill
SIP	State Implementation Plan
SO_2	Sulfur dioxide
TACs	Toxic air contaminants
TDM	Transportation Demand Management
TSM	Transportation System Management
TIP	Transportation Improvement Program
TOAR	Transportation Operations Analysis Report
TOG	Total Organic Gases
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
VHT	Vehicle hours traveled
VMT	Vehicle miles traveled
VTA	Santa Clara Valley Transportation Authority
VOC	Volatile Organic Compounds

1. Proposed Project Description

1.1 Introduction

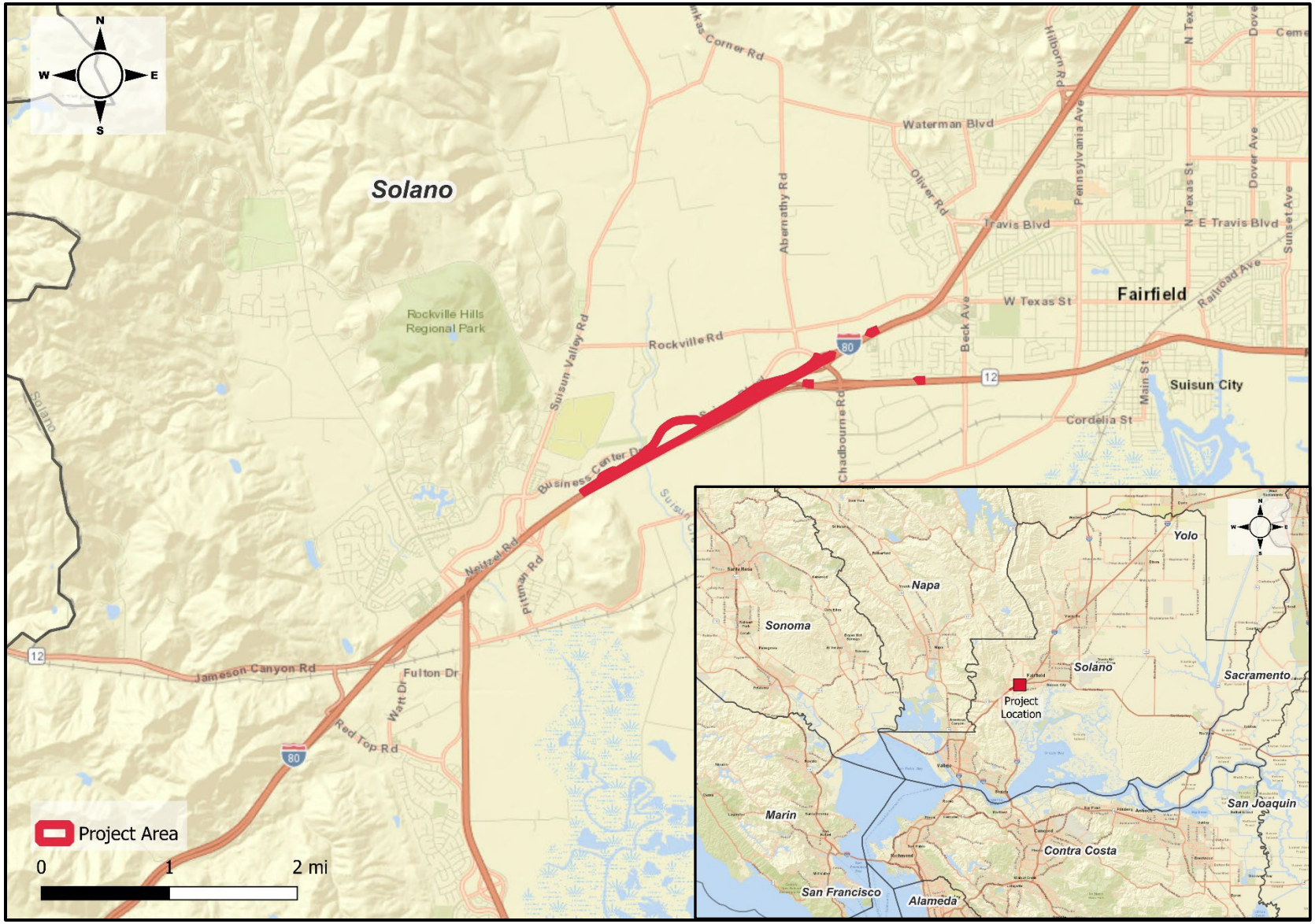
The Solano Transportation Authority (STA), in cooperation with Caltrans, proposes to relocate and enhance the Interstate 80 (I-80) westbound (WB) truck scales between the towns of Cordelia and Fairfield, also known as the Cordelia Commercial Vehicle Enforcement Facility (CCVEF). The overall function and location of the CCVEF remain the same. However, the proposed new facility and layout create a more efficient design and incorporates the latest requirements for commercial vehicle enforcement facilities. The project also includes direct off-ramps to the I-80 westbound CCVEF and realigns and widens the westbound State Route (SR) 12 East (E) connection to I-80 to three lanes. Caltrans is the lead agency under the National Environmental Policy Act (NEPA) and STA is the lead agency under the California Environmental Quality Act (CEQA).

1.2 Location and Background

The I-80 WB CCVEF Project (Project) is on I-80 near the town of Cordelia in southern Solano County and is an element of the larger Interstate 80/Interstate 680/State Route 12 Interchange Project (DISTRICT 4-SOL-80 (PM 10.8/17.0); SOL-680 (PM 10.0/13.1); SOL-SR 12 (PM 1.7/L2.8); and SOL-SR 12 (PM L1.8/4.8) EA # 0A5300, Project # 04-0000-0150). A draft Environmental Impact Report/Environmental Impact Statement (EIR/S) for the Interstate 80/Interstate 680/State Route 12 Interchange Project was published in August 2010 and a Final EIR/S published in October 2012. A NEPA Record of Determination (ROD) for the Interstate 80/Interstate 680/State Route 12 Interchange Project was signed by Caltrans on December 7, 2012. Since the Final Environmental Impact Statement (EIS) for the Interstate 80/Interstate 680/State Route 12 Interchange Project was completed over 3 years ago, a written re-evaluation is required to determine if the prior EIR/S remains valid. In addition, a new/revised ROD will be required since the original ROD did not include the relocation of the I-80 WB CCVEF.

The portion of Solano County containing the Project is in the San Francisco Bay Area Air Basin and falls under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), responsible for regional air quality planning, monitoring, and permitting, and the Metropolitan Transportation Commission (MTC), responsible for regional transportation planning. Ambient air quality standards have been established at both the state and federal levels. The Bay Area meets all federal ambient air quality standards except for ground-level ozone and fine particulate matter ($PM_{2.5}$). At the State level, the region meets all ambient air quality standards except those for ground-level ozone, $PM_{2.5}$, and respirable particulate matter (PM_{10}). These pollutants and the applicable standards are described further in Section 2.1.

This Project is included in the current MTC Regional Transportation Plan (RTP), *Plan Bay Area 2050*, as RTP ID 21-T07-055 and MTC's 2023 Transportation Improvement Program (TIP) as TIP ID S0L190025. Figure 1 shows the Project vicinity and surrounding area.



Source: Illingworth & Rodkin, Inc.

Figure 1. Map of the Project Vicinity

1.3 Purpose and Need

The relocation and enhancement of the existing I-80 WB CCVEF is part of the previous Interstate 80/Interstate 680/State Route 12 Interchange Project. Therefore, the purpose and need of the project are consistent with the purpose and need in the EIR/EIS and ROD signed in 2012.

The purpose of the project includes:

- Improving the processing capabilities of CCVEF facility
- Increasing enforcement capacity
- Improving travel times
- Improving traffic safety
- Reducing the amount of cut-through traffic on local roads
- Reducing environmental impact of freight movement

The Project is needed because:

- Since its construction in the 1960's, there has been major development and substantial population growth in the surrounding area.
- The Corridor has limited capacity with current configuration causing significant delays during peak hours. Congestion creates unpredictable and unreliable travel times for freight trucks. Therefore, traffic has begun diverting to local roadways.
- Trucks entering traffic streams to and from the I-680 connector ramps create more congestion.
- There have been a significant number of rear end collisions along this corridor dating back to 2006. Congestion created by the CCVEF has been one of the factors.

1.4 Baseline and Forecasted Conditions for No-Build and Project Alternatives

The proposed alternatives are the No-Build Alternative and the Build Alternative. The scenarios analyzed are existing/baseline conditions, opening year (2030) and the design year/RTP horizon year (2050). These alternatives, along with the existing baseline conditions, are discussed below in more detail.

1.4.1 Existing Roadways and Traffic Conditions

The Interstate 80/Interstate 680/State Route 12 Interchange Project area comprises an approximately 6.2-mile-long segment of I-80 between Red Top Road and Abernathy Road, an approximately 3.1-mile-long segment of I-680 between Gold Hill Road and I-80, an approximately 1.1-mile-long segment of SR 12W between 0.5 mile west of Red Top Road and I-80, and an approximately 3.0-mile-long segment of SR 12E between I-80 and Civic Center Boulevard. Within the limits of the project area, I-80 is a six- to ten-lane freeway, SR 12E is a divided four-lane highway, I-680 is a four-lane freeway, and SR 12W is currently an undivided two-lane highway.

The I-80 WB CCVEF project is located within the "Western Segment" of the larger Interstate 80/Interstate 680/State Route 12 Interchange Project. The Western Segment begins just west of the I-80/Red Top Road interchange and ends at the I-80/Suisun Valley Road interchange. Existing roadway configurations at the existing CCVEF are illustrated in Figure 2.

Table 1 lists the existing Average Annual Daily Traffic (AADT) for the project area roadways, the percentage of daily trucks on them, and the average daily vehicle miles traveled (VMT) within the Project's area of influence used for the emissions analysis (Section 4.3). The average daily VMT includes traffic on freeways and local facilities (arterials).

Table 1. Summary of Existing Traffic Conditions.

Segments		Existing/Baseline AADT			
		Total	Truck	% Truck	AM/PM Peak Speed
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	70,600	1,410	7	31.7/69.8
	Between SR 12 On-ramp and Truck Scales Off-ramp	94,700	6,630	7	31.5/65.3
	Between Truck Scales Off-ramp and Truck Scales On-ramp	89,700	1,790	2	42.0/57.7
Ramps	**I-80 WB On-ramp** from Chadbourne Road	4,200	290	7	Not Available
	I-80 WB On-ramp from SR 12	24,100	1,690	7	
	I-80 WB Off-ramp to Truck Scales	5,000	5,000	100	
	I-80 WB On-ramp from Truck Scales	5,000	5,000	100	
	SR 12 On-ramp from WB Chadbourne Road	4,500	320	7	
Chadbourne Road	Between I-80 WB and EB Ramps	14,500	440	3	Not Available
	Between I-80 WB Ramps and Auto Mall Parkway	14,600	440	3	
	Between Auto Mall Parkway and SR 12 WB Ramps	13,100	390	3	
Intersection LOS		**AM**		**PM**	
Chadbourne Road at I-80 WB Ramps		B		B	
Chadbourne Road at I-80 EB Ramps		A		B	
Chadbourne Road at Auto Mall Parkway		B		B	
Chadbourne Road at SR 12 WB Ramps		B		B	

* See Figure 8 in Section 4.3 for Area used for the VMT analysis. Source: Fehr & Peers, 2023

Source: Illingworth & Rodkin

Figure 2. Existing Conditions and Project Area.

1.4.2 No-Build Alternative

The No-Build Alternative represents future traffic conditions in the Project area without the proposed Project and provides a basis for comparing the effects of the Build Alternative. The No-Build (No Action) Alternative consists of those transportation projects that are already planned for construction by or before 2050. Consequently, the No-Build alternative represents future travel conditions in the study area without the Project and is the baseline against which the Build Alternative will be assessed to meet NEPA requirements.

Under the No-Build Alternative, a new westbound commercial vehicle enforcement facility would not be constructed, nor would any improvements to the on and off ramps accessing the facility. I-80 near the WB CCVEF would continue to be congested due to truck queuing and merging. To account for future increases in traffic associated with planned growth that will occur under both the No-Build and Build alternatives, forecasts for the opening year (2030) and design year (2050) were developed using the most current travel demand model developed maintained by the City of Fairfield. The Fairfield traffic model was calibrated and validated for Year 2019 conditions. Model validation was performed using guidelines drawn from the 2017 California Regional Transportation Plan Guidelines published by the California Transportation Commissions. The validated/calibrated 2019 Fairfield model met all the 2017 California Regional Transportation Plan guidelines model validation standards. A new 2050 land use input file was developed using Plan Bay Area 2050, and the 2021 Regional Transportation Plan and Sustainable Communities Strategy prepared by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

Table 2 lists the No-Build Alternative ADT for the roadways impacted by the Project, the percentage of daily trucks in the Project study area, estimated truck volumes, peak hour roadway speeds, intersection level of service (LOS), and the average daily VMT within the Project's area of influence.

Table 2. Summary of Future No-Build Alternative Traffic Conditions.

Segments		2030 No Build AADT				2050 No Build AADT			
		Total	Truck	% Truck	AM/PM Peak Speed	Total	Truck	% Truck	AM/PM Peak Speed
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	74,000	1,480	2	21/65	80,200	1,600	2	14/65
	Between SR 12 On-ramp and Truck Scales Off-ramp	100,600	7,040	7	24/65	111,400	7,800	7	22/65
	Between Truck Scales Off-ramp and Truck Scales On-ramp	95,000	1,900	2	48/65	104,800	2,100	2	49/65
Ramps	**I-80 WB On-ramp** from Chadbourne Road	4,500	320	7	Not Available	5,000	350	7	Not Available
	I-80 WB On-ramp from SR 12	26,600	1,860	7		31,200	2,180	7	
	I-80 WB Off-ramp to Truck Scales	5,600	5,600	100		6,600	6,600	100	
	I-80 WB On-ramp from Truck Scales	5,600	5,600	100		6,600	6,600	100	
	SR 12 On-ramp from WB Chadbourne Road	4,800	340	7		5,300	370	7	
Chadbourne Road	Between I-80 WB and EB Ramps	17,900	540	3	Not Available	24,100	720	3	Not Available
	Between I-80 WB Ramps and Auto Mall Parkway	16,100	480	3		21,300	640	3	
	Between Auto Mall Parkway and SR 12 WB Ramps	15,000	450	3		18,300	550	3	

Intersection LOS	AM	PM	AM	PM
Chadbourne Road at I-80 WB Ramps	B	B	C	C
Chadbourne Road at I-80 EB Ramps	A	B	A	B
Chadbourne Road at Auto Mall Parkway	B	B	B	C
Chadbourne Road at SR 12 WB Ramps	B	B	C	C

* See Figure 8 in Section 4.3 for Area used for the VMT analysis. Source: Fehr & Peers, 2023

1.4.3 Project Build Alternative

The westbound CCVEF would be relocated east of the existing CCVEF and east of Suisun Creek, upgraded, and expanded. The overall function and location of the site remain the same. However, the new layout creates a more efficient facility. The new CCVEF has 150,000 square feet less paved footprint while maintaining the same operational capacity, provides the California Highway Patrol with better viewsheds of site and freeway operations, improves circulation of vehicles, and utilizes state-of-the-art technology to prescreen all trucks, enabling inspectors and officers to focus their attention on trucks most likely to have safety violations. A single-family residence and associated outbuildings that currently sit on the site proposed for the relocated CCVEF would be demolished.

The Project includes new off- and on-ramps that will provide simplified direct access to and from the new CCVEF to eliminate queuing onto I-80 which occurs now on a regular basis between trucks re-entering I-80 and cars exiting towards southbound I-680. The project realigns and widens the westbound SR 12E connection to I-80 to three lanes to provide standard connector geometry and a new ramp from I-80 to the CCVEF would be constructed to pass under the connector from SR 12E to westbound I-80. Additionally, a new single-span bridge would be constructed over Suisun Creek to accommodate traffic from the westbound CCVEF.

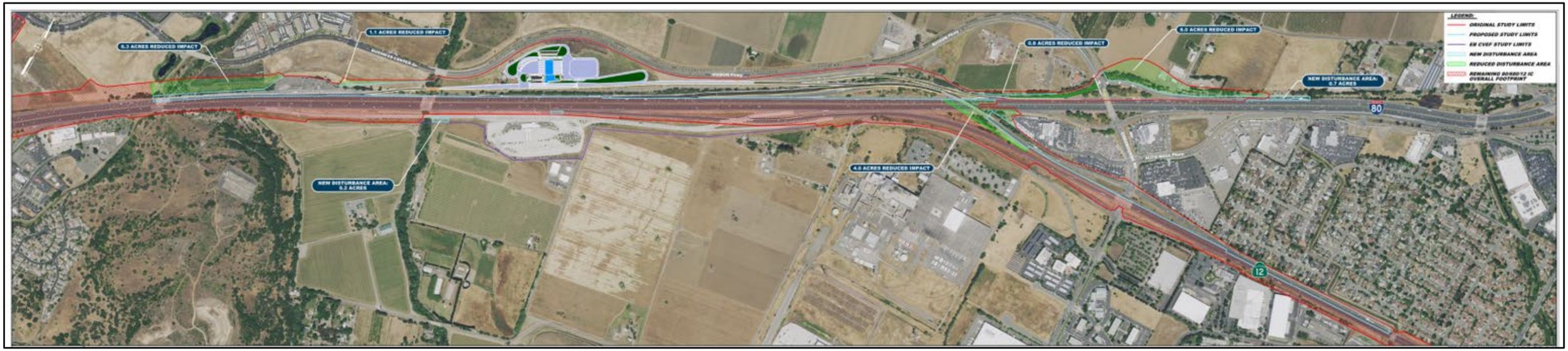
The Project would eliminate the on-ramp from Abernathy Road to westbound I-80 included in the preferred alternative of the larger Interstate 80/Interstate 680/State Route 12 Interchange Project. Caltrans determined the existing on-ramp from Abernathy Road to westbound I-80 has low traffic volumes, and an alternate route for traffic exists via the SR 12/Chadbourne Road interchange on-ramp, which immediately merges onto westbound I-80. Local traffic wishing to access westbound I-80 would be directed to the SR 12/Chadbourne Road interchange. Additionally, the proposed I-80 WB CCVEF project eliminates the need to reconstruct the off-ramp from westbound I-80 to Abernathy Road, the construction of a new loop on-ramp, and the need for an auxiliary lane on westbound I-80 between Abernathy Road and West Texas Street as envisioned in the EIR/S preferred alternative.

Transportation System Management (TSM) strategies increase the efficiency of existing facilities and increase the number of vehicle-trips a facility can carry without increasing the number of through lanes. TSM also promotes automobile, transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. Although TSM measures alone could not satisfy the purpose and need of the Project, TSM measures will be incorporated into the design of the Build Alternative as appropriate and applicable. Figure 3 provides a plan-view of the proposed improvements associated with Build Alternative. Table 3 lists the Build Alternative ADT and the percentage of daily trucks on the impacted roadway segments in the Project study area, and the average daily VMT in the local study area.

Table 3. Summary of Future Build Alternative Traffic Conditions.

Segments		2030 Build AADT				2050 Build AADT			
		Total	Truck	% Truck	AM/PM Peak Speed	Total	Truck	% Truck	AM/PM Peak Speed
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	72,600	1,450	2	65/65	78,400	1,570	2	65/65
	Between SR 12 On-ramp and Truck Scales Off-ramp	100,600	7,040	7	65/65	111,400	7,800	7	65/65
	Between Truck Scales Off-ramp and Truck Scales On-ramp	95,000	1,900	2	65/65	104,800	2,100	2	41/65
Ramps	**I-80 WB On-ramp** from Chadbourne Road	NA	NA	NA	Not Available	NA	NA	NA	Not Available
	I-80 WB On-ramp from SR 12	28,000	1,960	7		33,000	2,310	7	
	I-80 WB Off-ramp to Truck Scales	5,600	5,600	100		6,600	6,600	100	
	I-80 WB On-ramp from Truck Scales	5,600	5,600	100		6,600	6,600	100	
	SR 12 On-ramp from WB Chadbourne Road	9,100	640	7		10,100	710	7	
Chadbourne Road	Between I-80 WB and EB Ramps	17,900	540	3	Not Available	24,200	730	3	Not Available
	Between I-80 WB Ramps and Auto Mall Parkway	16,500	500	3		21,900	660	3	
	Between Auto Mall Parkway and SR 12 WB Ramps	19,600	590	3		23,600	710	3	
Intersection LOS		**AM**		**PM**		**AM**		**PM**	
Chadbourne Road at I-80 WB Ramps		B		A		B		B	
Chadbourne Road at I-80 EB Ramps		A		B		A		B	
Chadbourne Road at Auto Mall Parkway		B		B		B		C	
Chadbourne Road at SR 12 WB Ramps		B		B		B		C	

* See Figure 8 for Area used for the VMT analysis. Source: Source: Fehr & Peers, 2023



Source: WMH

Figure 3. Build Alternative

1.4.4 Comparison of Existing/Baseline, No-Build, and Build Alternatives

Existing/baseline conditions provide the basis for comparison to the future No-Build and Build alternatives. In addition, the difference between future No-Build and Build conditions shows how the Build Alternatives would affect traffic conditions within the Project study area. Table 4 details the design features and traffic conditions for the baseline year (2019), opening year (2030), and design year/RTP horizon year (2050) for the No-Build and the Build Alternatives. The average daily VMT within the Project study area for all future years given the Build Alternative was compared to the existing/baseline average daily VMT. When compared to existing/baseline conditions, the future increases in VMT shown in Table 4 are attributable to planned growth in the area that will occur with or without the proposed Project. The average daily VMT for the Build Alternative is slightly (i.e., approximately 0.01 percent) higher than the No Build for all scenario years.

Table 4. Comparison of Traffic Conditions under Existing, No-Build, and Build Alternatives.

Scenario/ Analysis Year		Design Features and Operational Impacts on Traffic Conditions	Daily VMT	Change in VMT from Baseline
Baseline Year 2019	Existing	This is the baseline year. The traffic conditions from the No-Build and Build alternatives are compared to the baseline conditions.	4,435,292 miles	N/A
Opening Year 2030	No-Build	No improvements would be constructed. The I-80 WB CCVEF would remain where it is and the on- and off-ramps would remain as-is.	5,029,805 miles	+594,513 miles
	Build Alternative	Under the Build Alternative, the I-80 WB CCVEF would be moved east and new on- and off- ramps would be constructed. When compared to No-Build conditions, VMT would be 550 miles higher, or an increase of approximately 0.01%.	5,030,355 miles	+595,063 miles
Design Year and *Plan Bay Area 2050* Horizon Year 2050	No-Build	No Improvements and VMT in the region would continue to increase compared to the existing year.	6,110,739 miles	+1,675,447 miles
	Build Alternative	The design features would have been constructed and VMT in the area would continue to increase compared to the existing year. When compared to No-Build conditions, VMT would increase by 550 miles, or approximately 0.01%.	6,111,289 miles	+1,675,997 miles

Source: Fehr & Peers, 2023

1.5 Construction Activities and Schedule

Construction would begin in 2025 and would last for approximately three years. For the purposes of estimating emissions using the California Emissions Estimator Model (CalEEMod), the Project was divided into three concurrent construction stages (CCVEF, roadways, and bridges/structures). Construction of the CCVEF was analyzed using the seven standard phases CalEEMod assigns to land development projects (Demolition, Site Preparation, Grading, Trenching, Building Construction, Architectural Coating, and Paving). The roadway and bridge stages were analyzed using the four standard phases associated with linear construction projects (Mobilization, Grubbing/Land Clearing, Grading/Excavation, Drainage/Utilities/Sub-Grade, and Paving).

Construction equipment would be staged in areas within the project limits. However, temporary construction easements (TCEs) would be needed for construction access throughout the project area. Vehicle, bicycle, and pedestrian access throughout the project area would be maintained during construction. Construction activities would primarily be during the day; however, night-time work (10 p.m. to 5 a.m.) may be required. The project development team would develop and implement a Traffic Management Plan (TMP) and other measures to minimize construction impacts on the human and natural environment.

The proposed Project contains several standardized measures that are employed on most, if not all, transportation projects (see Chapter 5). They were not developed in response to any specific environmental impacts resulting from the proposed Project. Chapter 5 provides more detail regarding the anticipated emissions control measures.

Construction activities are anticipated to end at the start of 2028. Table 5 lists the construction stages and phases that are anticipated based on CalEEMod defaults. Note that it is assumed that there would be 22 workdays per month. Although construction is planned to last approximately 36 months, no construction activities are anticipated to last more than five years at any individual site. Emissions from construction-related activities are thus considered temporary as defined in 40 CFR 93.123(c)(5); and are not required to be included in PM hot-spot analyses to meet conformity requirements.

Table 5. Construction Activities and Schedule.

Construction Stage	Description/List of Phase	Begin Date	Completion Date	Working Days
CCVEF	Demolition	1-5-2025	2-2-2025	20
	Site Preparation	2-3-2025	2-17-2025	10
	Grading	2-18-2025	4-1-2025	30
	Trenching	2-18-2025	4-1-2025	30
	Building Construction	4-2-2025	5-27-2026	300
	Architectural Coating	6-26-2026	7-24-2026	20
	Paving	5-28-2026	6-25-2026	20

Construction Stage	Description/List of Phase	Begin Date	Completion Date	Working Days
Roadway	Mobilization, Grubbing/Land Clearing	1-5-2025	4-25-2025	79
	Grading/Excavation	4-26-2025	7-13-2026	317
	Drainage/Utilities/Sub-Grade	7-14-2026	8-5-2027	277
	Paving	8-6-2027	1-19-2028	119
Structures	Mobilization, Grubbing/Land Clearing	1-5-2025	2-10-2025	26
	Grading/Excavation	2-11-2025	7-10-2025	106
	Drainage/Utilities/Sub-Grade	7-10-2025	11-15-2025	92
	Paving	11-16-2025	1-11-2026	40

Source: CalEEMod, based on information provided On December 7, 2023.

2. Regulatory Setting

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

2.1 Pollutant-Specific Overview

Air pollutants are governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: CO, Pb, NO_2, O_3, PM ($PM_{2.5}$ and PM_{10}), and SO_2. The U.S. EPA has also identified nine priority mobile source air toxics (MSATs): 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter.[1] In California, sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

2.1.1 Criteria Pollutants

The Clean Air Act requires the U.S. EPA to set NAAQS for six criteria air contaminants: ozone (O_3),carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), lead (Pb), and sulfur dioxide (SO_2). It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 6 documents the current air quality standards while Table 7 summarizes the sources and health effects of the six criteria pollutants and pollutants regulated in the state of California.

[1] https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/

Table 6. State and Federal Criteria Air Pollutant Standards.

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

CARB Air Quality Standards chart developed 5/4/2016 and accessed December 8, 2023.

Greenhouse Gases and Climate Change: Greenhouse gases do not have concentration standards for that purpose. Conformity requirements do not apply to greenhouse gases.

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

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

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

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

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

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

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

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

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

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

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

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

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

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

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

Table 7. Air Pollutant Effects and Sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines, and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Respirable Particulate Matter (PM_{10})	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic &other aerosol and solid compounds are part of $PM_{2.5}$	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also, a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Sulfates	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Visibility Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes

Source: Caltrans Air Quality Pollution Standards Tables, May 2020.

2.1.2 Mobile Source Air Toxics (MSAT)

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

The 2007 U.S. EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using U.S. EPA's MOVES3 model (FHWA, 2023), even if vehicle activity (vehicle-miles traveled, VMT) increases by 31 percent from 2020 to 2060 as forecast, a combined reduction of 76 percent in the total annual emission rate for the priority MSATs is projected for the same period, as shown in Figure 4.

2.1.3 Greenhouse Gases

The term greenhouse gas (GHG) is used to describe atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO_2, CH_4, N_2O, and fluorinated gases.

GHGs differ in how much heat each trap in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO_2. For example, the 2007 International Panel on Climate Change *Fourth Assessment Report* calculates the GWP of CH_4 as 25 and the GWP of N_2O as 298, over a 100-year time horizon.[2] Generally, estimates of all GHGs are summed

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

to obtain total emissions for a project or given period, usually expressed in metric tons ($MTCO_2e$), or million metric tons ($MMTCO_2e$).[3]

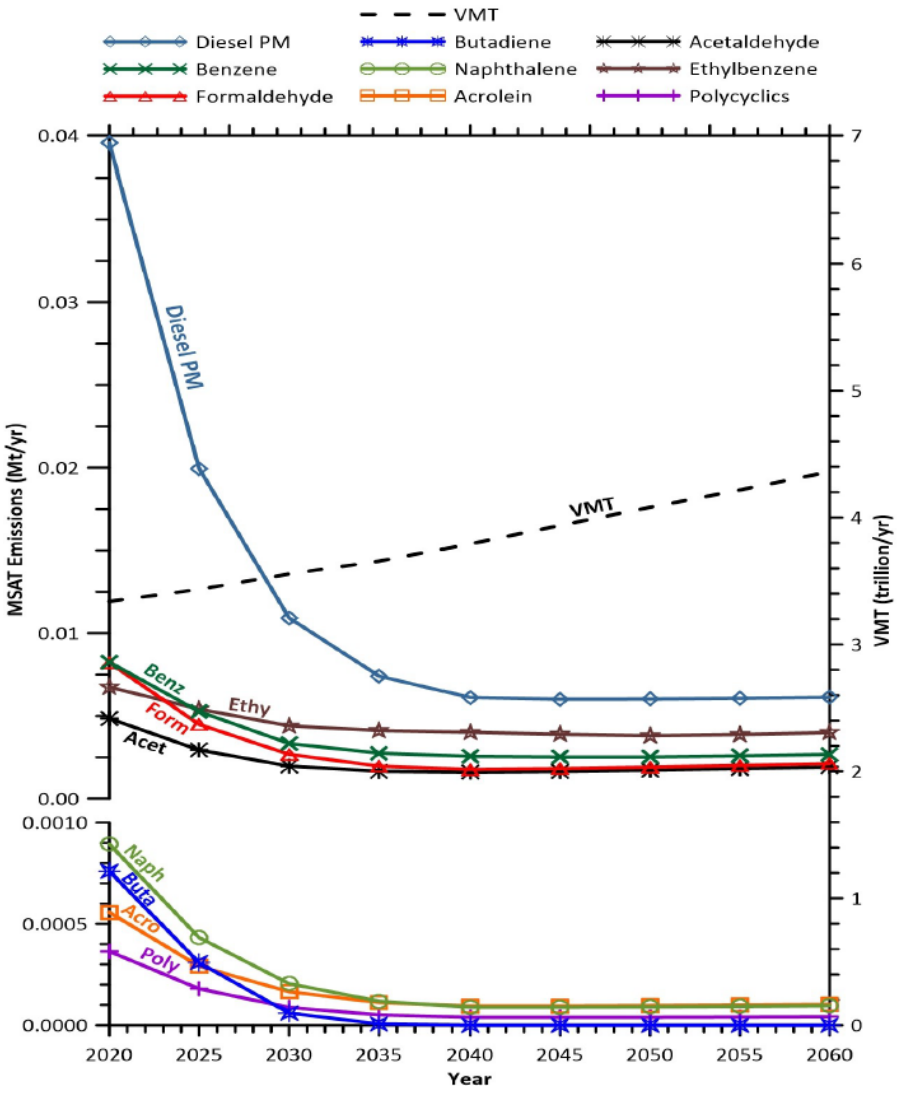


Figure 4. Projected National MSAT Trends, 2020-2060
(Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/).

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

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

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

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

California has enacted aggressive GHG reduction targets, starting with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 is California's signature climate change legislation. It set the goal of reducing statewide GHG emissions to 1990 levels by 2020 and required the California Air Resource Board (CARB) to develop a Scoping Plan that describes the approach California will take to achieve that goal and to update it every 5 years. In 2015, Governor Jerry Brown enhanced the overall adaptation planning effort with Executive Order (EO) B-30-15, establishing an interim GHG reduction goal of 40 percent below 1990 levels by 2030, and requiring state agencies to factor climate change into all planning and investment decisions.

Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008, furthered state climate action goals by mandating coordinated transportation and land use planning through preparation of sustainable communities strategies (SCSs). The CARB sets GHG emissions reduction targets for passenger vehicles for each region. Each regional metropolitan planning organization (MPO) must include in its regional transportation plan SCSs proposing actions toward achieving the regional emissions reduction targets.[4]

The State has also adopted what are known as the Advanced Clean Cars and Advanced Clean Fleets regulations. These regulations include the Low-Emission Vehicle (LEV) criteria and greenhouse gas regulations and the zero-emission vehicle (ZEV) regulations for passenger vehicles sold in California and advance the introduction of zero-emission technologies into California's truck and bus fleets. Advanced Clean Cars I was adopted in 2012 and Advanced Clean Cars II was adopted in 2022. These regulations rapidly scale down emissions of light-duty passenger cars, pickup trucks and SUVs and require an increased number of ZEVs to meet the State's air quality and climate change emissions goals. By 2035 all new passenger cars, trucks and SUVs sold in California will be ZEVs. Likewise, medium- and heavy-duty vehicle fleets are required to move to the cleanest available technology through a phase-in period, with 100 percent ZEV sales requirement, starting in the 2036 model year.

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

[4] https://www.arb.ca.gov/cc/sb375/sb375.htm

2.1.4 Asbestos

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

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

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

2.2 Regulations

2.2.1 Federal and California Clean Air Act

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

2.2.2 Transportation Conformity

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

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

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

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and FTIP and the project has a design concept and scope that has not changed significantly from those in the RTP and FTIP. [5] If the design concept and scope have changed substantially from that used in the RTP/FTIP Conformity analysis, RTP and FTIP amendments may be needed. Project-level conformity also needs to demonstrate that project analyses have used the latest planning assumptions, used U.S. EPA-approved emissions models, and the project complies with any control measures in the SIP in PM nonattainment/maintenance areas. Furthermore, additional analyses known as hot-spot analyses may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

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

2.2.3 National Environmental Policy Act (NEPA)

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

2.2.4 California Environmental Quality Act (CEQA)

CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. [6] CEQA documents address CCAA requirements for transportation projects. While state standards are often more strict than federal standards, the state has no conformity process.

2.2.5 Local

The U.S. EPA has delegated responsibility for NAAQS compliance to the states. California has delegated responsibility to local air districts which establish local rules to protect air quality. Caltrans' Standard Specification 14-9.02 (Caltrans, 2015) requires compliance with all applicable air quality laws and regulations including local and air district ordinances and rules.

Local Air District Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the district's 2011 CEQA Air Quality Guidelines. They were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD has updated their CEQA Air Quality Guidelines twice, once in 2017 and again in 2022. The most recent significance thresholds are summarized in Table 8 and provided for informational purposes.

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

Table 8. BAAQMD Air Quality Significance Thresholds.

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	>10 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 µg/m^3	>0.8 µg/m^3	
Greenhouse Gas Emissions			
Land Use Projects – (Must Include A or B)	A. Projects must include, at a minimum, the following project design elements: 1. Buildings a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development). b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. 2. Transportation a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA: i. Residential projects: 15 percent below the existing VMT per capita ii. Office projects: 15 percent below the existing VMT per employee iii. Retail projects: no net increase in existing VMT b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2. B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).		

Note: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.

Plan Bay Area

Assembly Bill (AB) 375 requires the Bay Area regional planning agencies to include SCSs in their regional transportation plan updates to describe how the GHG emissions reductions set by CARB would be met through land-use and transportation planning. In 2010, the MTC approved a set of "*Bay Area Principles for Establishing Regional Greenhouse Gas Reduction Targets*" (Resolution 3970) that proposed per-capita GHG emissions reductions of 7 percent from 1990 by 2020 and 15 percent by 2035. Subsequently, MTC, along with ABAG, developed SCS plans to meet state targets for reducing GHG emissions from light-duty vehicles. *Plan Bay Area 2050* is the recently adopted RTP. It includes new and/or updated transportation projects and Climate Initiatives.[7] *Plan Bay Area 2050* was adopted by both MTC and ABAG on October 21, 2021 and approved by the FHWA and Federal Transit Administration (FTA) on December 3, 2021.

Bay Area 2017 Clean Air Plan

The *Bay Area 2017 Clean Air Plan* is a multi-pollutant plan prepared by the BAAQMD that addresses GHG emissions along with other air emissions in the San Francisco Bay Area Air Basin. One of the key objectives in the Plan is climate protection. The 2017 Clean Air Plan includes emission control measures in five categories: Stationary Source Measures, Mobile Source Measures, Transportation Control Measures (TCMs), Land Use and Local Impact Measures, and Energy and Climate Measures. Project consistency with current control measures is one method of evaluating its consistency with the Plan. The current Plan also includes performance objectives, consistent with the State's climate protection goals under AB 32, designed to reduce emissions of GHGs to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

[7] https://www.planbayarea.org/plan-bay-area-2050-1

3. Affected Environment

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

The I-80 WB CCVEF Project is located along I-80 between the towns of Cordelia and Fairfield in Solano County, an area within the San Francisco Bay Area Air Basin, which, in addition to the western portion of Solano County, includes Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, and the southern portion of Sonoma County. Air quality regulation in San Francisco Bay Area Air Basin is administered by the BAAQMD. Current estimated population for Solano County is 443,749. The County limits residential and commercial development outside of cities, thus preserving approximately 80 percent of the land for open space or agricultural uses. [8] The county's economy is driven by the health care, professional services, and transportation/warehousing industries.[9]

3.1 Climate, Meteorology, and Topography

Meteorology (weather) and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport O_3 and O_3 precursors (i.e., reactive organic gases [ROG]) from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

Travis Airforce Base climatological station, maintained by the National Weather Service, is located approximately 7.6 miles from the Project site and is representative of meteorological conditions near the Project. Figure 5 shows a wind rose illustrating the predominant wind patterns near the Project. The climate of the Project area is generally Mediterranean in character, with cool winters (average 24-hour temperature of 48 degrees Fahrenheit in January) and warm, dry summers (average 24-hour temperature of 77 degrees Fahrenheit in July). Coastal mountains are located to the west and north of the Project area, while the San Francisco Bay/San Pablo Bay and San Joaquin River delta are located to the south and east, respectively. The Project's proximity to the Pacific Ocean and San Francisco Bay has a significant influence on its climate. As shown in Figure 5, the prevailing winds in the Project area flow mainly from the southwest off of the Pacific Ocean and San Francisco Bay. Annual average rainfall is approximately 25 inches (at Travis Air Force Base), mainly falling during the winter months.

[8] Source: Solano County website. https://www.solanocounty.com/about/default.asp
[9] Source: Solano Economic Development Corporation website. https://solanoedc.org/data-center/data/industry-sectors

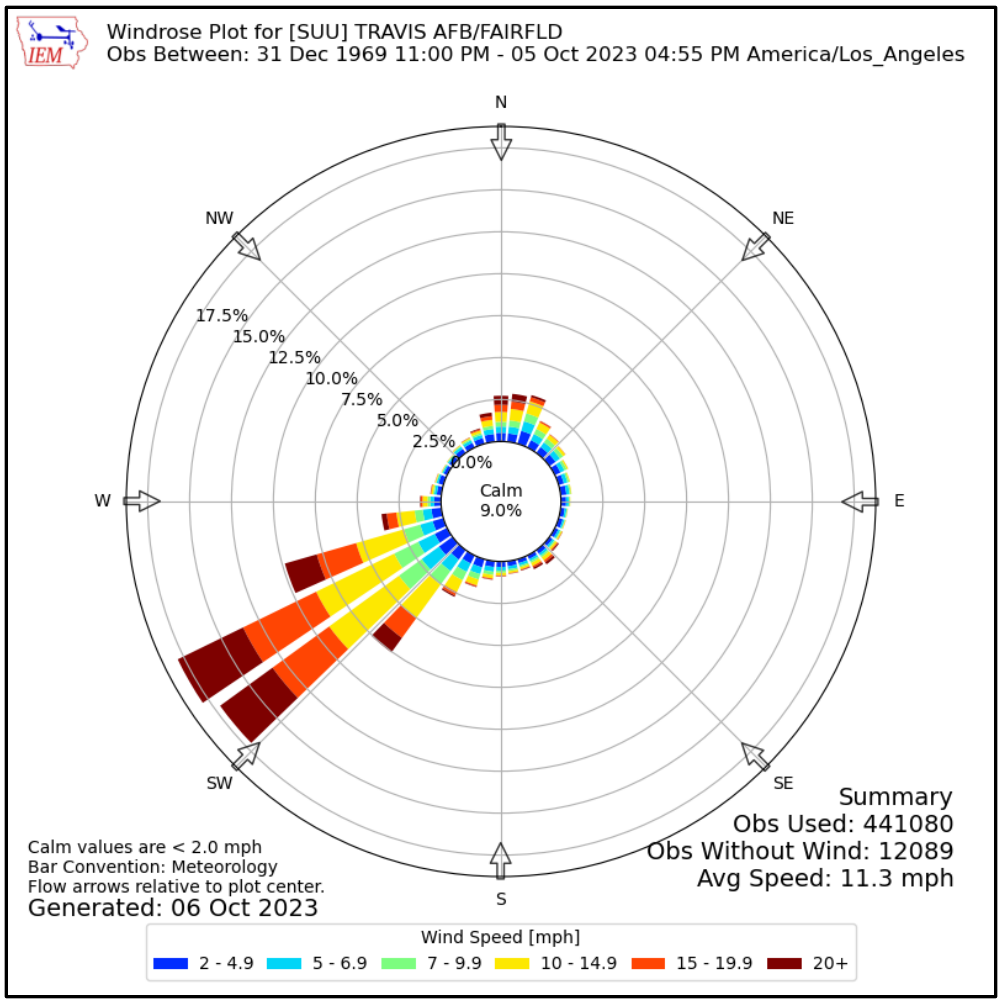
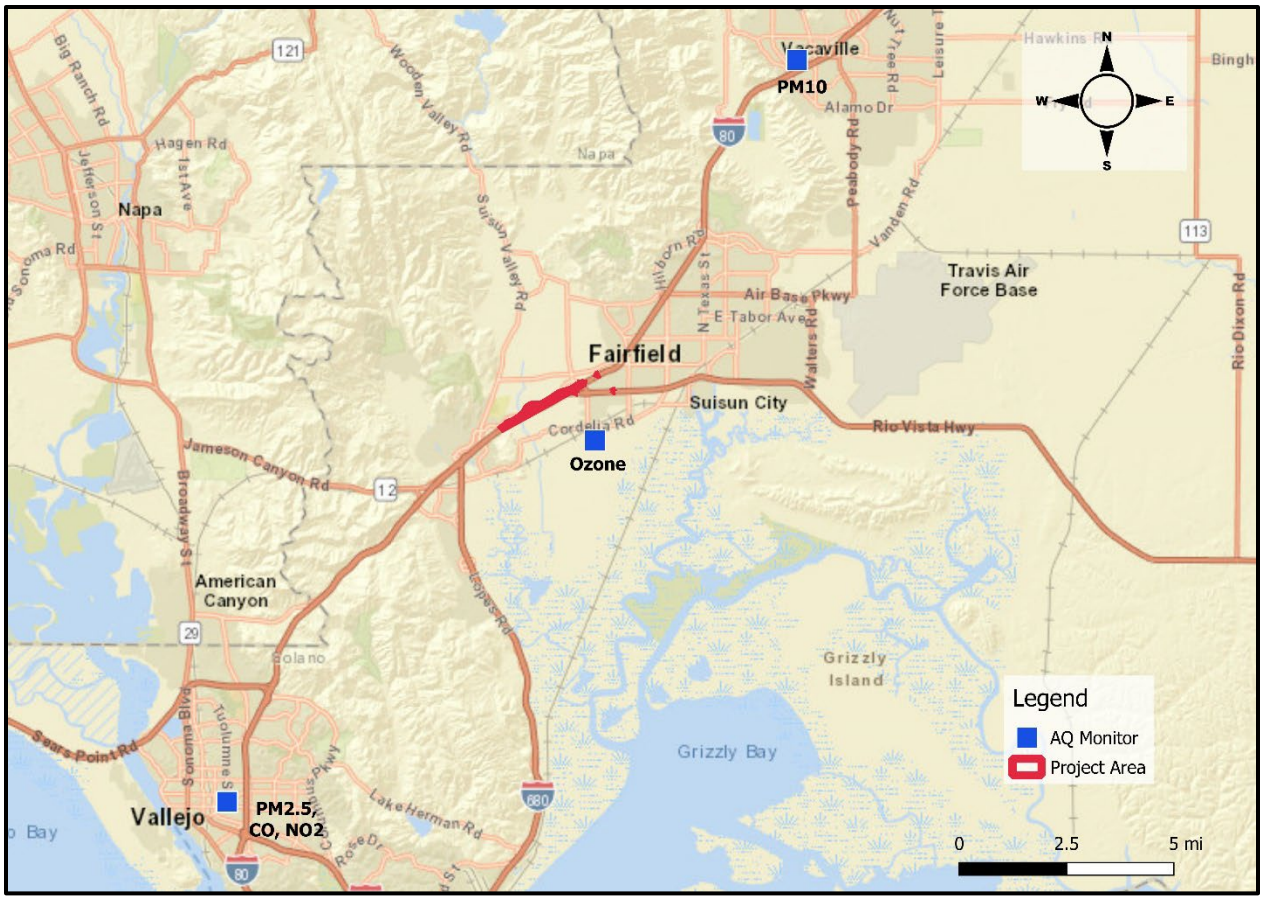


Figure 5. Predominant Wind Patterns Near the Project.
Source: https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=SUU&network=CA_ASOS

3.2 Existing Air Quality

This section summarizes existing air quality conditions near the Project area. It includes attainment statuses for criteria pollutants, describes local ambient concentrations of criteria pollutants for the past 5 years, and discusses MSAT and GHG emissions. The closest air quality monitoring site to the Project is the Fairfield monitoring location operated by BAAQMD. It is approximately 1.3 miles southeast from the Project at 1010 Chadbourne Road in Fairfield. This station monitors O_3 only. The closest BAAQMD monitoring site for $PM_{2.5}$ (continuous and speciated), SO_2, CO, and NO_X, and gaseous toxic compounds is the Vallejo location at 304 Tuolumne Street, approximately 10.7 miles to the southwest of the Project. The closest PM_{10} monitoring location is operated by the Yolo-Solano Air Quality Management District at 650 Merchant Street in Vacaville, approximately 9 miles to the northeast of the Project. Figure 6 provides the locations of the ambient air quality monitoring site relative to the Project site.



Source: Illingworth and Rodkin, 2023

Figure 6. Map of Air Quality Monitoring Station Located Near the Project.

3.2.1 Criteria Pollutants and Attainment Status

Table 9 lists the state and federal attainment status for all regulated pollutants. Under current designations of the Air Basin, the area is nonattainment for CAAQS for O_3, PM_{10}, and $PM_{2.5}$ and Attainment for CO. For the NAAQS, the area is nonattainment for O_3 and $PM_{2.5}$, and Attainment/Maintenance for CO, PM_{10}, and NO_2. Table 10 lists air quality trends collected at the ambient air quality monitoring stations identified in Figure 6 for the past 5 years. The CO and NO_2 concentrations are from air pollution data published by BAAQMD, while O_3, PM_{10}, and $PM_{2.5}$ concentrations were obtained through CARB's iADAM "Select 8" air quality summaries. Table 11 lists the status of SIPs relevant to the Project study area.

Table 9. State and Federal Attainment Status.

Pollutant	State Attainment Status	Federal Attainment Status	Attainment Plan (O_3, PM and CO)
O_3	Nonattainment	Nonattainment (Marginal – 2015 Standard)	Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard (2001)
Respirable PM (PM_{10})	Nonattainment	Unclassifiable/ Attainment	--
Fine PM ($PM_{2.5}$)	Nonattainment	Nonattainment (Moderate – 2006 Standard)	Bay Area Winter Emissions Inventory for Primary $PM_{2.5}$ & PM Precursors: Year 2010 (2012)
CO	Attainment	Attainment	2004 Revision to the California State Implementation Plan for Carbon Monoxide (2004)
NO_2	Attainment	Unclassifiable/ Attainment	--
SO_2	Attainment	Unclassifiable/ Attainment	--
Pb	Attainment	Unclassifiable/ Attainment	--
Visibility-Reducing Particles	Unclassified	N/A	--
Sulfates	Attainment	N/A	--
Hydrogen Sulfide	Unclassified	N/A	--
Vinyl Chloride	No Information Available	N/A	--

Source: CARB, 2023; www.arb.ca.gov/desig/adm/adm.htm, US EPA Greenbook https://www3.epa.gov/airquality/greenbook/cbtc.html, Federal Register / Vol. 77, No. 33 / February 17, 2012, Federal Register / Vol. 83, No. 66 / April 5, 2018

Table 10. Air Quality Concentrations for 2018-2022 Measured at Nearby Monitors.

Pollutant	Standard	2018	2019	2020	2021	2022
O_3 -1010 Chadbourne Road in Fairfield						
Max 1-hr concentration		0.078 ppm	0.080 ppm	0.098 ppm	0.093 ppm	0.081 ppm
No. days exceeded: CAAQS	0.09 ppm	0	0	1	0	0
Max 8-hr concentration		0.067 ppm	0.068 ppm	0.082 ppm	0.079 ppm	0.063 ppm
No. days exceeded: CAAQS	0.070 ppm	0	0	3	2	0
NAAQS	0.070 ppm	0	0	3	2	0
CO - 304 Tuolumne Street in Vallejo						
Max 1-hr concentration		2.8 ppm	2.0 ppm	2.5 ppm	1.7 ppm	1.8 ppm
No. days exceeded: CAAQS	20 ppm	0	0	0	0	0
NAAQS	35 ppm	0	0	0	0	0
Max 8-hr concentration		2.3 ppm	1.4 ppm	1.7 ppm	2.0 ppm	1.1 ppm
No. days exceeded: CAAQS	9.0 ppm	0	0	0	0	0
NAAQS	9 ppm	0	0	0	0	0
PM_{10} - 650 Merchant Street in Vacaville						
Max 24-hr concentration		130.6 µg/m^3	72.7 µg/m^3	326.8 µg/m^3	50.0 µg/m^3	35.4 µg/m^3
No. days exceeded: CAAQS	50 µg/m^3	13.1	*	*	*	0
NAAQS	150 µg/m^3	0	*	*	0	0
Max annual concentration		17.6 µg/m^3	11.7 µg/m^3	36.7 µg/m^3	14.6 µg/m^3	11.9 µg/m^3
Standard exceeded: CAAQS	20 µg/m^3	No	*	*	*	No
$PM_{2.5}$ - 304 Tuolumne Street in Vallejo						
Max 24-hr concentration		197.2 µg/m^3	30.6 µg/m^3	153.2 µg/m^3	32.0 µg/m^3	31.0 µg/m^3
No. days exceeded: NAAQS	35 µg/m^3	16.4	0	12.0	0	0
Max annual concentration		13.3 µg/m^3	8.6 µg/m^3	12.0 µg/m^3	8.7 µg/m^3	8.1 µg/m^3
Standard exceeded: CAAQS	12 µg/m^3	*	No	No	No	No
NAAQS	12.0 µg/m^3	Yes	No	No	No	No
NO_2 - 304 Tuolumne Street in Vallejo						
Max 1-hr concentration		0.057 ppm	0.053 ppm	0.048 ppm	0.041 ppm	0.044 ppm
No. days exceeded: CAAQS	0.18 ppm	0	0	0	0	0
NAAQS	0.10 ppm	0	0	0	0	0
Max annual concentration		0.008 ppm	0.007 ppm	0.007 ppm	0.006 ppm	0.007 ppm
No. days exceeded: CAAQS	0.030 ppm	0	0	0	0	0
NAAQS	0.053 ppm	0	0	0	0	0

* Insufficient data. Source: CARB, 2023; https://arb.ca.gov/adam/select8/sc8start.php, https://www.arb.ca.gov/aqmis2/aqdselect.php. BAAQMD, 2023; https://www.baaqmd.gov/about-air-quality/current-air-quality/air-monitoring-data

Table 11. Status of SIPs Relevant to the Project Area.

Name/Description	Status
O_3	Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard (2001)
$PM_{2.5}$	No SIP required. Bay Area Winter Emissions Inventory for Primary $PM_{2.5}$ & PM Precursors: Year 2010 (2012)
CO	No conformity requirements. 2004 Revision to the California State Implementation Plan for Carbon Monoxide (2004)

Source: CARB, California State Implementation Plans see https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/san-francisco-bay

3.2.2 Mobile Source Air Toxics

The Project is located near sources that emit priority MSATs, including non-mobile sources. The primary sources are traffic and stationary sources.

Traffic

Vehicles that travel on I-80 and to/from the CCVEF are the largest sources of MSATs affecting sensitive receptors in the Project area. Vehicle traffic in the area is generated primarily by the residential, commercial, and industrial developments in Fairfield, Vacaville, and Vallejo and traffic destined for I-680 or SR 12.

Existing Permitted Stationary Sources

There are two permitted stationary sources of air pollution within 1,000 feet of the project area. Both are diesel-powered emergency generators, one of which is part of the existing CCVEF and will be relocated to the new CCVEF location. The other generator is located in a business park west of the project area.

Railroads

There are no rail lines within 1,000 feet of the project area.

MSAT Monitoring

Ambient MSAT data are available from CARB's website[10], with the closest monitoring station reporting recent data being the Vallejo location at 304 Tuolumne Street, approximately 10.7 miles to the southwest of the Project.

[10] http://www.arb.ca.gov/adam/toxics/toxics.html

3.2.3 Greenhouse Gas and Climate Change

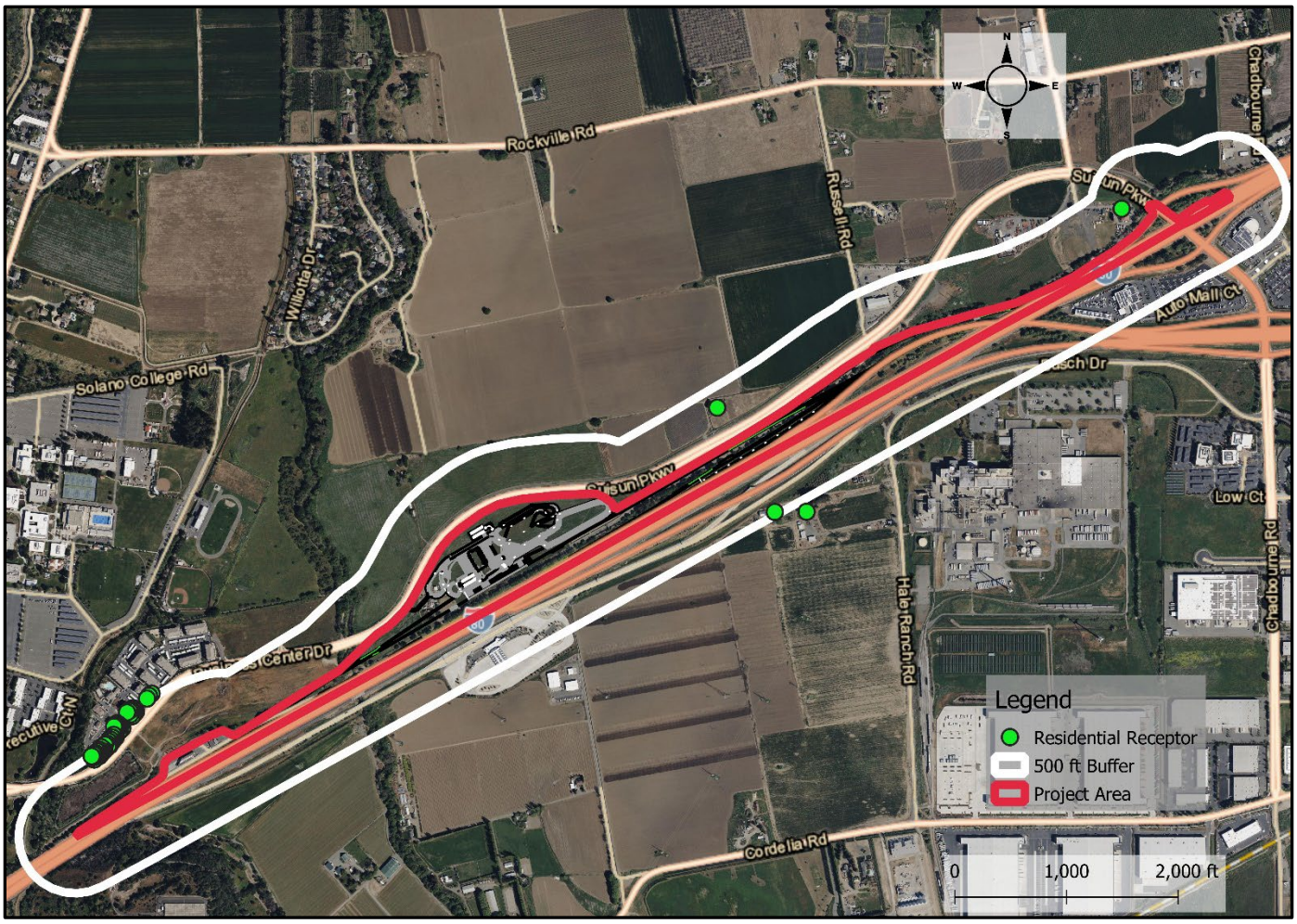
CO_2, as part of the carbon cycle, is an important compound for plant and animal life, but also accounted for 84% of California's total GHG emissions in 2015. Transportation, primarily on-road travel, is the single largest source of CO_2 emissions in the state. The proposed Project, located between the town of Cordelia and the City of Fairfield in Solano County, is included in the current RTP/SCS, *Plan Bay Area 2050*. *Plan Bay Area 2050* uses a base year of 2015 for the existing conditions, except for GHG emissions, where a 2005 baseline is once again used for the analysis of SB 375 greenhouse gas reduction targets. The plan also uses a 1990 baseline for analyzing consistency with SB 32, which calls for a statewide reduction of GHG emissions to 40 percent from 1990 levels by 2030.[11] *Plan Bay Area 2050* has established 2050 as the current RTP horizon year.

3.3 Sensitive Receptors

The Project is located within rural Solano County, nearest the City of Fairfield. The land uses adjacent to the Project primarily include open agricultural land with some single-family homes and business/industrial park developments.

The BAAQMD defines sensitive receptors to include residential dwellings (including single-family houses and multi-family residential buildings, townhouses, and apartments), schools, daycare centers, hospitals, and senior-care facilities. Based on research, the zone of greatest concern near roadways is within 500 feet (150 meters). Figure 7 shows the locations of sensitive receptors relative to where the majority of the project construction will occur along I-80. Minor construction (i.e., installation of signs and guardrails) would occur on SR 12 in a limited number of specific locations. Receptors located within 500 feet of the major construction areas were identified using Google Maps and GIS. Table 12 lists the type of sensitive receptors and the number identified.

[11] MTC and ABAG. 2021. Plan Bay Area 2050 Draft EIR. June.



Source: Illingworth & Rodkin, 2023

Figure 7. Sensitive Receptors Located Near the Project.

Table 12. Sensitive Receptors Located Within 500 Feet of the Project Area.

Sensitive Receptor Group	Number of Receptors Identified	Receptor Names	Address (if applicable)	Distance Between Receptor and Project (ft)
Residences	12+	Multifamily Verdant at Green Valley	3900 Business Center Dr.	520
	25+	Multifamily Vines on 80	3950 Business Center Dr.	484
	1	Single Family Home at the American Armory Museum	4144 Abernathy Rd.	272
	3	Possible Single-Family Homes	Not Available	325+

Source: Illingworth & Rodkin, 2023

3.4 Conformity Status

Transportation Conformity applies in areas that are "nonattainment" or "attainment-maintenance" for the NAAQS, and only for the standards that are or previously were violated. Conformity analysis and determinations are done at regional and project-level scales. From a practical viewpoint, the pollutant analyses addressed by project-level conformity focus on CO and PM hotspots, while regional conformity pollutant analyses can involve CO, PM, and O_3 precursors (ROG and NOx) emissions.

The San Francisco Bay Area Air Basin is designated as a nonattainment area for the O_3 and $PM_{2.5}$ NAAQS and considered attainment for the CO NAAQS. CO SIP conformity requirements ended in June 2018 (See Appendix E) and, based on current guidance from FHWA and Caltrans, a project-level CO hot-spot analysis is not required for the Project.

Since O_3 impacts are regional in nature, projects that are included in a conforming RTP and TIP regional emissions analysis do not require project-level analysis for conformity. The BAAQMD adopted the *2017 Clean Air Plan* to achieve compliance with the federal and state O_3 standards. The Project would not interfere with the control measures described in the *2017 Clean Air Plan*. Furthermore, the Project would provide transportation benefits that reduce pollutant emissions, including O_3 precursors, by improving traffic operations and efficiency.

Both regional and project-level conformity apply to this Project for PM. The type of project-level analysis needed depends on if the Project is found to be a Project of Air Quality Concern (POAQC) through interagency consultation with the MTC Air Quality Conformity Task Force.

3.4.1 Regional Conformity

Regional conformity requires planned and programmed transportation projects be included in a regional emissions analysis. However, certain types of projects are exempt from conformity requirements. These project types are found by the U.S. EPA to be neutral from an air quality or emissions standpoint and are listed in the Conformity Regulations at 40 CFR 93.126, 40 CFR 92.127, and 40 CFR 92.128. If a project is exempt, it may need little or no conformity analysis, and does not need to be individually listed and considered in the regional emissions analysis (i.e., regional conformity modeling).

This Project is exempt from regional conformity requirements per 40 CFR 93.127 as it is both an interchange reconfiguration project and a truck size and weight inspection station project. Therefore, the Project is not required to be part of the reginal emissions analysis and may not require a conforming RTP and TIP to proceed into construction. However, it must demonstrate that it will not interfere with the timely implementation of Transportation Control Measures (TCMs) identified in the applicable SIP (i.e., 2017 Clean Air Plan).

The Project is listed in the RTP, *Plan Bay Area 2050* (Project ID 21-T07-055), which is financially constrained and has been determined to conform to the SIP (i.e., 2017 Clean Air Plan) by FHWA and FTA. MTC's financially constrained 2023 TIP also includes the Project (Project ID SOL190025) and has

been found to conform to the SIP by FHWA and FTA as part of their approval of the Federal-Statewide TIP (FSTIP). The design concept and scope of the Project listed in the TIP and FSTIP are consistent with the project description in both the RTPs and the TIP. Conformity status information is summarized in Table 13. Copies of relevant pages from the *Plan Bay Area 2050* and the 2023 TIP are included in Appendix A.

Table 13. Status of Plans Related to Regional Conformity.

MPO	Plan/TIP	Date of adoption by MPO	Date of Approval by FHWA	Last Amendment	Date of Approval by FHWA of Last Amendment
MTC	Transportation Improvement Program (FSTIP approval)	November 16, 2022	December 16, 2022	September 27, 2023	October 13, 2023
MTC	Regional Transportation Plan (*Plan Bay Area 2050*)	October 21, 2021	December 3, 2021	NA	NA

Source: MTC, 2023. Web: https://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program

3.4.2 Project-Level Conformity

Project-level conformity requires sponsors demonstrate their transportation project will not cause or contribute to any new localized CO, PM_{10}, and/or $PM_{2.5}$ violations, increase the frequency or severity of any existing CO, PM_{10}, and/or $PM_{2.5}$ violations, or delay timely attainment of any NAAQS or any required interim emission reductions or other SIP milestones. This is demonstrated through a hotspot analysis where Build and No-Build emissions are modeled, both with and without any mitigation measures committed to in the current RTP (i.e., *Plan Bay Area 2050*).

The Project is in an attainment area for CO and a nonattainment area for $PM_{2.5}$.[12] Thus, a project-level conformity analysis applies to the Project for $PM_{2.5}$ under 40 CFR 93.109. Hot-spot analysis for $PM_{2.5}$ is only required for projects found to meet the definition of a POAQC by the MPO's Air Quality Conformity Task Force (AQCTF). The Project was found not to be a POAQC by MTC's AQCTF on January 12, 2024. Therefore, a $PM_{2.5}$ hot-spot analysis is not required.

40 CFR 93.123(c)(5) states that: "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site." Since construction of the Project is expected to last less than five years, an evaluation of CO, PM_{10}, and $PM_{2.5}$ emissions during Project construction is not required for project-level conformity determination.

[12] Guidance from FHWA and Caltrans states that a project-level CO hot-spot analysis is not required to demonstrate project-level conformity in the area.

3.4.3 Interagency Consultation

STA, as the Project sponsor, initiated consultation with MTC's AQCTF by submitting a Project Assessment Form for $PM_{2.5}$ Interagency Consultation. The AQCTF considers future traffic conditions with and without the Project and whether the Project meets the specific regulatory definition of a POAQC set forth in 40 CFR Part 93. On January 12, 2024, the AQCTF determined that the Project is not a POAQC. See Appendix B for documentation of the Task Force's determination.

3.5 NEPA Analysis/Requirement

Caltrans, as assigned by the FHWA, is the lead agency under NEPA. The air quality analysis to support NEPA findings addresses federal criteria pollutants (O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and Pb), MSATs, and asbestos. The Project is in an O_3 and $PM_{2.5}$ nonattainment area and a CO attainment area. It is listed in the MPO's (i.e., MTC's) 2023 TIP (ID SOL190025) and the RTP (ID 21-T07-055). For NEPA, future Build Alternative emissions are compared with future No-Build Alternative emissions.

3.6 CEQA Analysis/Requirement

STA is the lead agency under CEQA. For CEQA, the air quality analysis addresses pollutants for which California has established air quality standards (O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, Pb, visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride), as well as GHGs, MSATs, and asbestos. Analysis and/or documentation requirements for CEQA vary by pollutant; ranging from a narrative describing that the pollutant is typically not a transportation issue to an emissions analysis. For CEQA, future scenario emissions (Build and No-Build Alternatives) should be compared with baseline (existing conditions) emissions.

4. Environmental Consequences

This section describes the methods, impact criteria, and results of the air quality analyses of the proposed Project. Analyses in this report were conducted using methodologies and assumptions that are consistent with the requirements of NEPA, CEQA, the CAAA of 1990, and the CCAA of 1988. The analyses also use guidelines and procedures provided in applicable air quality analysis protocols, such as the *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Garza et al., 1997), *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Areas* (U.S. EPA, 2021), and the *FHWA Updated Interim Guidance on Air Toxics Analysis in NEPA Documents* (FHWA, 2023).

4.1 Impact Criteria

Project-related emissions will have an adverse environmental impact if they result in pollutant emissions levels that either create or worsen a violation of an ambient air quality standard (identified in Table 7) or contribute to an existing air quality violation.

The NAAQS were used to evaluate air quality impacts from a NEPA and CEQA perspective. The CT-EMFAC2021 on-road emissions model (Version 1.0.2.0) and the California Emissions Estimator Model (CalEEMod Version 2022.1.1.21) were used to estimate emissions from the operation and construction and of the Project, respectively.

4.2 Short-Term Effects (Construction Emissions)

Site preparation and construction would involve demolition, clearing, cut-and-fill activities, grading, removing and/or improving existing roadways and bridges, constructing new on- and off-ramps, construction new bridges, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by demolition, excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment and on-road vehicles powered by gasoline and diesel engines are also anticipated and would include CO, NO_X, ROG, directly emitted PM_{10} and $PM_{2.5}$, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction activities in the area may temporarily increase traffic congestion and slow the speed of traffic, resulting in a temporary increase in on-road emissions. These emissions would be limited to the immediate area impacted by construction-related traffic.

4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust

Per federal transportation conformity regulations (40 CFR 93.123(c)(5)), construction-related activities that cause temporary increases in emissions do not require a hot-spot analysis. Construction emissions are defined as those that occur only during the construction phase of the project and last five years or less at any individual site. They typically fall into two main categories:

- *Fugitive Dust*: Emissions from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit "visible emissions" exceeding three minutes in one hour – this applies not only to dust but also to engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line.

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

Construction emissions for the project were estimated using the latest version of CalEEMod which uses emission factors from EMFAC2021. Detailed construction plans were not available at the time of this analysis. Therefore, equipment quantities and construction phases provided by CalEEMod were used along with project durations and material quantities provided by the Project's design engineering team. Appendix C lists all the construction inputs provided and entered into CalEEMod.

Construction was divided into three concurrent construction stages (CCVEF building/facility, roadways, and bridges/structures). Construction of the CCVEF was analyzed using the seven standard phases CalEEMod assigns to land development projects (Demolition, Site Preparation, Grading, Trenching, Building Construction, Architectural Coating, and Paving). The roadway and bridge stages were analyzed using the four standard phases associated with linear construction projects (Mobilization, Grubbing/Land Clearing, Grading/Excavation, Drainage/Utilities/Sub-Grade, and Paving).

Estimates for the CCVEF construction duration were estimated by CalEEMod using information provided by WMH.[13] Table 5 summarizes the overall durations that are anticipated for each stage. Construction-related emissions for the Project are presented in Table 14. Emissions are shown per project phase in pounds per day (lbs/day) and in total tons for the entire construction period. The CO_2 equivalent (CO_2e) emissions are represented in metric tons (MT) to express the impact of various GHGs

[13] Via email from Sean Charles on 12-15-2023.

in one singular number. CO_2e was calculated by converting tons/phase to metric tons (MT) and multiplying the emissions (MT/phase) of CO_2, CH_4, N_2O, and Hydrofluorocarbons (HFCs) by their respective greenhouse warming potentials (GWPs) and summing the emissions.[14] The GWP for CO_2 is one (1) as it is the reference gas, while the GWP for CH_4 is 25, the GWP for N_2O is 298, and the GWP for HFCs is 1,430[15] per CARB, which uses the International Panel on Climate Change (IPCC) fourth assessment report. Average daily emissions are also presented in Table 14 and are based on 792 workdays. The construction emission computations are included in Appendix C and are based on the best information available at the time of calculations.

As described further in Section 5.1, implementation of the following measures, some of which may also be required for other purposes such as stormwater pollution control, will reduce air quality impacts resulting from construction activities. Please note that although these measures are anticipated to reduce construction-related emissions, reductions cannot be quantified at this time.

- The construction contractor must comply with the Caltrans' Standard Specifications in Sections 13 – Water Pollution Control and 14-9 – Air Quality (2022).
    - Section 13 requires a Stormwater Pollution Prevention Plan (SWPPP) and use of best management practices (BMPs) that manage fugitive dust and material track-out from construction sites. Many of the SWPPP requirements and BMPs are the same as BAAQMD's basic controls for construction sites (see below).
    - Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. The BAAQMD's basic controls for construction sites include:
        - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
        - All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
        - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
        - All vehicle speeds on unpaved roads shall be limited to 15 mph.

[14] Per the EPA, GWP is a measure of how much energy the emission of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (https://www.epa.gov/ghgemissions/understanding-global-warming-potentials#Learn%20why).
[15] HFCs assumed to be 134a.

Table 14. Uncontrolled Construction Emissions for I-80 WB CCVEF Project.

Stage	Phase/Activity	ROG* (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO_2e (MT/phase)
CCVEF	Demolition	0.1	1.1	1.3	0.1	0.1	41
	Site Preparation	0.1	1.2	1.8	0.5	0.2	157
	Grading	0.3	2.7	3.4	0.6	0.3	224
	Trenching	0.3	2.4	2.4	0.1	0.1	92
	Building Construction	0.6	7.2	5.7	0.3	0.2	126
	Architectural Coating	1.5	0.1	<0.1	<0.1	<0.1	1
	Paving	0.2	0.6	0.4	<0.1	<0.1	19
Roadway	Mobilization, Grubbing/Land Clearing	0.1	0.9	0.7	0.1	0.1	22
	Grading/Excavation	2.8	26.6	23.0	2.4	1.1	990
	Drainage/Utilities/Sub-Grade	2.0	19.5	16.8	1.6	1.4	754
	Paving	0.3	3.9	2.6	0.2	0.1	135
Structures	Mobilization, Grubbing/Land Clearing	<0.1	0.3	0.3	<0.1	<0.1	8
	Grading/Excavation	1.9	17.4	16.0	1.6	1.4	673
	Drainage/Utilities/Sub-Grade	1.1	10.0	10.0	1.0	0.4	432
	Paving	0.1	1.0	0.7	<0.1	<0.1	27
Average Workday Emissions (lbs/day) *Based on 792 Workdays		**5.3 lbs/day**	**43.4 lbs/day**	**38.9 lbs/day**	**4.0 lbs/day**	**2.0 lbs/day**	**1,234 MT/Year**
	CCVEF Construction (tons or MT)	**0.6 tons**	**2.8 tons**	**2.8 tons**	**0.3 tons**	**0.2 tons**	**661 MT**
	Roadway Construction (tons or MT)	**0.9 tons**	**9.1 tons**	**7.7 tons**	**0.8 tons**	**0.4 tons**	**1,901 MT**
	Structures Construction (tons or MT)	**0.6 tons**	**5.3 tons**	**4.9 tons**	**0.5 tons**	**0.2 tons**	**1,141 MT**
	Total Construction (tons or MT)	**2.1 tons**	**17.2 tons**	**15.4 tons**	**1.6 tons**	**0.8 tons**	**3,703 MT**

*ROG is reactive organic gases, which is a subset of total organic gases (TOG). Source: Illingworth & Rodkin using Illingworth & Rodkin using CalEEMod Version 2022.1.1.21.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The EPA and CARB have adopted rules and emission standards that would reduce diesel PM emissions from on-road and off-road engines for construction equipment. However, these regulations continue to be phased in through 2023.

Plan Bay Area 2050 has exhaust and dust control measures for construction-related emissions. The mitigation measures identified in the *Final Environmental Impact Report* (EIR) for *Plan Bay Area 2050* lists specific construction-related measures that would reduce emissions from exhaust and dust. Section 5.1 identifies these measures.

4.2.2 Asbestos

As detailed in Section 2.1.4, asbestos is a known human carcinogen that can be found in manufactured items (e.g., structural asbestos found in ceilings) or found naturally (e.g., naturally occurring asbestos [NOA]). Structural asbestos is regulated by federal and state air district regulations, while NOA is regulated by CARB and worker-safety programs.

NOA in California may occur in serpentinite and ultramafic rocks. NOA is commonly found in the foothill region of the Sierra Nevada, the Coast Ranges, and northwestern California. In an NOA area, construction could disturb the NOA, and it may become airborne. Therefore, a review of the Project footprint and of asbestos areas in California was completed to determine if NOA would be present in

the area. Based on the information on NOA provided by CARB[16], there are no NOA areas located within the project limits and further analysis is not needed.

Buildings and bridges may have materials that contain asbestos. When they are demolished, there is a potential for asbestos emissions. The Project would require the demolition of the existing CCVEF buildings and may require the demolition of bridges in the area. Prior to demolition activities, the presence or absence of asbestos in the structure would be confirmed. Demolition activities would be subject to BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). BAAQMD Regulation 11, Rule 2 is intended to limit asbestos emissions and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the national emissions standards for asbestos along with some additional requirements. The BAAQMD requires the Lead Agency and its contractors to notify BAAQMD of any regulated renovation or demolition activity. This notification includes a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. All asbestos-containing material found in the Project limits must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, which includes specific requirements for surveying, notification, removal, and disposal of material containing asbestos. The Project would comply with Regulation 11, Rule 2, ensuring that asbestos-containing materials are disposed of appropriately and safely (BAAQMD 2022).

4.2.3 Lead (Pb)

Aerially Deposited Lead

Prior to the mid-1980s, lead was commonly added to gasoline. As a result, lead was emitted as a component of motor vehicle exhaust. Soil sampling along many roadways has found that concentrations of lead exceed applicable thresholds for classification as a hazardous material. This phenomenon known as "aerially deposited lead" (ADL) is widespread. Because the freeways in the Project area were built prior to the phaseout of lead as a gasoline additive, elevated concentrations of lead are likely to be present in the soil along the freeways.

Prior to Project construction, a soil investigation would be conducted to determine whether ADL has affected soils that would be excavated as part of the Project. The investigation for ADL would be performed in accordance with Caltrans' Lead Testing Guidance Procedure. The analytical results would be compared against applicable hazardous waste criteria. Based on analytical results, the investigation would provide recommendations regarding management and disposal of affected soils in the Project area including the reuse potential of ADL-affected soil during Project construction. The provisions of a variance granted to Caltrans by the California Department of Toxic Substances Control on September 22, 2000 (or any subsequent variance in effect when the Project is constructed) regarding aerially deposited lead would be followed.

[16] See https://ww2.arb.ca.gov/resources/documents/naturally-occurring-asbestos-publications-maps, accessed October 2, 2020.

Lead-Based Paint

Due to the age of the structures and buildings located within the Project limits, there is a potential for the presence of lead-based paint. Testing for the presence of lead-based paint on the existing structures affected by Project construction would occur prior to demolition activities. If this substance is found to be present, applicable regulations pertaining to its removal and disposal will be followed.

4.3 Long-Term Effects (Operational Emissions)

The operational emissions analysis compares emissions for existing/baseline conditions to the forecasted conditions for the No-Build and Build alternatives given the Project's opening year (2030) and design year/RTP horizon year (2050). Air pollutant emissions associated with the roadways in the Project area were estimated using specific VMT data provided by the Project's traffic consultant, Fehr & Peers, and the Caltrans Emission Factors (CT-EMFAC2021) program.

Fehr & Peers provided VMT for the study area given existing/baseline conditions (2023), future No-Build Alternative conditions, and future Build Alternative conditions. The VMT data broken down by 5 mph speed bins for the Project's existing/baseline conditions, future No-Build Alternative conditions, and future Build Alternative conditions were provided on November 20, 2023. The area used to evaluate changes in VMT includes the City of Fairfield. Figure 8 shows the VMT study area used for the analysis.

Daily VMT forecasts from the City's travel demand forecasting model were placed into one of 14 speed bins by the model using increments of 5 mph. The emissions were obtained using Caltrans' CT-EMFAC2021 emissions model, which is based on CARB's EMFAC2021 emissions model. EMFAC2021 became available for use in January 2021 and was approved by the EPA in November 2022. It includes the latest data on California's car and truck fleets and travel activity. CT-EMFAC2021 was run in both emissions rate mode and inventory mode for each of the analysis years (2019, 2030, and 2050) with the mix of vehicles in Solano County. Fehr & Peers provided the average truck percentages for each year analyzed, which was estimated by Fehr & Peers to be between 5.0 and 5.2 percent given existing and future year conditions.[17]

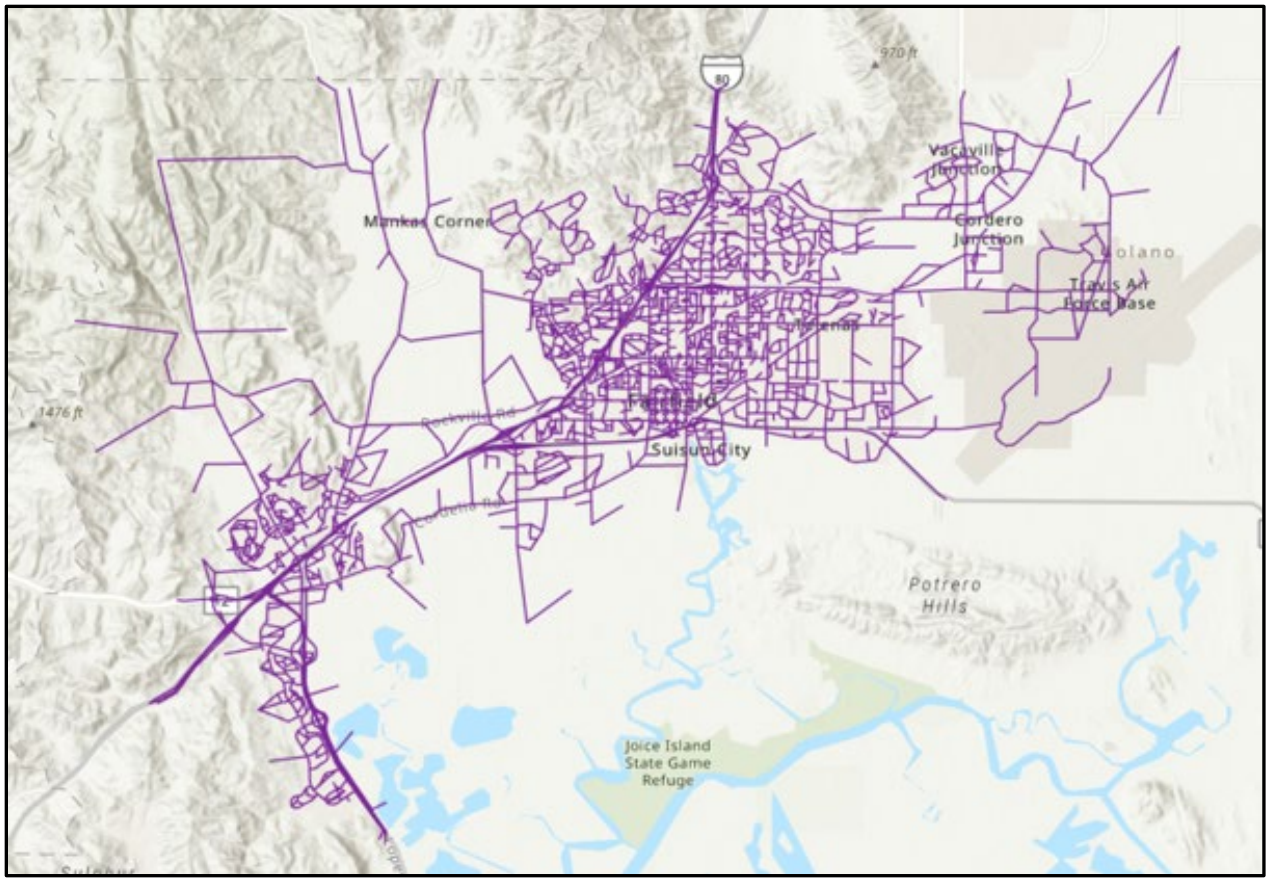
CT-EMFAC2021 produced daily emissions for each year and scenario (i.e., existing, Build, and No-Build), based on the daily VMT data provided. Table 15 provides the operational emissions for the No-Build and Build scenarios for the analysis years of 2019, 2030, and 2050. Appendix D provides the CT-EMFAC2021 output and VMT estimates used to calculate emissions for each year and scenario.

[17] Per email from Zoey Zhang, Fehr & Peers dated 12-19-2023.

Table 15. Summary of Comparative Emissions Analysis for the I-80 WB CCVEF Project.

Scenario/ Analysis Year	CO (pounds/day)	$PM_{2.5}$ (pounds/day)	PM_{10} (pounds/day)	ROG (pounds/day)	NO_x (surrogate for NO_2) (pounds/day)
Baseline (Existing Conditions) 2019	11,944.2	266.1	1,329.5	722.0	2,935.4
No-Build Alternative 2030	6,777.8	270.4	1,478.0	477.2	1,030.6
Build Alternative 2030	6,778.5	270.5	1,478.1	477.3	1,030.7
No-Build Alternative 2050	6,058.1	322.7	1,816.3	375.5	711.1
Build Alternative 2050	6,058.6	322.7	1,816.4	375.6	711.2

Source: Illingworth & Rodkin using CT-EMFAC2021 Version 1.0.2.0, 2023



Source: Fehr & Peers, 2023

Figure 8. Study Area for Project VMT Analysis.

Overall, ROG, NO_X, and CO emissions in the future will decrease as older vehicles are replaced by newer vehicles with more stringent emissions and fuel economy standards. $PM_{2.5}$ and PM_{10} emissions will increase in the future as a result of more fugitive road dust, tire wear, and brake wear emissions with are a function of increased VMT. Based on the operational period emission data in Table 15, when the No-Build Alternative and the Build Alternative are compared, there would be a slight emissions increase (i.e., approximately 0.01 percent increase) in all criteria pollutants. This is due to the project increasing VMT by approximately 0.01 percent and improving (i.e., increasing) travel speeds during the AM peak period.

4.3.1 CO Analysis

CO emissions were estimated for baseline, No-Build, and the Build Alternatives for the opening year (2030) and the RTP horizon year/design year (2050). The changes in the Build Alternative CO emissions between the opening year/RTP horizon year/design year scenarios are shown in Table 15. CO levels in the future will be on average 46 percent lower than the baseline conditions. When compared to the No-Build Alternative, CO emissions for the Build Alternative will be slightly higher (i.e., approximately a 0.01 percent increase) in both 2030 and 2050.

The CO Protocol was developed for project-level conformity (hot-spot) analysis and was approved for use by the U.S. EPA in 1997. It provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of the CO standards. Although the protocol was designed to address federal standards, it has been recommended for use by several air pollution control districts in their CEQA analysis guidance documents and is considered valid for California standards because the key criterion (8-hour concentration) is similar: 9 ppm for the federal standard and 9.0 ppm for the state standard.

The transportation conformity requirements for CO ceased to apply on June 1, 2018 (see Appendix E). The Project is not anticipated to increase the percentage of vehicles operating in cold start mode; increase traffic volume; or worsen traffic flow. Additionally, the Project is in an area designated "Attainment" for CO under both the NAAQS and CAAQS. Therefore, based on the CO Protocol Carbon Monoxide Screening Analysis, no further analysis is necessary to demonstrate that the Project would not cause or contribute to a violation of an ambient air quality standards for CO. Measured CO concentrations near the Project footprint are well below the NAAQS and state standards (See Table 11).

4.3.2 PM Analysis

Emissions Analysis

PM_{10} and $PM_{2.5}$ emissions were estimated for baseline, No-Build Alternative, and the Build Alternative conditions given the opening year (2030) and the RTP horizon year/design year (2050). The changes in the Build Alternative PM emissions are shown in Table 15. When compared to the baseline/existing

condition, both PM_{10} and $PM_{2.5}$ emissions would increase on average by 24 and 11 percent, respectively, due to future increases in VMT. Emissions of PM_{10} in 2030 would increase by 11 percent and $PM_{2.5}$ emissions would increase by 1.6 percent. By 2050, PM_{10} emissions increase by almost 37 percent and $PM_{2.5}$ emissions increase by 21 percent. PM_{10} and $PM_{2.5}$ emissions are heavily influenced by VMT as much of these pollutants are emitted as fugitive road dust emissions, tire wear, and brake wear. Comparing the Build Alternative to the No Build, PM emissions increase by approximately 0.01 percent in both 2030 and 2050. This is due to the VMT increasing by approximately 0.01 percent for the Build alternative.

It was determined on January 12, 2024 through interagency consultation that the Project is not a POAQC as described in 40 CFR 93.123(b)(1)(i), and therefore, is not subject to $PM_{2.5}$ project level conformity requirements or emissions analysis. See Appendix B for Interagency Consultation Documentation.

Hot-Spot Analysis

In December 2010, the U.S. EPA released its original PM hot-spot analysis guidance document, the *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (Guidance) for estimating the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The U.S. EPA has updated the guidance several times since to reflect new emission model approvals and the U.S. EPA's 2012 PM NAAQS final rule.[18] The current version (October 2021) reflects the U.S. EPA's most current emissions model (MOVES3), updates and/or removes references to outdated versions of EMFAC, requires the use of the U.S. EPA AERMOD dispersion model for us in hot-spot analyses, and updates web pages and references.

A hot-spot analysis is required to be completed for a project of air quality concern (POAQC). The final rule in 40 CFR 93.123(b)(1) defines a POAQC as:

> (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
>
> (ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
>
> (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
>
> (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

[18] The November 2013 revision reflected the approval of EMFAC 2011 and U.S. EPA's 2012 PM NAAQS final rule. The November 2015 version reflected MOVES2014, revised design value calculations to be more consistent with other U.S. EPA programs and reflected guidance implementation and experience in the field. The current guidance is dated October 2021.

(v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

This Project is not a POAQC as determined by the MTC Task Force on January 12, 2024, and therefore it is not required to include a hot-spot analysis.

4.3.3 NO_2 Analysis

The U.S. EPA modified the NO_2 NAAQS to include a 1-hr standard of 100 parts per billion (ppb). Currently there is no federal project-level NO_2 analysis requirement. However, NO_2 is a pollutant of concern near roadways. The Project is in an area unclassified by U.S. EPA for NO_2 attainment. Current and historical monitoring data for the region do not indicate any violations of the NAAQS or exceedances of the CAAQS for NO_2. Therefore, a project-level analysis is not necessary.

NO_2 concentrations affected by the Project will likely be dominated by overall NO_x emissions. Table 15 provides NO_X emission estimates for baseline (2019), No-Build, and the Build Alternative for the opening year (2030) and the RTP horizon year/design year (2050). If ozone is present at relatively low (background) concentrations, most of the directly emitted NO_x will convert to NO_2 within a few seconds. Therefore, NO_X emissions overall can serve as a useful analysis surrogate for NO_2 (Caltrans, 2012). NO_x levels in the future will be on average 70 percent lower than the baseline conditions. When compared to the No-Build Alternative, the Build Alternative would be approximately 0.01 percent higher in both 2030 and 2050.

4.3.4 Mobile Source Air Toxics Analysis

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

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

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

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity, or do not create a facility that is likely to substantially increase emissions. Most projects fall into this category.

Projects with high potential MSAT effects include those that:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel PM in a single location; or

- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Are proposed to be in proximity to populated areas or, in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

This assessment considers the expected effect of the Project on traffic volumes, vehicle mix, routing of traffic, and the associated changes in MSAT for the Project alternatives (i.e., No-Build and Build Alternatives) based on VMT, vehicle mix, and speed. Since the emission effects of this type of project typically are low, no appreciable difference in overall MSAT emissions between the alternatives is expected.

The Project would not change the traffic mix nor create or significantly alter major roadways in the area. For the Project, the amount of MSAT emitted is expected to be proportional to VMT, assuming other variables such as fleet mix remain the same.

Table 16 shows the MSAT emissions estimated for the baseline, No-Build Alternative, and Build Alternatives for all analysis years. MSAT emissions for both the No-Build and Build Alternatives would be on average 58 to 74 percent lower than the baseline emissions, due in large part to vehicle fleet turnover. CT-EMFAC2021 was used to estimate the emissions of nine MSAT pollutants: acetaldehyde, benzene, ethylbenzene, 1,3-butadiene, formaldehyde, acrolein, naphthalene, diesel PM, and polycyclic organic matter (POM). Figure 8 illustrates the two-county area considered in the MSAT analysis. Traffic activity data were estimated for each of the different periods in a representative day given the baseline year (2019), opening year (2030) and RTP horizon year/design year (2050). Appendix D includes traffic activity data.

Table 16. Summary of Comparative MSAT Emissions Analysis.

Scenario/ Analysis Year		1,3-butadiene (lbs/day)	Acetaldehyde (lbs/day)	Acrolein (lbs/day)	Benzene (lbs/day)	Diesel PM (lbs/day)	Ethylbenzene (lbs/day)	Formaldehyde (lbs/day)	Naphthalene (lbs/day)	POM (lbs/day)
Baseline (Existing Conditions) 2019		1.47	5.90	0.13	21.55	31.87	8.32	13.74	1.41	0.37
2030	No-Build Alternative	0.61	2.59	0.06	11.41	8.47	5.18	5.98	0.56	0.16
	Build Alternative	0.61	2.59	0.06	11.41	8.47	5.18	5.98	0.56	0.16
2050	No-Build Alternative	0.39	1.34	0.04	8.25	5.71	4.00	3.20	0.34	0.08
	Build Alternative	0.39	1.34	0.04	8.25	5.71	4.00	3.20	0.34	0.08

Source: Illingworth & Rodkin using CT-EMFAC2021 Version 1.0.2.0, 2023

Table 17 compares the average daily VMT estimates used for the MSAT analysis provided by Fehr & Peers for the study area. VMT estimates for the Build Alternative are approximately 0.01 percent

higher than those of the No-Build Alternative, which results in the same or slightly higher (i.e., 0.01 percent or less) emissions of MSAT pollutants.

Table 17. Summary of Average Daily VMT used in MSAT Qualitative Emissions Analysis

Scenario	Baseline 2019	Opening Year 2030	RTP Horizon/Design Year 2050
No-Build Alternative	4,435,292	5,029,805	6,110,739
Build Alternative		5,030,355	6,111,289
Difference (Build vs. No-Build)	--	+ 550	+ 550

Source: Fehr & Peers, 2023

Emissions in the future are projected to be lower for both the No Build Alternative and the Build Alternative when compared to baseline levels (2019) as a result of U.S. EPA's national control programs. Nationally, these programs are projected to reduce annual MSAT emissions by over 76 percent between 2020 and 2060. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the U.S. EPA-projected reductions is so great (even after accounting for VMT associated with planned growth) that MSAT emissions in the study area are likely to be lower in the future for both the No-Build and Build alternatives.

Additionally, it should be noted that current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts from transportation projects in a way that would be useful to decision-makers. A discussion of incomplete or unavailable information is provided in 40 CFR 1502.22 and provided below:

> *Sec. 1502.22 Incomplete or Unavailable Information*
>
> *When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.*
>
> *(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.*
>
> *(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:*
>
> *1. a statement that such information is incomplete or unavailable;*
>
> *2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;*

3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and

4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

(c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

Incomplete or Unavailable Information for Project Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project - specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such C-2 an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non- cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human

health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16),[19] or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of C-3 occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxicscritical-review-literature-exposure-and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (https://www.epa.gov/iris)."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the

[19] https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-reviewliterature-exposure-and-health-effects

District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf.)

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

4.3.5 Greenhouse Gas Emissions Analysis

GHG emissions associated with the proposed Build Alternative would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. However, long-term operational emissions associated with vehicular traffic in the City of Fairfield would continue.

GHG emissions impacts for the Build Alternatives were computed using CT-EMFAC2021 for the existing year and future years for the No-Build and Build Alternatives. Carbon dioxide equivalent (CO_2e) emissions for the No-Build Alternative and Build Alternatives and each analysis year were calculated using CT-EMFAC2021 which uses the total emissions (grams/day) of CO_2, CH_4, N_2O, black carbon (BC) and HFCs and multiplies them by their greenhouse warming potentials (GWPs) per CARB's methodology, which uses the International Panel on Climate Change's (IPCC's) fourth assessment report. CO_2e emissions are then summed and converted into annual metric tons of CO_2e.[20] Table 18 lists the GHG emissions for the existing year (2019) and design year (2050). For CEQA purposes, the difference in GHG emissions between the baseline year and the design year must be compared. Opening year (2030) and RTP horizon years (2050) GHG emissions are included for additional comparisons.

GHG emissions for the baseline year were computed to be 643,062 metric tons (MT) of CO_2e for the analysis area. The annual GHG emissions for the 2050 design year No-Build Alternative was 566,383 MT CO_2e. Annual GHG emissions from the Build Alternative were calculated as 566,434 MT CO_2e. The difference between the baseline emissions and the Build Alternative emissions in 2050 is an annual decrease of 76,628 MT of CO_2e. As shown in Table 18, with or without the Project, the mobile-source GHG emissions in the area would decrease by 11 percent in 2030 due to the improvements in vehicle technology and reformulation of fuels and decrease by almost 12 percent in 2050. Modeling shows that the Build Alternative would increase CO_2e emissions by approximately 0.01 percent or less, making it comparable to the No Build scenario.

[20] Per the EPA, GWP is a measure of how much energy the emission of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (https://www.epa.gov/ghgemissions/understanding-global-warming-potentials#Learn%20why).

Table 18. Modeled Annual CO_2e Emissions and Vehicle Miles Traveled, by Alternative.

Measure	Existing 2019	No-Build 2030	Build 2030	No-Build 2050	Build 2050
GHG Emissions (MT/year)	643,062	569,447	569,510	566,383	566,434
Difference Between No-Build and Build (MT/year)	NA		+62 MT/year	NA	+51 MT/year
Change Between Existing and Alternative (MT/year)	NA	- 73,615 MT/year	- 72,553 MT/year	- 76,679 MT/year	- 76,628 MT/year
Daily Vehicle Miles Traveled	4,435,292	5,029,805	5,030,355	6,110,739	6,111,289
Annual Vehicle Miles Traveled[1]	1,539,046,226	1,745,342,393	1,745,533,243	2,120,426,333	2,120,617,183

[1] Annual VMT values derived from Daily VMT values multiplied by 347, per CARB methodology (CARB 2008). *Source:* Illingworth & Rodkin using CT-EMFAC2021 version 1.0.2.0, 2021. CO_2e = carbon dioxide equivalent.

4.4 Cumulative/Regional/Indirect Effects

Effects that are not immediately related to the Project, but are caused indirectly by the Project, are referred to as indirect effects. Cumulative impacts are those effects that result from the incremental impact of the Project when added to other past, present, and reasonably near future actions or projects. Cumulative impacts are inclusive of the indirect effects.

An analysis of emissions from the Build Alternative was conducted using CT-EMFAC2021 (Version 1.0.2.0) and the applicable traffic projections and speeds from the City of Fairfield travel demand forecasting model to compute an emission "burden." The analysis, presented in Section 4.3, includes the cumulative and indirect travel demand impacts of the Project, and shows that the Build Alternative would have effectively the same (i.e., within 0.01 percent) emissions as the No-Build Alternative and lower CO, ROG, NO_X, MSAT, and GHG emissions than the baseline scenario.

The CO qualitative assessment and MSAT quantitative assessment can be considered indirect effect analyses because they look at air quality impacts (attributable to the Project) that would occur at a time in the future. Those assessments indicate that the potential for indirect effects associated with the Project would not be considerable. They demonstrate that in the future: (1) air quality impacts from CO will not cause or contribute to violations of the CO NAAQS; and (2) MSAT emissions from the Build Alternative would be effectively the same as to the No-Build Alternative and lower than the baseline conditions.

O_3 and secondary PM are regional pollutants and should be considered cumulative in nature because they are formed by photochemical and chemical reactions over time in the atmosphere, unlike primary sources of PM that emit pollutants directly into the airshed. The Final EIR for *Plan Bay Area 2050* and the *Bay Area 2017 Clean Air Plan* address the regional and cumulative impacts from growth and transportation in the airshed, which include impacts from regional pollutants from existing transportation infrastructure. The Project is included in a conforming RTP (*Plan Bay Area 2050*) TIP (2019 TIP) and is included in the most recent regional emissions analyses which estimate the regional air quality impacts of all the significant and non-exempt projects listed in both the current RTP and TIP. Additionally, the City of Fairfield's travel demand forecasting model was used to estimate the cumulative and indirect impacts to VMT given the No-Build and Build Alternatives of the Project.

5. Minimization Measures

Feasible short-term and long-term measures that, when incorporated into the Project, can eliminate, or substantially reduce Project emissions are listed below. The Project proponent would be responsible for implementing these measures.

5.1 Short-Term (Construction)

The following are best management practices from Mitigation Measure AQ-2 in the *Final Environmental Impact Report Plan Bay Area 2050*. These measures control dust and exhaust during any construction period that involves ground disturbance.

Construction Best Practices for Exhaust

- The applicant/general contractor for the project shall submit a list of all off-road equipment greater than 25 horsepower (hp) that would be operated for more than 20 hours over the entire duration of project construction, including equipment from subcontractors to the relevant air district (e.g., BAAQMD) for review and certification. The list shall include all information necessary to ensure the equipment meets the following requirement:
    - Equipment shall be zero emissions or have engines that meet or exceed either EPA or CARB Tier 4 off-road emission standards, or it shall have engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy (VDECS), if one is available for the equipment being used. Equipment with engines that meet Tier 4 Interim or Tier 4 Final emission standards automatically meet this requirement; therefore, a VDECS would not be required.
    - Idling time of diesel-powered construction equipment and trucks shall be limited to no more than two minutes. Clear signage of this idling restriction shall be provided for construction workers at all access points.
    - All construction equipment shall be maintained and properly tuned in accordance with the manufacturers' specifications.
- Portable diesel generators shall be prohibited. Grid power electricity should be used to provide power at construction sites; or propane and natural gas generators may be used when grid power electricity is not feasible.

Construction Best Practices for Dust

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- On-site dirt piles or other stockpiled PM shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. The use of approved nontoxic soil stabilizers shall be incorporated according to manufacturers' specifications to all inactive construction areas.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping should only be performed in conjunction with thorough watering of the subject roads.
- All vehicle speeds on unpaved roads and surfaces shall be limited to 15 mph.
- All roadway, driveway, and sidewalk paving shall be completed as soon as possible. Building pads shall be paved as soon as possible after grading.
- All construction sites shall provide a posted sign visible to the public with the telephone number and person to contact at the lead agency regarding dust complaints. The recommended response time for corrective action shall be within 48 hours. BAAQMD's Complaint Line (1-800-334-6367) shall also be included on posted signs to ensure compliance with applicable regulations.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- All transfer processes involving a free fall of soil or other PM shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
- All trucks and equipment, including their tires, shall be washed off before leaving the site.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 6-to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Open burning shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (e.g., trash, demolition debris) may be conducted at the project site. Vegetative wastes shall be chipped or delivered to waste-to-energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.
- The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and for the duration of on-site operation.

- Where accessible, existing power sources (e.g., power poles) or clean-fuel generators shall be used rather than temporary power generators.
- A traffic plan shall be developed to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Operations that affect traffic shall be scheduled for off-peak hours. Obstruction of through-traffic lanes shall be minimized. A flag person shall be provided to guide traffic properly and ensure safety at construction sites.
- Applicable mitigation measures shall be required at the time grading permits are issued.

Caltrans Standard Specification 14-9.02 – Air Quality, also includes emissions control measures which will be part of the proposed project.

5.2 Long-Term (Operational)

The No Build and Build Alternatives would have lower ROG, CO, NO_X, MSAT, and GHG emissions when compared to existing/baseline conditions and higher PM_{10} and $PM_{2.5}$ emissions as PM emissions correlate more directly with VMT than with fuel use. When compared to the No-Build Alternative, the Build Alternative would have about the same (i.e., less than 0.01 percent change) ROG, NO_X, CO, PM_{10}, $PM_{2.5}$, MSAT, and GHG emissions due to the No Build and Build alternatives having approximately the same VMT and speed profiles given the analysis area (City of Fairfield). Given the finding that there would be minor air quality impacts associated with the Project, there are no avoidance or minimization measures required or recommended to specifically reduce operational air quality impacts or GHG emissions from the operation of the Project.

6. Conclusions

The STA, in cooperation with Caltrans, proposes to relocate and enhance the I-80 WB truck scales between the towns of Cordelia and Fairfield, also known as the CCVEF. The Project is on I-80 near the town of Cordelia in southern Solano County and is located within the "Western Segment" of the larger Interstate 80/Interstate 680/State Route 12 Interchange Project. The WB CCVEF would be relocated east of the existing CCVEF and east of Suisun Creek, upgraded, and expanded. The overall function and location of the site remain the same. However, the new layout creates a more efficient facility. The Project also includes new off- and on-ramps that will provide simplified direct access to and from the new CCVEF to eliminate queuing onto I-80 which occurs now on a regular basis between trucks re-entering I-80 and cars exiting towards southbound I-680, widening the westbound SR 12E connection to I-80 to three lanes. The new ramp from I-80 to the CCVEF would be constructed to pass under the connector from SR 12E to westbound I-80. Additionally, a new single-span bridge would be constructed over Suisun Creek to accommodate traffic from the westbound CCVEF. This Air Quality Report evaluated the air quality and GHG impacts of the No-Build and Build alternatives. The Build Alternative is listed as a Project in the conforming 2023 TIP and the conforming MTC RTP.

The short-term air quality impacts from construction were based on the CalEEMod model that estimated emissions from the land development, roadway, and bridge/structural construction work. Minimization measures were suggested that would reduce construction-related emissions (Section 5.1).

The long-term air quality impacts from the operation of the Project were based on estimates provided by CT-EMFAC2021 (version 1.0.2.0) with the Project traffic data provided. The operational emissions were estimated for the baseline conditions in 2019, the No-Build Alternative, and the Build Alternative in the years 2030 and 2050. When compared to baseline conditions, both the No Build and Build Alternative would have lower ROG, CO, NO_X, MSAT, GHG emissions and higher PM_{10} and $PM_{2.5}$ emissions as PM emissions correlate more directly with VMT than with fuel use. When compared to the No-Build Alternative, the Build Alternative would have about the same (i.e., 0.01 percent higher) ROG, NO_X, CO, PM_{10}, $PM_{2.5}$, MSAT, and GHG emissions due to the Build alternative having slightly higher VMT. Therefore, no long-term mitigation strategies are being proposed.

7. References

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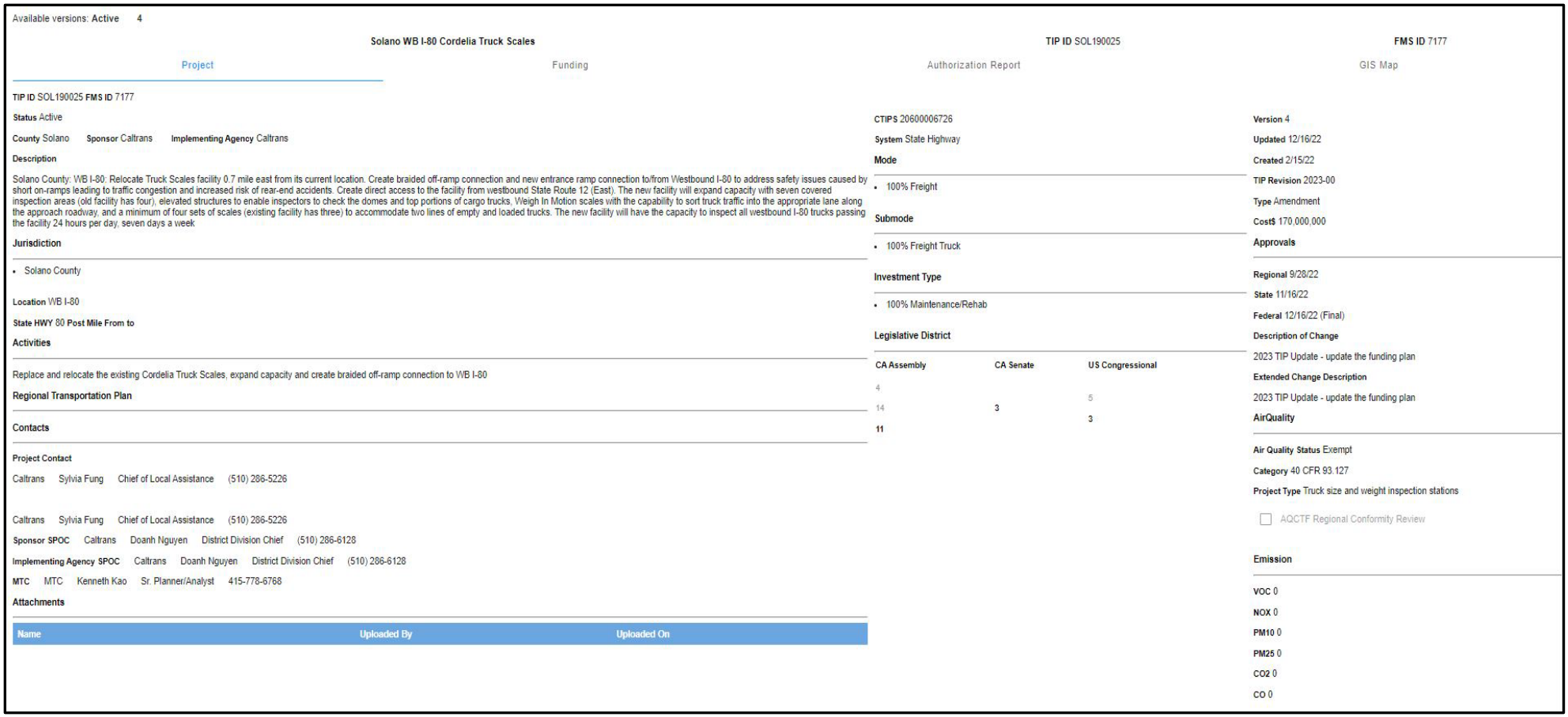
8. Appendices

Appendix A – RTP, TIP, and FMS Listing for the Build Alternative

The Build Alternative is listed in the RTP *Plan Bay Area 2050* (Project ID 21-T07-055) which was found to conform to the SIP (i.e., 2017 Clean Air Plan) by FHWA and FTA on December 3, 2021

The Build Alternative is also included in the MTC's financially constrained 2023 TIP (TIP ID SOL190025). The TIP gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. The Build Alternative's design concept, scope, and open-to-traffic date assumptions are consistent with the regional emissions analysis performed for the current RTP and TIP. Therefore, the Build Alternative will not interfere with the timely implementation of any TCMs identified in the SIP.

Project Listing in MTC's Funds Management System



Available versions: **Active** 4

Solano WB I-80 Cordelia Truck Scales **TIP ID** SOL190025 **FMS ID** 7177

Project | Funding | Authorization Report | GIS Map

TIP ID SOL190025 **FMS ID** 7177

Status Active

County Solano **Sponsor** Caltrans **Implementing Agency** Caltrans

Description

Solano County: WB I-80: Relocate Truck Scales facility 0.7 mile east from its current location. Create braided off-ramp connection and new entrance ramp connection to/from Westbound I-80 to address safety issues caused by short on-ramps leading to traffic congestion and increased risk of rear-end accidents. Create direct access to the facility from westbound State Route 12 (East). The new facility will expand capacity with seven covered inspection areas (old facility has four), elevated structures to enable inspectors to check the domes and top portions of cargo trucks, Weigh In Motion scales with the capability to sort truck traffic into the appropriate lane along the approach roadway, and a minimum of four sets of scales (existing facility has three) to accommodate two lines of empty and loaded trucks. The new facility will have the capacity to inspect all westbound I-80 trucks passing the facility 24 hours per day, seven days a week

Jurisdiction

- Solano County

Location WB I-80

State HWY 80 **Post Mile From to**

Activities

Replace and relocate the existing Cordelia Truck Scales, expand capacity and create braided off-ramp connection to WB I-80

Regional Transportation Plan

Contacts

Project Contact

Caltrans Sylvia Fung Chief of Local Assistance (510) 286-5226

Caltrans Sylvia Fung Chief of Local Assistance (510) 286-5226

Sponsor SPOC Caltrans Doanh Nguyen District Division Chief (510) 286-6128

Implementing Agency SPOC Caltrans Doanh Nguyen District Division Chief (510) 286-6128

MTC MTC Kenneth Kao Sr. Planner/Analyst 415-778-6768

Attachments

Name	Uploaded By	Uploaded On

CTIPS 20600006726

System State Highway

Mode

- 100% Freight

Submode

- 100% Freight Truck

Investment Type

- 100% Maintenance/Rehab

Legislative District

CA Assembly	CA Senate	US Congressional
4		5
14	3	3
11		

Version 4

Updated 12/16/22

Created 2/15/22

TIP Revision 2023-00

Type Amendment

Cost$ 170,000,000

Approvals

Regional 9/28/22

State 11/16/22

Federal 12/16/22 (Final)

Description of Change

2023 TIP Update - update the funding plan

Extended Change Description

2023 TIP Update - update the funding plan

AirQuality

Air Quality Status Exempt

Category 40 CFR 93.127

Project Type Truck size and weight inspection stations

☐ AQCTF Regional Conformity Review

Emission

VOC 0

NOX 0

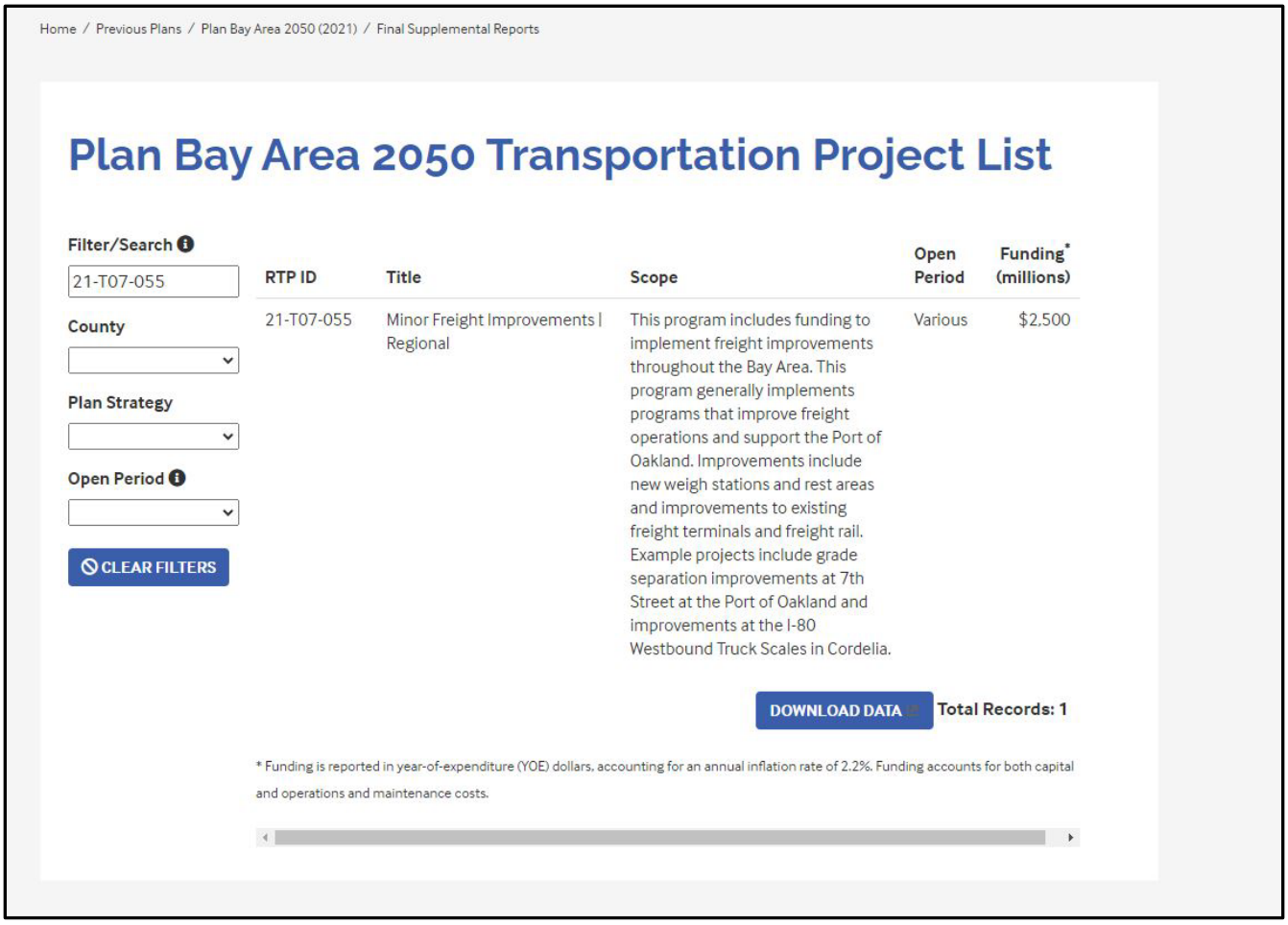
PM10 0

PM25 0

CO2 0

CO 0

Project Listing in MTC's Plan Bay Area 2050



Home / Previous Plans / Plan Bay Area 2050 (2021) / Final Supplemental Reports

Plan Bay Area 2050 Transportation Project List

Filter/Search

21-T07-055

County

Plan Strategy

Open Period

CLEAR FILTERS

RTP ID	Title	Scope	Open Period	Funding* (millions)
21-T07-055	Minor Freight Improvements | Regional	This program includes funding to implement freight improvements throughout the Bay Area. This program generally implements programs that improve freight operations and support the Port of Oakland. Improvements include new weigh stations and rest areas and improvements to existing freight terminals and freight rail. Example projects include grade separation improvements at 7th Street at the Port of Oakland and improvements at the I-80 Westbound Truck Scales in Cordelia.	Various	$2,500

DOWNLOAD DATA **Total Records: 1**

* Funding is reported in year-of-expenditure (YOE) dollars, accounting for an annual inflation rate of 2.2%. Funding accounts for both capital and operations and maintenance costs.

Transportation Improvement Program (TIP)
Programming Information for Federal Request for Authorization (RFA)
- To Be Submitted To Caltrans With Request For Authorization Of Federal Highway Funding -

Solano WB I-80 Cordelia Truck Scales | **ACTIVE** | **CTIPS ID: 20600006726**

TIP ID: SOL190025 **TIP Status:** ACTIVE **Version:** 4 **FMS ID:** 7177 **TIP Revision:** 2023-00 **TIP Revision Approval Date:** 12/16/2022

Sponsor: Caltrans **Implementing Agency:** Caltrans

County: Solano **Investment Category:** MAINT_REHAB:100% **State Highway Rte:** 80

Trans. System: State Highway

Primary Mode: Freight:100% **Sub Mode:** Freight Truck:100%

Project Name: Solano WB I-80 Cordelia Truck Scales

Project Description: Solano County : WB I-80 : Replace and relocate the existing Cordelia Truck Scales, expand capacity and create braided off-ramp connection to WB I-80

Expanded Description: Solano County: WB I-80: Relocate Truck Scales facility 0.7 mile east from its current location. Create braided off-ramp connection and new entrance ramp connection to/from Westbound I-80 to address safety issues caused by short on-ramps leading to traffic congestion and increased risk of rear-end accidents. Create direct access to the facility from westbound State Route 12 (East). The new facility will expand capacity with seven covered inspection areas (old facility has four), elevated structures to enable inspectors to check the domes and top portions of cargo trucks, Weigh In Motion scales with the capability to sort truck traffic into the appropriate lane along the approach roadway, and a minimum of four sets of scales (existing facility has three) to accommodate two lines of empty and loaded trucks. The new facility will have the capacity to inspect all westbound I-80 trucks passing the facility 24 hours per day, seven days a week

RTP Description:

RTP ID: 21-T07-055 **RTP Cycle:** PLANBAYAREA2050

Regional Air Quality Status: Exempt (40 CFR 93.127) - Truck size and weight inspection stations

Air Basin: **Air District:**

CMAQ Emissions Reduction Benefit (kg/day): **VOC:** 0.0000 **NOX:** 0.0000 **PM2.5:** 0.0000 **PM10:** 0.0000 **CO :** 0.0000 **CO2 :** 0.0000

TIP Funding: (All Funding in Whole Dollars)

					TIP 4-Year Period					Obligation Information			
Fund Code	Phase	Prog Year	Total	Prior	FY 22/23	FY 23/24	FY 24/25	FY 25/26	Later	Fed Proj No.	Date	Amount	Toll Credits
RIP-T5-20-FED-SOL	PSE	2022	$5,268,000	$5,268,000									
SB1-RRAA-TCEP	PSE	2021	$24,002,000	$24,002,000							06/23/21	$24,002,000	
OTHER LOCAL	ROW	2022	$42,750,000	$42,750,000									
OTHER LOCAL	ROW_SU	2022	$750,000	$750,000									
RTP-LRP	CON	2027	$45,998,000						$45,998,000				
RTP-LRP	CON	2027	$51,232,000						$51,232,000				
Project Totals			$170,000,000	$72,770,000	$0	$0	$0	$0	$97,230,000			$ 24,002,000	

Contact Information	Name & Title	Agency	Phone	Email
Project Sponsor Contact:	Sylvia Fung, Chief of Local Assistance	Caltrans	510-286-5226	
	Sylvia Fung, Chief of Local Assistance	Caltrans	510-286-5226	
Sponsor Single Point of Contact:	Doanh Nguyen, District Division Chief	Caltrans	510-286-6128	doanh_nguyen@dot.ca.gov

End of Project Version: 4

End of TIP ID: SOL190025

County	Sponsor	System	Purpose	Project Name	Project Descripion	TIP ID	Current 4-Year TIP Funding	Total Funding (All Years)
Solano	Benicia	Local Road	Maintenance/ Rehabilitation	Benicia - Park Road Improvements	Benicia : Park Rd from Bayshore Rd to approximately 250 feet south of the Park Rd/Oak Rd intersection : Resurface roadway and construct Class II/IV bicycle lane facilities and storm drain improvements	SOL170011	$5,358,000	$5,858,000
Solano	Caltrans	State Highway	Maintenance/ Rehabilitation	Solano WB I-80 Cordelia Truck Scales	Solano County : WB I-80 : Replace and relocate the existing Cordelia Truck Scales, expand capacity and create braided off-ramp connection to WB I-80	SOL190025	$0	$170,000,000
Solano	Caltrans	State Highway	System Management	Rio Vista SR12 Pavement Rehab and Intersection Imp	Rio Vista,Solano County : SR12 from Currie Rd to the County Line : Rehabilitate roadway; At SR12/Church Rd. Intersection in Rio Vista: Add Standard Shoulders, EB Left Turn Lane, WB Acceleration Lane and Deceleration Lane, Remove Trees in Clear Recovery Zone	SOL150003	$3,620,000	$27,004,000
Solano	Dixon	Local Road	Expansion	Parkway Blvd/UPRR Grade Separation	Dixon : Parkway Blvd from Valley Glen Dr. to Pitt School Rd : Construct new 4 lane roadway and overcrossing of UPRR & Porter Rd with bicycle and pedestrian access	SOL050009	$0	$17,325,000
Solano	Dixon	Transit	Operations	Dixon: COVID-19 Emergency Transit Operations	Dixon : Systemwide : Capital, planning and operating assistance related to the coronavirus public health emergency including costs to shutdown, maintain and restart service, purchase of PPE and supplies, and administrative leave	SOL190018	$0	$390,273
Solano	Fairfield	Local Road	Maintenance/ Rehabilitation	Fairfield - Cadenasso Drive Paving	Fairfield : On Cadenasso Dr from west of Magellan Rd to Beck Ave : Pavement preservation	SOL210001	$1,940,000	$2,060,000
Solano	Fairfield	Local Road	System Management	Fairfield West Texas Street Complete Streets	Fairfield : Along West Texas St between Beck Ave and Pennsylvania Ave : Modernizes a relinquished highway to improve conditions for bicyclists and pedestrians traveling including implementing a road diet	SOL210009	$10,903,000	$10,903,000
Solano	Fairfield	Local Road	System Management	Grange Middle School SR2S and PavementPreservation	Fairfield : In the vicinity of Grange Middle School : Enhance bicycle and pedestrian safety mobility and pavement preservation.	SOL170010	$0	$2,634,120
Solano	Fairfield	Transit	Expansion	Fairfield Transportation Center - Phase 3	Fairfield : Fairfield Transportation Center : Construct second parking structure with approximately 600 automobile parking spaces and access improvements.	SOL110007	$0	$8,323,000
Solano	Fairfield	Transit	Expansion	Fairfield/Vacaville Hannigan Station Improvements	Fairfield : Capitol Corridor : Construct train station with passenger platforms, pedestrian undercrossing, highway overcrossing, park and ride lot,bike and other station facilities. Project is phased.	SOL030002	$1,900,000	$82,491,461
Solano	Fairfield	Transit	Maintenance/ Rehabilitation	Fairfield-Suisun Intercity/Local Bus Replacement	Fairfield : Systemwide : Replace local/intercity buses that have exceeded their expected useful life.	SOL110041	$0	$7,895,748
Solano	Fairfield	Transit	Operations	Fairfield: COVID-19 Emergency Transit Operations	Fairfield : Systemwide : Capital, planning and operating assistance related to the coronavirus public health emergency including costs to shutdown, maintain and restart service, purchase of PPE and supplies, and administrative leave	SOL190020	$0	$7,591,048
Solano	F-S Transit	Transit	Maintenance/ Rehabilitation	Fairfield - Electric Bus Fleet and Infrastructure	Fairfield : Systemwide : Procure all-electric, zero-emission buses and supporting charging infrastructure	SOL190003	$0	$11,252,155
Solano	MTC	Local Road	System Management	Regional Planning Activities and PPM - Solano	Solano County : County-wide : Regional Planning Activities and Planning, Programming and Monitoring (PPM)	SOL170001	$0	$9,059,181
Solano	MTC	Local Road	System Management	Regional Planning Activities and PPM - Solano	Solano County : County-wide : Regional Planning Activities and Planning, Programming and Monitoring (PPM)	SOL210008	$3,971,000	$4,088,000
Solano	MTC	State Highway	Expansion	Solano I-80 Managed Lanes	Solano County: I-80 from Red Top Rd to I-505: Convert existing HOV to Managed Lane; I-80 from Air Base Parkway to I-505: Construct new Managed Lanes	SOL110001	$0	$279,567,000
Solano	Rio Vista	Transit	Operations	Rio Vista: COVID-19 Emergency Transit Operations	Rio Vista : Systemwide : Capital, planning and operating assistance related to the coronavirus public health emergency including costs to shutdown, maintain and restart service, purchase of PPE and supplies, and administrative leave	SOL190019	$0	$157,840

Appendix B – Interagency Consultation Documentation

From:	Andrew Metzger
To:	Jay Witt
Cc:	Sean Charles (scharles@wmhcorporation.com); Scott Steinwert; Shawn Vogtman; Dale Dennis; Janet Adams; Nicholas "Nick" Burton (nburton@sta.ca.gov); Laura Prickett
Subject:	FW: FMS POAQC Project TIP ID SOL190025 (Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project) update: Project is a not a POAQC
Date:	Friday, January 12, 2024 12:36:02 PM
Attachments:	image001.png image002.png image003.png

Hi Jay,

Please see below for the Task Force's POAQC determination. Please let me know if you need anything else on this for the AQR.

Best,

Andrew Metzger, Project Manager III
200 Webster Street, Suite 200, Oakland, CA 94607
408.715.1502 | a.metzger@circlepoint.com
We have moved *to 1625 Clay Street, Suite 700, Oakland, CA 94612*

From: Harold Brazil <HBrazil@bayareametro.gov>
Sent: Friday, January 12, 2024 11:20 AM
To: Sindhu.kurup@dot.ca.gov
Cc: Andrew Metzger <a.metzger@circlepoint.com>
Subject: FMS POAQC Project TIP ID SOL190025 (Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project) update: Project is a not a POAQC

Based on the recent interagency consultation with the Air Quality Conformity Task force, Project TIP ID SOL190025 (FMS ID: 7177) does not fit the definition of a project of air quality concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. Please save this email as documentation confirming the project has undergone and completed the interagency consultation requirement for PM2.5 project level conformity. Note project sponsors are required to undergo a proactive public involvement process which provides opportunity for public review as outlined by 40 CFR 93.105(e). For projects that are not of air quality concern, a comment period is only required for project level conformity determinations if such a comment period would have been required under NEPA. For more information, please see FHWA PM2.5 Project Level Conformity Frequently Asked Questions (FAQ):

http://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/faqs/pm25faqs

.cfm

If you have any questions, please direct them to Harold Brazil at hbrazil@bayareametro.gov or by phone at 415-778-6747

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Bay Area Metro Center
375 Beale Street, Suite 800
San Francisco, CA 94105
415.778.6700
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Air Quality Conformity Task Force Meeting

Metropolitan Transportation Commission

Join Zoom Meeting @
https://bayareametro.zoom.us/j/84383698853
Meeting ID: 843 8369 8853

(Additional Zoom Meeting Call-In Info on Next Page)

December 7, 2023
9:30 a.m. –11:00 a.m.

AGENDA

1. Welcome and Introductions

2. $PM_{2.5}$ Project Conformity Interagency Consultations

   a. Consultation to Determine Project of Air Quality Concern Status
      i. Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project
      ii. NB 680 Express Lanes Completion Project

3. Projects with Regional Air Quality Conformity Concerns

   a. Review of the Regional Conformity Status for New and Revised Projects
      3a_Regional_AQ_Conformity_Review_120723.pdf
      3a_Attachment-A_List_of_Proposed_New_Projects_120723.pdf

4. Update: PBA 2050+ Planning Assumptions and Draft Blueprint Development

5. Consent Calendar

   a. October 26, 2023 Air Quality Conformity Task Force Meeting Summary

6. Other Items

   Next Meeting: January 25, 2024

MTC Staff Liaison: Harold Brazil hbrazil@bayareametro.gov

Harold Brazil is inviting you to a scheduled Zoom meeting.

Topic: Air Quality Conformity Task Force Meeting
Time: This is a recurring meeting Meet anytime

Join Zoom Meeting
https://bayareametro.zoom.us/j/84383698853

Meeting ID: 843 8369 8853

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• +1 564 217 2000 US
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• 833 548 0276 US Toll-free
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Meeting ID: 843 8369 8853

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• 213.19.144.110 (Amsterdam Netherlands)
• 213.244.140.110 (Germany)

• 103.122.166.55 (Australia Sydney)
• 103.122.167.55 (Australia Melbourne)
• 64.211.144.160 (Brazil)
• 69.174.57.160 (Canada Toronto)
• 65.39.152.160 (Canada Vancouver)
• 207.226.132.110 (Japan Tokyo)
• 149.137.24.110 (Japan Osaka)

Meeting ID: 843 8369 8853

Air Quality Conformity Task Force
Summary Meeting Notes
December 7, 2023

Participants:

Andrea Gordon – BAAQMD
Garrett Kaya – HDR
Eden Winniford – Yolo-Solano Air Quality Management District
Jay Witt – Illingworth & Rodkin, Inc.
Sean Charles – WMH Corporation
Janet Adams – STA
Erika Vaca – Caltrans
Alex Smith – FTA
Mary Nguyen – FTA
Kevin Krewson – Caltrans
Jasmine Amanin – FHWA
Chris Barney – SCTA
Zoey Zhang – Fehr & Peers
Karishma Becha – Caltrans
John Saelee – MTC
Yuqi Wang – MTC
Ron Ramos – F&P
Adam Noelting – MTC
Jacqueline Kahrs – Caltrans
Andrew Metzger – Circlepoint
Rodney Tavitas – Caltrans
Michael Baldini – MTC Policy Advisory Council
Adam Crenshaw – MTC
Peter Kang – Caltrans HQ
Harold Brazil – MTC

1. **Welcome, Introductions, and Attendance**: Harold Brazil (MTC) called the meeting to order at 9:35 am.

2. **$PM_{2.5}$ Project Conformity Interagency Consultations**

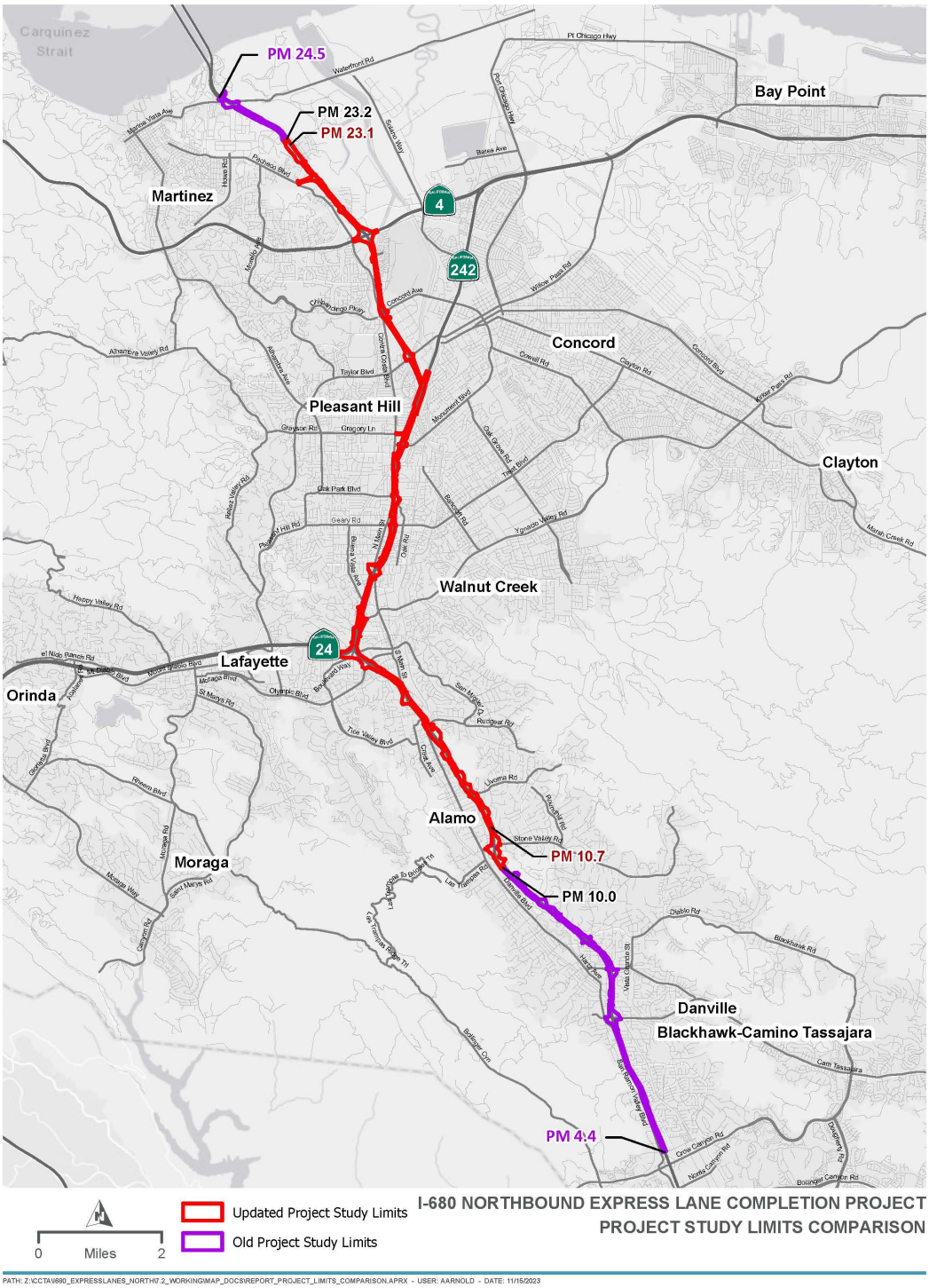
   a. **Consultation to Determine Project of Air Quality Concern Status**

      i. **NB 680 Express Lanes Completion Project**

Garrett Kaya (AECOM) began the presentation for the NB 680 Express Lanes Completion project by stating the last time the project team met with Task Force was because Alternative 5 was being added and the reason for today's meeting is because the project study limits to the actual construction footprint limits is now being reduced. Mr. Kaya added, through discussions with Caltrans and traffic analyses, it was determined adding buffers down in the southern reaches of the project wasn't necessary. Mr. Kaya also mentioned, again through discussions with Caltrans, the study area boundaries were drawn to make sure there weren't any major impacts to the wetlands in the area.

Question/Answer Discussion:

Rodney Tavitas (Caltrans) commented, when making this type of change, project sponsors need to make sure that this is all illustrated in the environmental work, especially the public announcement, and remember that RTPs and TIPs all need to be consistent. Mr. Tavitas added that if his office notices any inconsistencies among these documents at the public and national levels, his office will send it back (to the corresponding project sponsor).



Final Determination: With input from EPA, FTA, FHWA and Caltrans (deferring their determination to FHWA), the Task Force concluded the NB 680 Express Lanes Completion project was not of air quality concern.

ii. Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project

Janet Adams (STA) began the presentation for the Interstate 80 Westbound Cordelia Commercial Vehicle Enforcement Facility project by indicating it has been developed in conjunction with the California Highway Patrol (CHP) and Caltrans DES Architecture (CVEF) and incorporates the latest requirements of CVEF operations. Ms. Adams added the project does have a major funding partner through the California Transportation Commission.

Ms. Adams stated that the relocation and enhancement of the I-80 westbound truck scales, known formally as the Cordelia Commercial Vehicle Enforcement Facility (CCVEF) will provide the following:

- Updated off and on-ramps to improve traffic congestion & safety
- State of the art technology allows prioritization of CHP enforcement activities
- Reduced queuing and travel times for commercial vehicles and buses

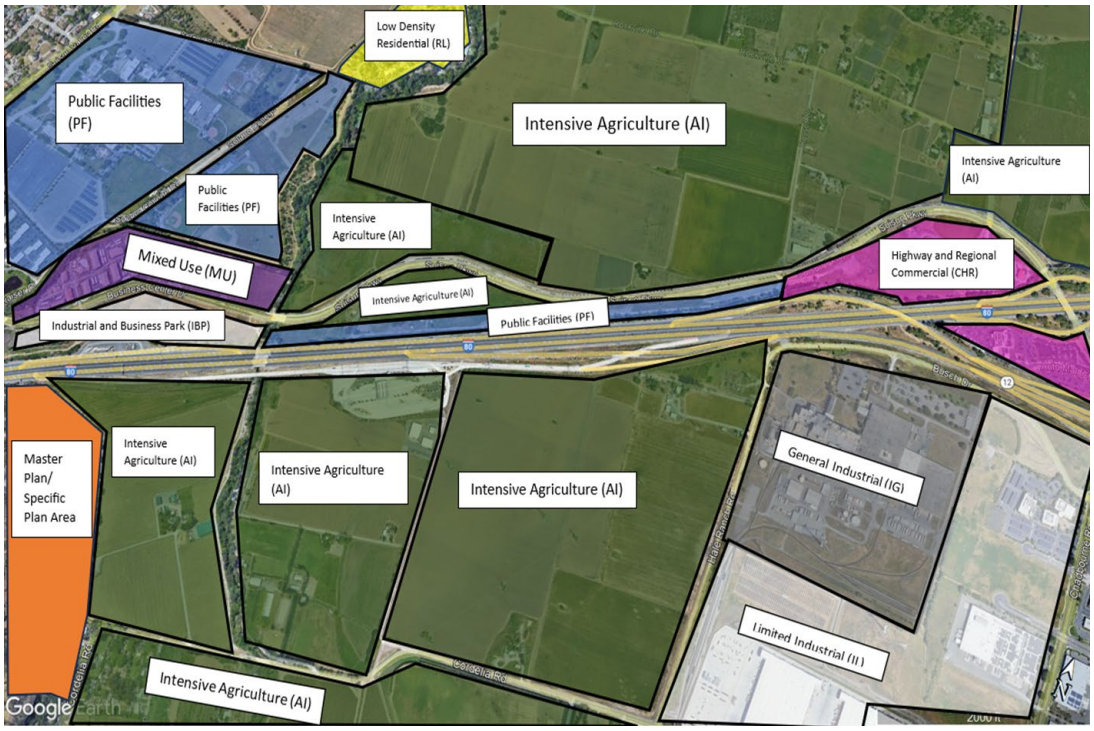
Ms. Adams mentioned the I-80 WB CCVEF project will be reducing greenhouse gas emissions by reducing the idling trucks that occur today, and the idling vehicles that happen with the congestion on I-80 in this area going forward.

Sean Charles (WMH Corporation) noted the I-80 WB CCVEF will be a 0 net energy facility, so photovoltaic cells will be installed to counteract the electrical usage for the entire facility, including all the technology and site lighting.

Andrew Metzger (Circlepoint) discussed the I-80 WB CCVEF project schedule and indicated the project team is currently working on the environmental document re-evaluation and plan to have it finished in April 2024. After that, Mr. Metzger anticipates the record of decision (ROD) should occur in September 2024, the design and right-of-way scheduled for November 2024 and construction to begin in January 2025.

Mr. Metzger went on to talk about the area surrounding the CCEVF and I-80 in the project area and it consists primarily of rural residential developments, agricultural fields, and open land. Office/commercial developments

exist adjacent to Business Center Drive at the west end of the Project area. Industrial and commercial developments are located at the east end of the project area, adjacent to I-80, SR 12, Chadbourne Road, and Auto Mall Parkway. The proposed Project would not alter the existing land use/development patterns nor impact truck trip generation.



Surrounding Land Uses (General Plan Land Use Map, 2015)

Mr. Metzger provided his summary of the screening results of the I-80 WB CCVEF project as follows:

- The Project will not result in a significant number or significant increase in diesel vehicles in the area.
- The Project does not change the number of diesel vehicles using the CCEVF nor does it degrade the LOS of the ramp terminal intersections near the Project area.
- The project does not involve a bus terminal, rail terminal, or transfer points involving a significant number of diesel vehicles congregating at a single location.
- The project location is not in an area identified by the SIP as one that could violate or possibly violate the NAAQS for $PM_{2.5}$.
- Therefore (in the project team's opinion), the proposed project would not be considered a Project of Air Quality Concern.

Question/Answer Discussion:

Andrea Gordon (BAAQMD) asked about the flow of the trucks going through the CCVEF and whether there are any bottlenecks? Sean Charles (WMH Corporation) answered by saying the project is being designed for a thousand trucks, peak hour, free flow conditions – so the facility doesn't end up with any kind of a backup or queuing during those hours of operation where 1,000 that 4 lanes that equates to about a truck every 15 s in each of those lanes, and that assumes the differential speeds. So right now, they're operating at 3 to 5 miles an hour, empty and loaded. Mr. Charles added the lanes operate at 5 miles an hour in that lane, where they're going to be likely be stopped and potentially brought in for future enforcement. But the other lanes go 15 to 35

miles an hour – so you get a much better free flow condition. Very rarely does a truck have to get stopped and pulled out of that queue because of the technology that's sorting and screening.

Final Determination: With input from EPA, FTA, FHWA and Caltrans (deferring their determination to FHWA), the Task Force concluded the Interstate 80 Westbound Cordelia Commercial Vehicle Enforcement Facility project was not of air quality concern.

3. Projects with Regional Air Quality Conformity Concerns

a. Regional Conformity Status for New and Revised Projects

Adam Crenshaw (MTC) presented his standard regional item with several projects that MTC is proposing to add to the tip through future amendments, and just wanted to give the Task Force a chance to review them, and just see if any of the Task Force members had any questions or concerns with the exemption categories that MTC is proposing for these. The Task Force members had no comments.

4. Update: PBA 2050+ Planning Assumptions and Draft Blueprint Development

Adam Noelting (MTC) provided an update on Plan Bay Area 2050+ Draft Blueprint development, including core planning assumptions and potential strategy refinements, informed by feedback from Round 1 engagement activities at the November 3, 2023 Joint MTC Planning Committee with the ABAG Administrative Committee.

Mr. Noelting mentioned that through activities including pop-up public workshops, an online survey, and partner/stakeholder virtual workshops, MTC/ABAG staff have received and analyzed over 16,000 public comments and engaged hundreds of partners on topics related to the four plan elements:

- The top concerns related to housing included affordability, homelessness and home access, and housing insecurity.
- The top concerns related to the economy focused on the negative impacts of inflation and the high cost of living, low or stagnant wages and the job market, and income inequality.
- The top concerns related to transportation included the need to improve the safety, cleanliness, frequency, and convenience of transit, changes in travel behavior, and the need for bike/pedestrian improvements.
- The top concerns related to the environment focused on cleaner streets/communities, climate mitigation and adaptation, and environmental degradation.

For Plan Bay Area 2050+ scheduling, Mr. Noelting notified the Task Force that MTC staff is working on the draft blueprint which is basically a subset of strategies that we include in our and analyze through digital travel model to understand their kind of their benefits. In addition, MTC conducts a performance, assess assessment essentially on, understand the metrics of including these strategies. Mr. Noelting said after the draft blueprint phase, move into the final blueprint phase and difference between them is basic – now, we have some data, we can make some refinements to the strategies, the projects and respond to what we've seen respond to public comments on the draft blueprint and its findings to refine to a final blueprint which ultimately has a final transportation project list which would identify again the regionally significant projects that are accounted for, and after that phase we would move into the actual draft plan.

Mr. Noelting noted that sea level rise is another issue that MTC staff has discussed and has been incorporated into the travel model. So, it does have an effect on where there may be challenges for roadways and development areas that may be impacted by rising seas and what does that mean? Mr. Noelting went on to say that there's obviously some corridors in Bay Area that are kind of continually affected now by kind of flood situations and king tides and things like that – so this is looking into the future where some other corridors that may be affected. We're increasing that height from 3 feet in the last plan up to almost 5 feet in this plan, so it will have a better, broader area of coverage for these areas that may be affected.

Question/Answer Discussion:

Harold Brazil (MTC) asked about autonomous vehicle in the presentation and the meaning of the 10% to 95% figures? Yuqi Wang (MTC) answered by indicating the MTC travel modeling team went through the horizon phase where we started 3 very different futures to allow the team to stress test the strategies under very different scenarios. In those 3 scenarios which travel modeling team was testing – Ms. Wang indicated the testing was ranging from 10%, which is lowest/most conservative scenario, and all the way to 95%, which is the most aggressive scenario, and based on that testing and the travel modeling team ended up with some more like relatively conservative assumption for the final blueprint.

5. Consent Calendar

a. October 26, 2023 Air Quality Conformity Task Force Meeting Summary

The Task Force members had no additional comment.

Final Determination; With input from all members, the Task Force concluded that the consent calendar was approved.

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Memorandum

TO: Air Quality Conformity Task Force DATE: November 29, 2023

FR: Harold Brazil W. I.

RE: $PM_{2.5}$ Project Conformity Interagency Consultation

A project sponsors representing a project, seeks interagency consultation from the Air Quality Conformity Task Force (AQCTF) at today's meeting and the projects are follows:

No.	Project Sponsor	Project Title
1	Caltrans	Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project
2	Contra Costa Transportation Authority (CCTA)	NB 680 Express Lanes Completion Project

2ai_I-80_WB_CCVEF_Project_Assessment_Form.pdf (for the Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) project)

2aii_NB_680_Express_Lanes_Completion_Project_Assessment_Form.pdf (for the NB 680 Express Lanes Completion project)

Application of Criteria for a Project of Air Quality Concern

Project Title: Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project
Summary for Air Quality Conformity
Task Force Meeting: December 7, 2023

Description

The Interstate (I-) 80 westbound truck scales Project, known formally as the Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project would redesign the existing truck scales facility and construct modifications to on- and off-ramps to relieve congestion near the facility due to vehicle queuing. The Project would include 150,000 square feet less paved footprint than the existing facility while maintaining the same operational capacity. It also provides CHP better viewsheds of site and freeway operations, improves circulation of vehicles, and utilizes state-of-the-art technology to prescreen all trucks, enabling inspectors and officers to focus their attention on trucks most likely to have safety violations. The on- and off-ramp improvements would provide simplified direct access to and from the new truck scales facility while eliminating any queuing onto I-80 which occurs now on a regular basis, reducing congestion/conflicts between trucks re-entering I-80 and cars exiting towards southbound I-680. The Project would also realign and widen the westbound SR 12E connection to I-80 to three lanes to provide standard connector geometry.

Additionally, the Project eliminates the need to reconstruct the off-ramp from westbound I-80 to Abernathy Road, the construction of a new loop on-ramp, and the construction of an auxiliary lane on westbound I-80 between Abernathy Road and West Texas Street as originally envisioned by the larger Interstate 80/Interstate 680/State Route 12 Interchange Project.

Background

The relocation and enhancement of the existing I-80 westbound CCVEF is an element of the larger Interstate 80/Interstate 680/State Route 12 Interchange Project (DISTRICT 4-SOL-80 (PM 10.8/17.0); SOL-680 (PM 10.0/13.1); SOL-SR 12 (PM 1.7/L2.8); and SOL-SR 12 (PM L1.8/4.8) EA # 0A5300, Project # 04-0000-0150). The Interstate 80/Interstate 680/State Route 12 Interchange Project began the environmental review process in 2003 and a NEPA Record of Determination (ROD) was signed by Caltrans on December 7, 2012. While the relocation and modification of the existing I-80 westbound CCVEF are part of the original environmental study area, the CCVEF was not included due to funding limitation at the time of ROD approval. Since the Final Environmental Impact Statement (EIS) for the project was completed over 3 years ago, a written re-evaluation is required to determine if the prior EIR/S remains valid. In addition, a new/revised ROD will be required since the original ROD did not include the I-80 WB CCVEF.

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

This project does not meet the definition of a Project of Air Quality Concern (POAQC) as defined by 40 CFR 93.123(b)(1). Specifically:

- The Project will not result in a significant number or significant increase in diesel vehicles in the area.

- The Project does not change the number of diesel vehicles using the CCEVF nor does it degrade the LOS of the ramp terminal intersections near the Project area. The primary purpose of the project is to reduce congestion near the CCEVF and provide a reliable travel time on I-80 and SR 12.

- The Project does not involve a bus terminal, rail terminal, or vehicle transfer points.

- The I-80 corridor, and more specifically the location of the CCEVF, is not an area identified by the SIP as a location where the NAAQS for $PM_{2.5}$ could be violated or possibly violated.

RTIP ID# *21-T07-055*

TIP ID# *SOL190025*

Air Quality Conformity Task Force Consideration Date
December 7, 2023

Project Description *(clearly describe project)*

The project involves the Interstate (I-) 80 westbound truck scales, known formally as the Cordelia Commercial Vehicle Enforcement Facility (CCVEF), proceeding into the detailed design and construction phase (Project). The relocation and enhancement of the existing I-80 westbound CCVEF is an element of the larger Interstate 80/Interstate 680/State Route 12 Interchange Project (DISTRICT 4-SOL-80 (PM 10.8/17.0); SOL-680 (PM 10.0/13.1); SOL-SR 12 (PM 1.7/L2.8); and SOL-SR 12 (PM L1.8/4.8) EA # 0A5300, Project # 04-0000-0150). While the relocation and modification of the existing I-80 westbound CCVEF are part of the preferred alternative for the larger Interstate 80/Interstate 680/State Route 12 Interchange Project, the CCVEF was not included due to funding limitation at the time of the larger project's approval. Therefore, a written re-evaluation is required to determine if the prior EIR/S remains valid.

The Project has been developed in conjunction with the California Highway Patrol (CHP) and Caltrans DES Architecture (CVEF) and incorporates the latest requirements of CVEF operations. The Project would include 150,000 square feet less paved footprint while maintaining the same operational capacity. It also provides CHP better viewsheds of site and freeway operations, improves circulation of vehicles, and utilizes state-of-the-art technology to prescreen all trucks, enabling inspectors and officers to focus their attention on trucks most likely to have safety violations. The overall function and location of the CCVEF would remain the same. However, the new layout proposed by the Project creates a more efficient facility.

The Project includes off- and on-ramp improvements that would provide simplified direct access to and from the new truck scales facility while eliminating any queuing onto I-80 which occurs now on a regular basis, reducing congestion/conflicts between trucks re-entering I-80 and cars exiting towards southbound I-680. Direct off-ramps to the I-80 westbound CCVEF would be constructed to reduce the truck volumes within the westbound SR 12E connector and improve weaving/differential speeds. The Project would also realign and widen the westbound SR 12E connection to I-80 to three lanes to provide standard connector geometry.

The on-ramp from Abernathy Road to westbound I-80 would be eliminated. Caltrans determined the existing on-ramp from Abernathy Road to westbound I-80 has low traffic volumes, and an alternate route for traffic exists via the SR 12/Chadbourne Road interchange on-ramp, which immediately merges onto westbound I-80. Local traffic wishing to access westbound I-80 would be directed to the SR 12/Chadbourne Road interchange. Additionally, the Project eliminates the need to reconstruct the off-ramp from westbound I-80 to Abernathy Road, the construction of a new loop on-ramp, and the construction of an auxiliary lane on westbound I-80 between Abernathy Road and West Texas Street as originally envisioned by the larger Interstate 80/Interstate 680/State Route 12 Interchange Project.

Figures 1 -3 show the Project improvements proposed.

Type of Project:
Commercial Vehicle Enforcement Facility Redesign and Ramp Improvement Project

County	***Narrative Location/Route & Postmiles*** In Solano County in and near Fairfield on Route 12 at various locations from the I-80/SR12 East Junction to 0.9 mile east of Chadbourne Road undercrossing and on I-80 at various locations from 0.5 mile west of Dan Wilson Creek Bridge to West Texas Street Undercrossing. Generally contained between I-80 PM 13.4 in the west to I-80 PM 16.7 and SR 12 PM L3.2 in the east. **Caltrans Projects – EA#** OA53T

Lead Agency: Caltrans District 4

Contact Person	*Phone#*	*Fax#*	*Email*
Sindhu Kurup	510.715.7920	N/A	Sindhu.kurup@dot.ca.gov

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

Categorical Exclusion (NEPA)		**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	*Other*
	X				

Scheduled Date of Federal Action: 2024

NEPA Delegation – Project Type *(check appropriate box)*

	Section 326 – Categorical Exclusion		**Section 327 – Non-Categorical Exclusion**
		X	

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	10/2/2002	10/1/2021	7/1/2024	1/5/2025
End	12/10/2012	11/1/2024	11/1/2024	1/5/2028

Project Purpose and Need (Summary): *(please be brief)*

The location, purpose, and function of the CCVEF has not changed since approval of the original since the Final Environmental Impact Statement (EIS) for the project was completed in October 2012. Therefore, a specific Purpose and Need statement for this Phase has not been developed.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

The area surrounding the CCEVF and I-80 in the project consists primarily of rural residential developments, agricultural fields, and open land. Office/commercial developments exist adjacent to Business Center Drive at the west end of the Project area. Industrial and commercial developments are located at the east end of the project area, adjacent to I-80, SR 12, Chadbourne Road, and Auto Mall Parkway. The proposed Project would not alter the existing land use/development patterns nor impact truck trip generation.

Brief summary of assumptions and methodology used for conducting analysis

The Fairfield traffic model was calibrated and validated for Year 2019 conditions. Model validation was performed using guidelines drawn from the 2017 California Regional Transportation Plan (RTP) Guidelines published by the California Transportation Commissions. The validated/calibrated 2019 Fairfield model met all the 2017 California Regional Transportation Plan guidelines model validation standards.

A new 2050 land use input file was developed using Plan Bay Area 2050 (PBA 2050), and the 2021 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) prepared by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The Year 2050 roadway networks contain improvements identified in the RTP for Plan Bay Area. All of the projects are anticipated to be completed in the Year 2050, and thus are included in both the Opening Year (2030) and Design Year (2050) scenarios.

A large proportion of travel on I-80, I-680, and SR 12 E is through trips traveling through the travel model area (approximately the City of Fairfield boundary). The as-received 2050 Fairfield model shows the majority of the though trips are on I-80 traveling between I-80 and I-680, with an annual growth rate around 0.5%. This growth was compared to the amount of travel along the corridor in the California Statewide Travel Demand Model (CSTDM) and the Solano-Napa Activity Based Model (SNABM), and found to be in general agreement.

Figure 1. Project Area Overview

Figure 2. Project Area- I-80/Abernathy Road Interchange

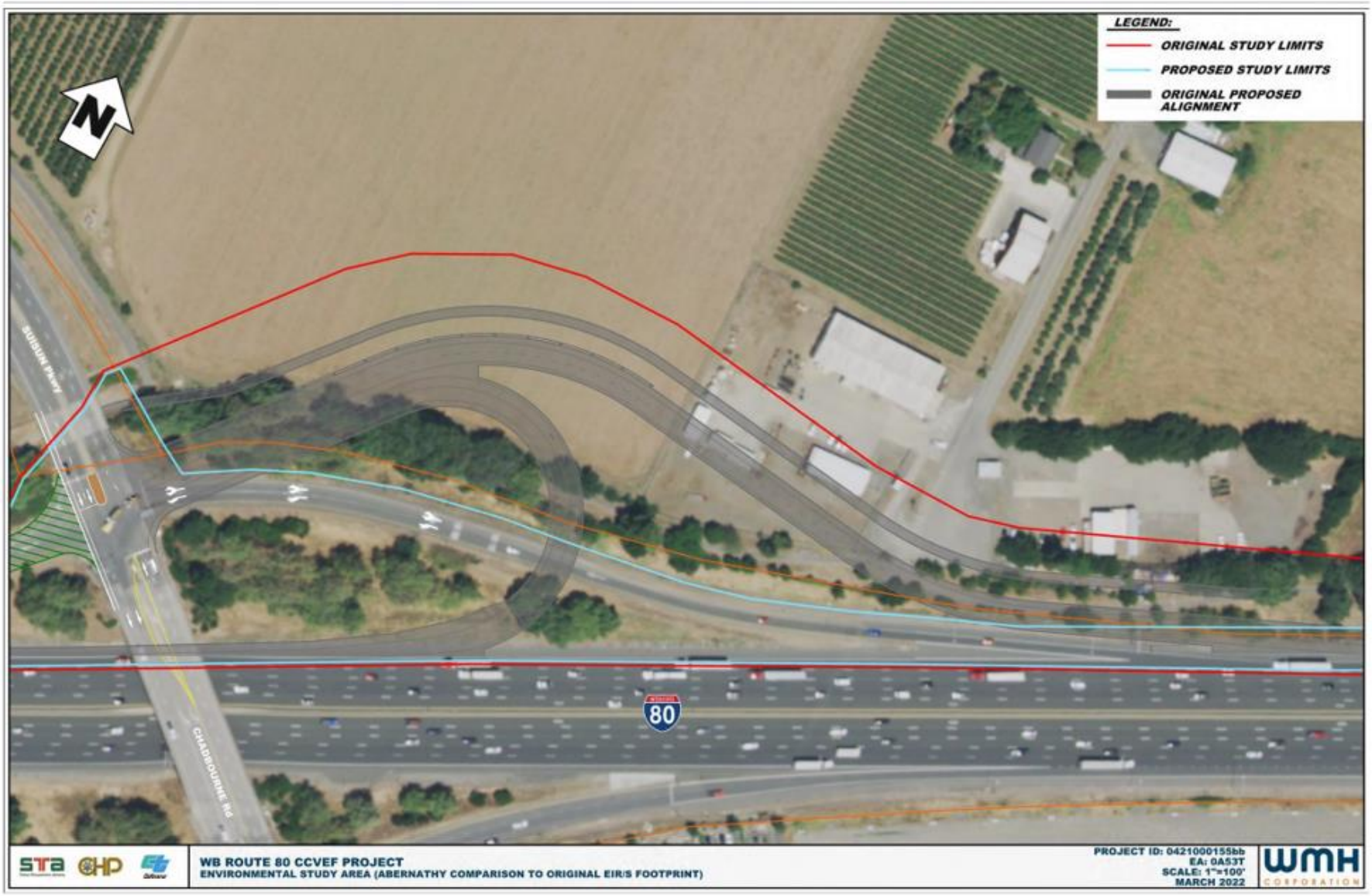


Figure 3. Project Area- WB I-80 CCVEF

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

Segments		2030 No Build AADT			2030 Build AADT		
		Total	Truck	% Truck	Total	Truck	% Truck
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	74,000	1,480	2	72,600	1,450	2
	Between SR 12 On-ramp and Truck Scales Off-ramp	100,600	7,040	7	100,600	7,040	7
	Between Truck Scales Off-ramp and Truck Scales On-ramp	95,000	1,900	2	95,000	1,900	2
Ramps	**I-80 WB On-ramp** from Chadbourne Road	4,500	320	7	NA	NA	NA
	I-80 WB On-ramp from SR 12	26,600	1,860	7	28,000	1,960	7
	I-80 WB Off-ramp to Truck Scales	5,600	5,600	100	5,600	5,600	100
	I-80 WB On-ramp from Truck Scales	5,600	5,600	100	5,600	5,600	100
	SR 12 On-ramp from WB Chadbourne Road	4,800	340	7	9,100	640	7
Chadbourne Road	Between I-80 WB and EB Ramps	17,900	540	3	17,900	540	3
	Between I-80 WB Ramps and Auto Mall Parkway	16,100	480	3	16,500	500	3
	Between Auto Mall Parkway and SR 12 WB Ramps	15,000	450	3	19,600	590	3

Intersection LOS	**AM**	**PM**	**AM**	**PM**
Chadbourne Road at I-80 WB Ramps	B	B	B	A
Chadbourne Road at I-80 EB Ramps	A	B	A	B
Chadbourne Road at Auto Mall Parkway	B	B	B	B
Chadbourne Road at SR 12 WB Ramps	B	B	B	B

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

Segments		2050 No Build AADT			2050 Build AADT		
		Total	Truck	% Truck	Total	Truck	% Truck
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	80,200	1,600	2	78,400	1,570	2
	Between SR 12 On-ramp and Truck Scales Off-ramp	111,400	7,800	7	111,400	7,800	7
	Between Truck Scales Off-ramp and Truck Scales On-ramp	104,800	2,100	2	104,800	2,100	2
Ramps	**I-80 WB On-ramp** from Chadbourne Road	5,000	350	7	NA	NA	NA
	I-80 WB On-ramp from SR 12	31,200	2,180	7	33,000	2,310	7
	I-80 WB Off-ramp to Truck Scales	6,600	6,600	100	6,600	6,600	100
	I-80 WB On-ramp from Truck Scales	6,600	6,600	100	6,600	6,600	100
	SR 12 On-ramp from WB Chadbourne Road	5,300	370	7	10,100	710	7
Chadbourne Road	Between I-80 WB and EB Ramps	24,100	720	3	24,200	730	3
	Between I-80 WB Ramps and Auto Mall Parkway	21,300	640	3	21,900	660	3
	Between Auto Mall Parkway and SR 12 WB Ramps	18,300	550	3	23,600	710	3

Intersection LOS	**AM**	**PM**	**AM**	**PM**
Chadbourne Road at I-80 WB Ramps	C	C	B	B
Chadbourne Road at I-80 EB Ramps	A	B	A	B
Chadbourne Road at Auto Mall Parkway	B	C	B	C
Chadbourne Road at SR 12 WB Ramps	C	C	B	C

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Not Applicable

RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Not Applicable

Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses

Not Applicable

RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses

Not Applicable

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

Traffic redistribution effects are expected to be minimal. With implementation of the project, traffic volumes would be redistributed from the I-80 Chadbourne on-ramp to the SR 12 E Chadbourne Road on-ramp due to the project removing the I-80 Chadbourne on-ramps.

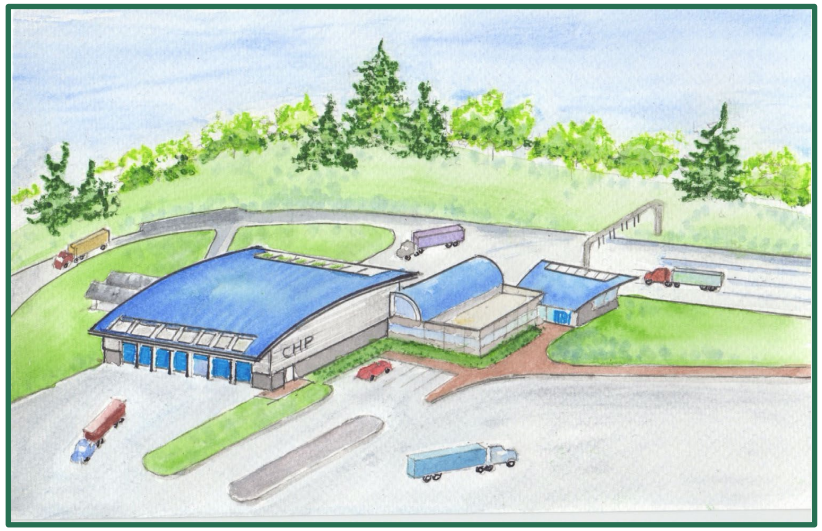
Comments/Explanation/Details (please be brief)

This project does not meet the definition of a Project of Air Quality Concern (POAQC) as defined by 40 CFR 93.123(b)(1). Specifically:

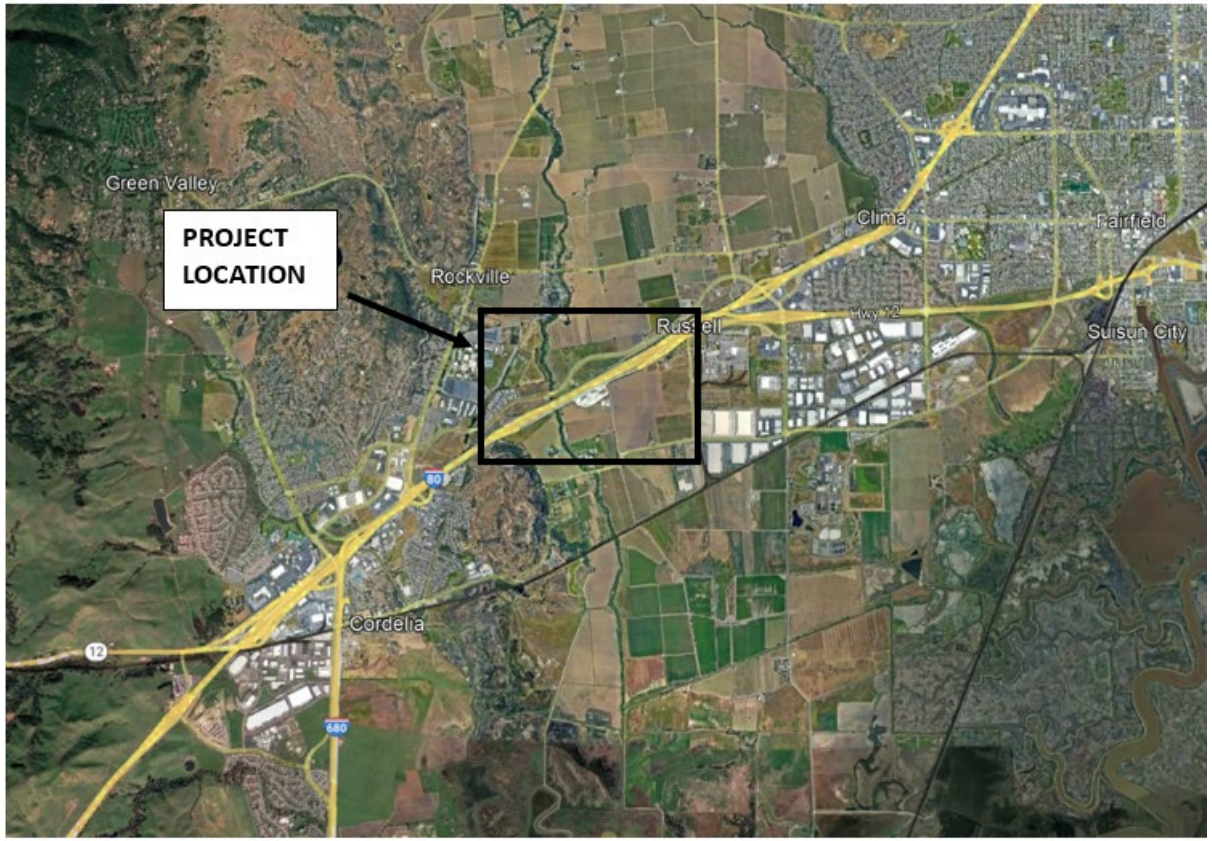
- The Project will not result in a significant number or significant increase in diesel vehicles in the area.
- The Project does not change the number of diesel vehicles using the CCEVF nor does it degrade the LOS of the ramp terminal intersections near the Project area. The primary purpose of the project is to reduce congestion near the CCEVF and provide a reliable travel time on I-80 and SR 12.
- The Project does not involve a bus terminal, rail terminal, or vehicle transfer points.
- The I-80 corridor, and more specifically the location of the CCEVF, is not an area identified by the SIP as a location where the NAAQS for $PM_{2.5}$ could be violated or possibly violated.

Solano I-80 Westbound Truck Scales

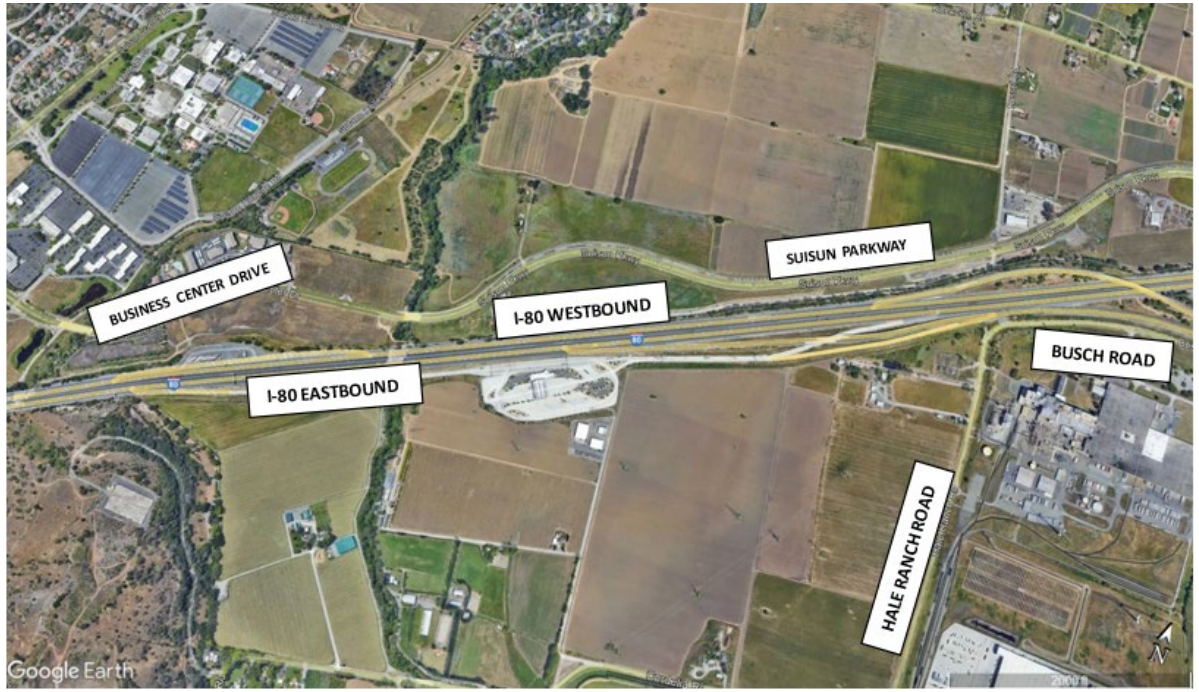
Cordelia Commercial Vehicle Enforcement Facility (CCVEF)



Project Location



- Southwest Fairfield near I-80 / Route 12 Interchange
- Near I-80 / I-680 Junction



Project Basics

IMPROVED TRAFFIC FLOW

REDUCTION OF GREENHOUSE GAS EMISSIONS

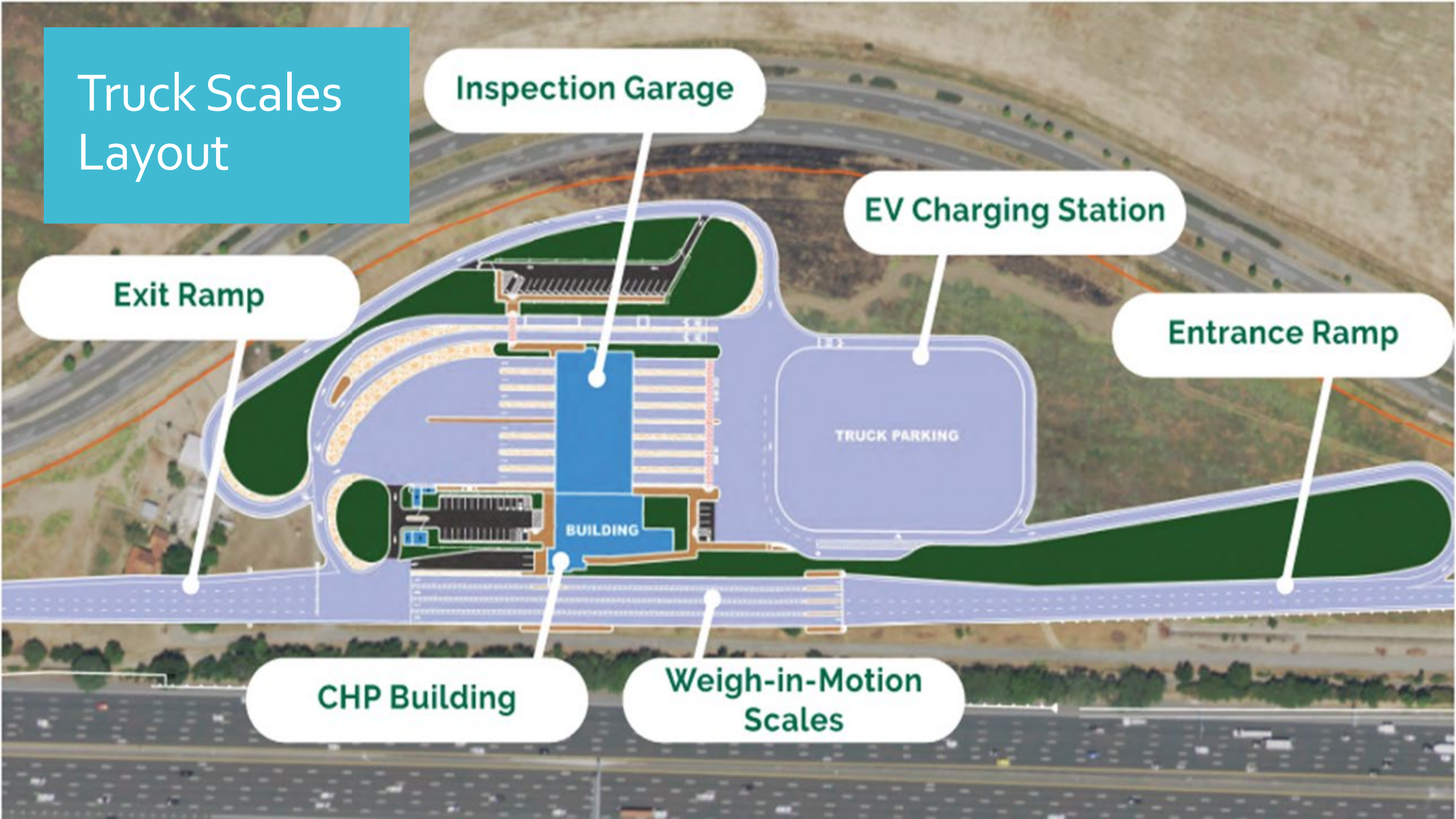
SAFETY IMPROVEMENTS FOR ALL MODES OF TRANSPORTATION

Relocation and enhancement of the I-80 westbound truck scales, known formally as the Cordelia Commercial Vehicle Enforcement Facility (CCVEF)

- Updated off and on-ramps to improve traffic congestion & safety
- State of the art technology allows prioritization of CHP enforcement activities
- Reduced queuing and travel times for commercial vehicles and buses

Project Overview

Truck Scales Layout



Purpose

Purpose

The relocation and enhancement of the existing I-80 westbound CCVEF is part of the previous Interstate 80/Interstate 680/State Route 12 Interchange Project.

The purpose and need of the project are consistent with the purpose and need in the EIR/EIS certified in December 2012.

The purpose of this project include:

- Improving the processing capabilities of CCVEF facility
- Increasing enforcement capacity
- Improving travel times
- Improving traffic safety
- Reducing the amount of cut-through traffic on local roads
- Reducing environmental impact of freight movement

Need

Need

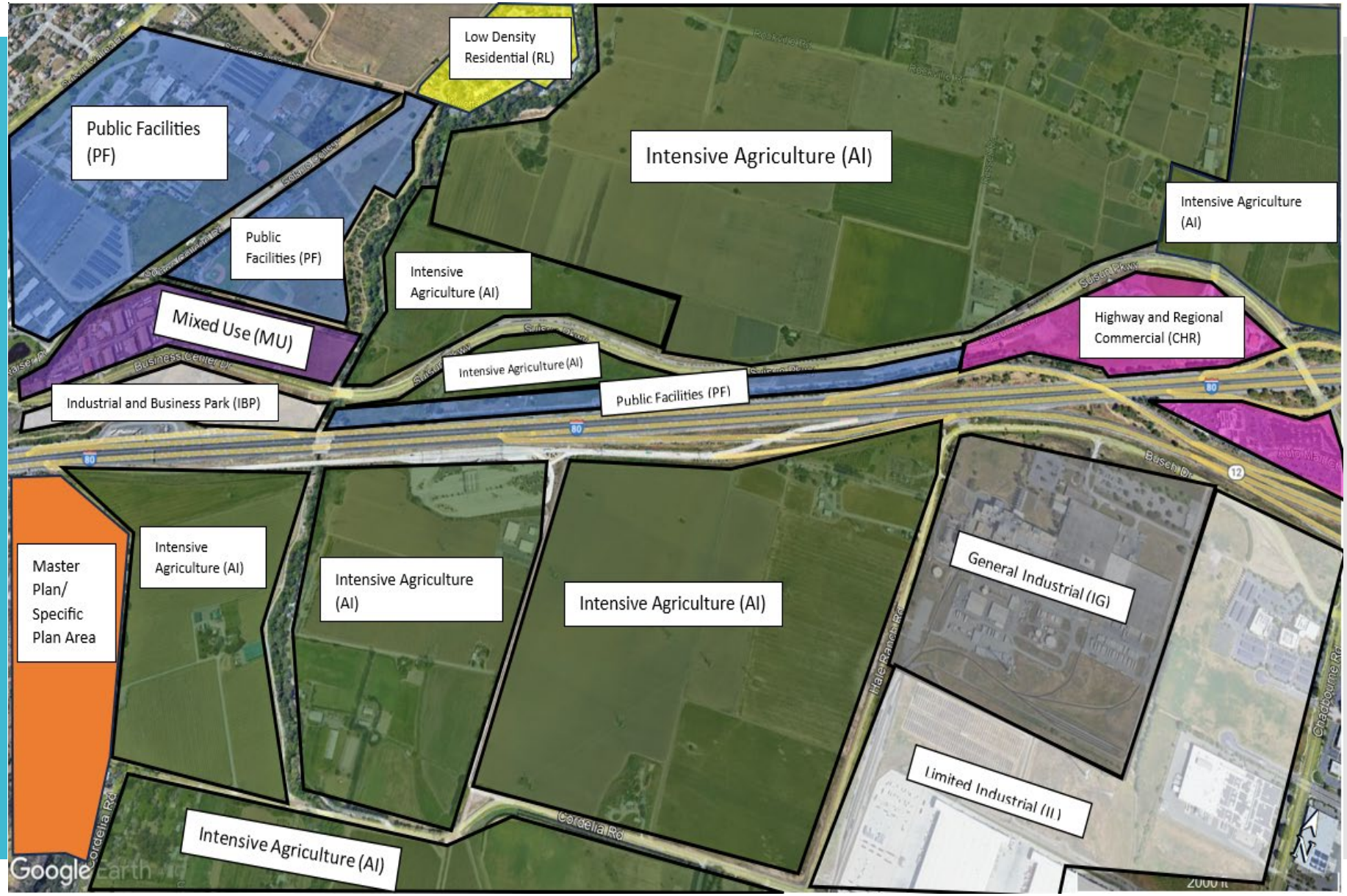
- Since its construction in the 1960's there has been major development and substantial population growth in the surrounding area
- Corridor has limited capacity with current configurations
  - Significant delays during peak hours
  - Congestion creates unpredictable and unreliable travel times for freight trucks
  - Traffic has begun diverting to local roadways to avoid congested traffic
- Congestion develops because of trucks entering traffic streams to and from the I-680 connector ramps
- There have been a significant number of rear end collisions along this corridor dating back to 2006
  - Congestion has been the primary factor

Project Schedule

Key Milestones

- Environmental (Re-Eval) – April 2024
- Record of Decision (ROD) – September 2024
- Design and ROW Acquisition – November 2024
- Construction – January 2025 to January 2028

Surrounding Land Uses (General Plan Land Use Map, 2015)



Traffic Data (Opening Year)

Segments		2030 No Build AADT			2030 Build AADT		
		Total	Truck	% Truck	Total	Truck	% Truck
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	74,000	1,480	2	72,600	1,450	2
	Between SR 12 On-ramp and Truck Scales Off-ramp	100,600	7,040	7	100,600	7,040	7
	Between Truck Scales Off-ramp and Truck Scales On-ramp	95,000	1,900	2	95,000	1,900	2
Ramps	**I-80 WB On-ramp** from Chadbourne Road	4,500	320	7	NA	NA	NA
	I-80 WB On-ramp from SR 12	26,600	1,860	7	28,000	1,960	7
	I-80 WB Off-ramp to Truck Scales	5,600	5,600	100	5,600	5,600	100
	I-80 WB On-ramp from Truck Scales	5,600	5,600	100	5,600	5,600	100
	SR 12 On-ramp from WB Chadbourne Road	4,800	340	7	9,100	640	7
Chadbourne Road	Between I-80 WB and EB Ramps	17,900	540	3	17,900	540	3
	Between I-80 WB Ramps and Auto Mall Parkway	16,100	480	3	16,500	500	3
	Between Auto Mall Parkway and SR 12 WB Ramps	15,000	450	3	19,600	590	3

Intersection LOS	AM	PM	AM	PM
Chadbourne Road at I-80 WB Ramps	B	B	B	A
Chadbourne Road at I-80 EB Ramps	A	B	A	B
Chadbourne Road at Auto Mall Parkway	B	B	B	B
Chadbourne Road at SR 12 WB Ramps	B	B	B	B

Source: Application of Criteria for a Project of Air Quality Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project. Fehr and Peers ,2023.

Traffic Data (Design Year)

Segments		2050 No Build AADT			2050 Build AADT		
		Total	Truck	% Truck	Total	Truck	% Truck
I-80 Mainline Westbound	Between Chadbourne Road On-ramp and SR 12 On-ramp	80,200	1,600	2	78,400	1,570	2
	Between SR 12 On-ramp and Truck Scales Off-ramp	111,400	7,800	7	111,400	7,800	7
	Between Truck Scales Off-ramp and Truck Scales On-ramp	104,800	2,100	2	104,800	2,100	2
Ramps	**I-80 WB On-ramp** from Chadbourne Road	5,000	350	7	NA	NA	NA
	I-80 WB On-ramp from SR 12	31,200	2,180	7	33,000	2,310	7
	I-80 WB Off-ramp to Truck Scales	6,600	6,600	100	6,600	6,600	100
	I-80 WB On-ramp from Truck Scales	6,600	6,600	100	6,600	6,600	100
	SR 12 On-ramp from WB Chadbourne Road	5,300	370	7	10,100	710	7
Chadbourne Road	Between I-80 WB and EB Ramps	24,100	720	3	24,200	730	3
	Between I-80 WB Ramps and Auto Mall Parkway	21,300	640	3	21,900	660	3
	Between Auto Mall Parkway and SR 12 WB Ramps	18,300	550	3	23,600	710	3

Intersection LOS	2050 No Build AADT		2050 Build AADT	
	AM	PM	AM	PM
Chadbourne Road at I-80 WB Ramps	C	C	B	B
Chadbourne Road at I-80 EB Ramps	A	B	A	B
Chadbourne Road at Auto Mall Parkway	B	C	B	C
Chadbourne Road at SR 12 WB Ramps	C	C	B	C

Source: Application of Criteria for a Project of Air Quality Interstate 80 (I-80) Westbound (WB) Cordelia Commercial Vehicle Enforcement Facility (CCVEF) Project. Fehr and Peers, 2023.

Screening Results

- The Project will not result in a significant number or significant increase in diesel vehicles in the area.
- The Project does not change the number of diesel vehicles using the CCEVF nor does it degrade the LOS of the ramp terminal intersections near the Project area.
- The project does not involve a bus terminal, rail terminal, or transfer points involving a significant number of diesel vehicles congregating at a single location.
- The project location is not in an area identified by the SIP as one that could violate or possibly violate the NAAQS for $PM_{2.5}$.
- **Therefore, the proposed project would not be considered a Project of Air Quality Concern.**

Questions and Discussion

Thank you! For further questions, please contact:

Sean Charles, PE
WMH Corporation

Mobile: 415.601.1900

Email:
scharles@wmhcorporation.com

Appendix C – CalEEMod Construction Emissions Calculations

From: Sean Charles
To: Jay Witt
Cc: Andrew Metzger; Shawn Vogtman; Jesus Rico
Subject: RE: Construction Information Needed for the AQ Tech Report
Date: Friday, December 15, 2023 9:02:22 AM
Attachments: image001.png

Jay,

See responses in ***BLUE*** below.

Please let me know if you have any additional questions,

Sean

From: Jay Witt <jwitt@illingworthrodkin.com>
Sent: Friday, December 8, 2023 2:17 PM
To: Sean Charles <scharles@wmhcorporation.com>
Cc: Andrew Metzger <a.metzger@circlepoint.com>
Subject: Construction Information Needed for the AQ Tech Report

Sean – In order to estimate construction emissions, I will need some estimates from the engineering/design team regarding:

- Area (in acres) of the new CCVEF site **6.6 Acres**
- Amount of material (in tons or sf) to be demolished **22,900 SQFT**
- Square footage of the new CCVEF building **31,900 SQFT**
- Amount of landscaped area (in sf) at the new CCVEF **19.8 Acres**
- Amount of asphalt and concrete (in cubic yards) needed to construct the CCVEF **Asphalt = 400 CY; Concrete = 11,800 CY**
- Length (in miles) and area (in acres) for the roadway portions of the project **4.0 Miles; 30.9 Acres**
- Length (in miles) and area (in acres) for the bridges/flyover portions of the project **0.03 Miles; 0.08 Acres**
- Amount (in CY) of concrete and asphalt needed for the roadway portions of the project **Asphalt = 17,600 CY; Concrete = 18,400 CY**
- Amount (in CY) of concrete and asphalt needed for the bridges/flyover portions of the project **Asphalt = 0 CY; Concrete = 450 CY**
- Amount (in CY) of any soil imported or exported off-site **Imported Borrow = 60,000 CY; Export = 3,000 CY**

Let me know if you have any questions or concerns with what I need to conduct the emissions analysis for project construction.

Thanks!

Jay Witt
ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
Main Office: (707) 794-0400
Direct: (208) 810-1595

Our Offices will be closed for Holiday Week - December 25th through January 2nd .

CCVEF Facility Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CCVEF Facility
Construction Start Date	1/5/2025
Lead Agency	STA/Caltrans
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.70
Precipitation (days)	37.6
Location	38.235021016054446, -122.10791933706139
County	Solano-San Francisco
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	857
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Parking Lot	17.6	Acre	17.6	17.6	479,162	—	—	—

Government Office Building	32.2	1000sqft	0.00	32,200	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.53	27.6	41.2	33.1	0.12	1.41	6.25	7.66	1.31	2.14	3.45	—	16,021	16,021	0.69	1.54	21.3	16,520
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.38	6.74	71.5	62.1	0.23	2.64	15.3	17.2	2.45	6.00	7.78	—	33,184	33,184	1.48	4.50	1.61	34,565
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.76	2.00	14.7	14.6	0.04	0.55	1.07	1.62	0.51	0.37	0.88	—	4,434	4,434	0.19	0.29	1.75	4,527
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.32	0.37	2.68	2.67	0.01	0.10	0.19	0.30	0.09	0.07	0.16	—	734	734	0.03	0.05	0.29	749

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.53	3.48	41.2	33.1	0.12	1.41	6.25	7.66	1.31	2.14	3.45	—	16,021	16,021	0.69	1.54	21.3	16,520
2026	1.33	27.6	10.1	13.4	0.02	0.38	0.24	0.56	0.35	0.06	0.38	—	2,627	2,627	0.10	0.08	1.39	2,643
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	8.38	6.74	71.5	62.1	0.23	2.64	15.3	17.2	2.45	6.00	7.78	—	33,184	33,184	1.48	4.50	1.61	34,565
2026	1.33	1.11	10.1	13.4	0.02	0.38	0.12	0.50	0.35	0.03	0.38	—	2,620	2,620	0.10	0.04	0.02	2,635
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.76	1.43	14.7	14.6	0.04	0.55	1.07	1.62	0.51	0.37	0.88	—	4,434	4,434	0.19	0.29	1.75	4,527
2026	0.44	2.00	3.36	4.49	0.01	0.13	0.05	0.18	0.12	0.01	0.13	—	874	874	0.03	0.02	0.12	880
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.32	0.26	2.68	2.67	0.01	0.10	0.19	0.30	0.09	0.07	0.16	—	734	734	0.03	0.05	0.29	749
2026	0.08	0.37	0.61	0.82	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	145	145	0.01	< 0.005	0.02	146

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.81	0.81	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	1.22	1.09	< 0.005	0.05	—	0.05	0.05	—	0.05	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.22	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.54	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	124	124	< 0.005	0.01	0.01	126
Vendor	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	0.00
Hauling	0.06	0.02	1.21	0.41	0.01	0.02	0.24	0.26	0.02	0.07	0.08	—	930	930	0.04	0.15	0.05	976
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	6.99
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.9	50.9	< 0.005	0.01	0.05	53.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.14	1.14	< 0.005	< 0.005	< 0.005	1.16
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.43	8.43	< 0.005	< 0.005	0.01	8.85

3.3. Site Preparation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.86	7.86	—	3.97	3.97	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.87	0.83	< 0.005	0.04	—	0.04	0.03	—	0.03	—	145	145	0.01	< 0.005	—	146

Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.16	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.63	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	145	145	< 0.005	0.01	0.02	147
Vendor	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	0.00
Hauling	1.87	0.58	36.2	12.2	0.18	0.52	7.30	7.82	0.52	2.00	2.52	—	27,744	27,744	1.26	4.45	1.59	29,104
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.02	4.02	< 0.005	< 0.005	0.01	4.08
Vendor	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	0.00
Hauling	0.05	0.02	0.97	0.33	< 0.005	0.01	0.20	0.21	0.01	0.05	0.07	—	760	760	0.03	0.12	0.73	798
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
Vendor	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	0.00

Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.12	132

3.5. Grading (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.65	3.65	—	1.43	1.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movement	—	—	—	—	—	—	3.65	3.65	—	1.43	1.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	2.44	2.33	0.01	0.10	—	0.10	0.09	—	0.09	—	542	542	0.02	< 0.005	—	544

Dust From Material Movement	—	—	—	—	—	—	0.30	0.30	—	0.12	0.12	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.45	0.42	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.8	89.8	< 0.005	< 0.005	—	90.1
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.81	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	179	179	< 0.005	0.01	0.74	182
Vendor	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	0.00
Hauling	0.64	0.21	11.4	4.01	0.06	0.17	2.43	2.61	0.17	0.67	0.84	—	9,244	9,244	0.42	1.48	20.5	9,716
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	166	166	< 0.005	0.01	0.02	168
Vendor	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	0.00
Hauling	0.62	0.19	12.1	4.06	0.06	0.17	2.43	2.61	0.17	0.67	0.84	—	9,248	9,248	0.42	1.48	0.53	9,701
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.03	14.0
Vendor	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	0.00
Hauling	0.05	0.02	0.97	0.33	< 0.005	0.01	0.20	0.21	0.01	0.05	0.07	—	760	760	0.03	0.12	0.73	798

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	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	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	126	126	0.01	0.02	0.12	132

3.7. Building Construction (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.60	5.60	6.99	0.01	0.23	—	0.23	0.21	—	0.21	—	1,286	1,286	0.05	0.01	—	1,290
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.02	1.28	< 0.005	0.04	—	0.04	0.04	—	0.04	—	213	213	0.01	< 0.005	—	214

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.42	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	92.3	92.3	< 0.005	< 0.005	0.38	93.8
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	< 0.005	0.02	0.38	148
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.37	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	85.3	85.3	< 0.005	< 0.005	0.01	86.5
Vendor	0.01	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	< 0.005	0.02	0.01	147
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.19	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	46.3	46.3	< 0.005	< 0.005	0.09	47.0
Vendor	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.7	75.7	< 0.005	0.01	0.09	79.1
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	7.78
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.5	12.5	< 0.005	< 0.005	0.01	13.1
Hauling	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	0.00

3.9. Building Construction (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.83	3.73	0.01	0.11	—	0.11	0.10	—	0.10	—	690	690	0.03	0.01	—	692
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.52	0.68	< 0.005	0.02	—	0.02	0.02	—	0.02	—	114	114	< 0.005	< 0.005	—	115
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.39	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	90.5	90.5	< 0.005	< 0.005	0.35	91.9
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.34	145
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.35	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	83.7	83.7	< 0.005	< 0.005	0.01	84.8
Vendor	0.01	< 0.005	0.19	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.01	145
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.4	24.4	< 0.005	< 0.005	0.04	24.7
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.9	39.9	< 0.005	0.01	0.04	41.8
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	0.01	4.10
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.61	6.61	< 0.005	< 0.005	0.01	6.91
Hauling	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	0.00

3.11. Paving (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.57	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	132	132	< 0.005	< 0.005	0.51	134
Vendor	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	0.00
Hauling	0.03	0.01	0.51	0.18	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	415	415	0.02	0.07	0.88	435
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.75	6.75	< 0.005	< 0.005	0.01	6.85
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	0.02	23.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.12	1.12	< 0.005	< 0.005	< 0.005	1.13
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.76	3.76	< 0.005	< 0.005	< 0.005	3.94

3.13. Architectural Coating (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	27.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	1.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	—	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.07	18.4
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.94
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.16
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Trenching (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	2.44	2.33	0.01	0.10	—	0.10	0.09	—	0.09	—	542	542	0.02	< 0.005	—	544
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.45	0.42	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.8	89.8	< 0.005	< 0.005	—	90.1
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	166	166	< 0.005	0.01	0.02	168
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.03	14.0
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.31
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/5/2025	2/2/2025	5.00	20.0	—
Site Preparation	Site Preparation	2/3/2025	2/17/2025	5.00	10.0	—

Grading	Grading	2/18/2025	4/1/2025	5.00	30.0	—
Building Construction	Building Construction	4/2/2025	5/27/2026	5.00	300	—
Paving	Paving	5/28/2026	6/25/2026	5.00	20.0	—
Architectural Coating	Architectural Coating	6/26/2026	7/24/2026	5.00	20.0	—
Trenching	Trenching	2/18/2025	3/31/2025	5.00	30.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37

Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Graders	Diesel	Average	1.00	8.00	148	0.41
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Trenching	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Trenching	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	13.2	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	394	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT

Grading	Hauling	131	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	10.3	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	5.28	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	6.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	2.06	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	20.0	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction

Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	48,300	16,100	45,999

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	22,900	—
Site Preparation	30,000	1,500	15.0	0.00	—
Grading	30,000	1,500	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	17.6

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Parking Lot	17.6	100%

Government Office Building	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	18.1	annual days of extreme heat
Extreme Precipitation	5.35	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	13.3	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	17.9

AQ-PM	25.3
AQ-DPM	43.2
Drinking Water	25.5
Lead Risk Housing	6.38
Pesticides	85.7
Toxic Releases	61.5
Traffic	73.6
Effect Indicators	—
CleanUp Sites	2.07
Groundwater	60.8
Haz Waste Facilities/Generators	47.4
Impaired Water Bodies	66.7
Solid Waste	2.52
Sensitive Population	—
Asthma	60.5
Cardio-vascular	27.8
Low Birth Weights	64.2
Socioeconomic Factor Indicators	—
Education	17.8
Housing	0.19
Linguistic	19.9
Poverty	6.92
Unemployment	18.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract

Economic	—
Above Poverty	92.40343898
Employed	68.92082638
Median HI	82.97189786
Education	—
Bachelor's or higher	62.35082767
High school enrollment	100
Preschool enrollment	19.70999615
Transportation	—
Auto Access	66.18760426
Active commuting	39.27883998
Social	—
2-parent households	88.19453356
Voting	69.25445913
Neighborhood	—
Alcohol availability	59.88707815
Park access	22.77685102
Retail density	11.34351341
Supermarket access	44.18067496
Tree canopy	82.92056974
Housing	—
Homeownership	71.32041576
Housing habitability	92.8140639
Low-inc homeowner severe housing cost burden	92.66007956
Low-inc renter severe housing cost burden	79.28910561
Uncrowded housing	86.21840113
Health Outcomes	—

Insured adults	90.86359553
Arthritis	30.2
Asthma ER Admissions	37.4
High Blood Pressure	35.1
Cancer (excluding skin)	29.3
Asthma	58.2
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	65.3
Diagnosed Diabetes	62.8
Life Expectancy at Birth	56.4
Cognitively Disabled	25.4
Physically Disabled	39.7
Heart Attack ER Admissions	29.8
Mental Health Not Good	71.0
Chronic Kidney Disease	64.9
Obesity	55.2
Pedestrian Injuries	71.8
Physical Health Not Good	71.4
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	66.4
No Leisure Time for Physical Activity	69.5
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	34.6
Children	43.1

Elderly	28.7
English Speaking	80.5
Foreign-born	31.4
Outdoor Workers	54.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	62.6
Traffic Density	78.2
Traffic Access	49.9
Other Indices	—
Hardship	16.6
Other Decision Support	—
2016 Voting	70.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	28.0
Healthy Places Index Score for Project Location (b)	80.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	building site contained within "Parking Lot" use
Construction: On-Road Fugitive Dust	On site speed is 15 MPH
Construction: Off-Road Equipment	Added equipment from grading to trenching
Construction: Trips and VMT	Based on quantities provided by WMH on 12-15-2023

I80 WB CCVEF Roadways Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	I80 WB CCVEF Roadways
Construction Start Date	1/5/2025
Lead Agency	STA/Caltrans
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.70
Precipitation (days)	37.6
Location	38.2374874802598, -122.10027248854254
County	Solano-San Francisco
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	857
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Construction	4.00	Mile	30.9	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.88	3.27	27.4	31.0	0.06	1.21	1.58	2.79	1.11	0.21	1.32	—	6,881	6,881	0.27	0.12	2.06	6,910
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.86	3.26	27.5	30.9	0.06	1.21	1.58	2.79	1.11	0.21	1.32	—	6,854	6,854	0.27	0.12	0.05	6,882
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.39	2.01	16.7	19.7	0.04	0.69	1.04	1.73	0.63	0.14	0.77	—	4,602	4,602	0.18	0.06	0.46	4,621
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.37	3.05	3.60	0.01	0.13	0.19	0.31	0.12	0.03	0.14	—	762	762	0.03	0.01	0.08	765

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	3.88	3.27	27.4	31.0	0.06	1.21	1.58	2.79	1.11	0.21	1.32	—	6,881	6,881	0.27	0.07	1.54	6,910
2026	3.68	3.11	25.3	30.6	0.06	1.09	1.58	2.67	1.00	0.21	1.21	—	6,873	6,873	0.27	0.07	1.42	6,901
2027	2.89	2.43	19.9	24.4	0.05	0.76	1.32	2.09	0.70	0.18	0.88	—	5,994	5,994	0.24	0.12	2.06	6,018
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.86	3.26	27.5	30.9	0.06	1.21	1.58	2.79	1.11	0.21	1.32	—	6,854	6,854	0.27	0.07	0.04	6,882
2026	3.67	3.09	25.3	30.5	0.06	1.09	1.58	2.67	1.00	0.21	1.21	—	6,846	6,846	0.27	0.07	0.04	6,874
2027	2.89	2.43	19.9	24.3	0.05	0.76	1.32	2.09	0.70	0.18	0.88	—	5,971	5,971	0.24	0.12	0.05	5,994
2028	1.05	0.87	7.75	11.8	0.02	0.26	0.39	0.65	0.23	0.10	0.33	—	2,431	2,431	0.10	0.12	0.05	2,468
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.00	1.69	14.2	15.9	0.03	0.64	0.84	1.48	0.59	0.11	0.70	—	3,489	3,489	0.14	0.04	0.38	3,503
2026	2.39	2.01	16.7	19.7	0.04	0.69	1.04	1.73	0.63	0.14	0.77	—	4,602	4,602	0.18	0.05	0.40	4,621
2027	1.55	1.30	10.8	13.7	0.03	0.41	0.67	1.08	0.37	0.10	0.48	—	3,247	3,247	0.13	0.06	0.46	3,268
2028	0.04	0.03	0.29	0.44	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	90.5	90.5	< 0.005	< 0.005	0.03	91.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.37	0.31	2.59	2.91	0.01	0.12	0.15	0.27	0.11	0.02	0.13	—	578	578	0.02	0.01	0.06	580
2026	0.44	0.37	3.05	3.60	0.01	0.13	0.19	0.31	0.12	0.03	0.14	—	762	762	0.03	0.01	0.07	765
2027	0.28	0.24	1.97	2.51	0.01	0.07	0.12	0.20	0.07	0.02	0.09	—	538	538	0.02	0.01	0.08	541
2028	0.01	0.01	0.05	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.0	15.0	< 0.005	< 0.005	0.01	15.2

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.39	3.49	< 0.005	0.21	—	0.21	0.19	—	0.19	—	490	490	0.02	< 0.005	—	492
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	3.39	3.49	< 0.005	0.21	—	0.21	0.19	—	0.19	—	490	490	0.02	< 0.005	—	492
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.73	0.75	< 0.005	0.05	—	0.05	0.04	—	0.04	—	106	106	< 0.005	< 0.005	—	106
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	17.6	17.6	< 0.005	< 0.005	—	17.6

Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.61	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	134	134	< 0.005	0.01	0.55	136
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.54	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	124	124	< 0.005	0.01	0.01	126
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.2	27.2	< 0.005	< 0.005	0.05	27.6
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.50	4.50	< 0.005	< 0.005	0.01	4.57
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Grading & Excavation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.71	3.11	27.3	29.4	0.06	1.21	—	1.21	1.11	—	1.11	—	6,496	6,496	0.26	0.05	—	6,518
Dust From Material Movement	—	—	—	—	—	—	1.24	1.24	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.71	3.11	27.3	29.4	0.06	1.21	—	1.21	1.11	—	1.11	—	6,496	6,496	0.26	0.05	—	6,518
Dust From Material Movement	—	—	—	—	—	—	1.24	1.24	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	13.4	14.4	0.03	0.59	—	0.59	0.54	—	0.54	—	3,178	3,178	0.13	0.03	—	3,189
Dust From Material Movement	—	—	—	—	—	—	0.61	0.61	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.44	2.62	0.01	0.11	—	0.11	0.10	—	0.10	—	526	526	0.02	< 0.005	—	528
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.10	1.62	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	358	358	0.01	0.01	1.47	364
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	0.07	28.0
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.14	1.45	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	331	331	0.01	0.01	0.04	335
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	< 0.005	27.9
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.68	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	164	164	< 0.005	0.01	0.31	166
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.7
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.1	27.1	< 0.005	< 0.005	0.05	27.5
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.17	2.17	< 0.005	< 0.005	< 0.005	2.26
Hauling	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	0.00

3.5. Linear, Grading & Excavation (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.52	2.96	25.2	29.1	0.06	1.09	—	1.09	1.00	—	1.00	—	6,495	6,495	0.26	0.05	—	6,517
Dust From Material Movement	—	—	—	—	—	—	1.24	1.24	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.52	2.96	25.2	29.1	0.06	1.09	—	1.09	1.00	—	1.00	—	6,495	6,495	0.26	0.05	—	6,517
Dust From Material Movement	—	—	—	—	—	—	1.24	1.24	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.34	1.12	9.56	11.0	0.02	0.41	—	0.41	0.38	—	0.38	—	2,466	2,466	0.10	0.02	—	2,474
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.05	0.05	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.21	1.74	2.02	< 0.005	0.08	—	0.08	0.07	—	0.07	—	408	408	0.02	< 0.005	—	410
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.10	1.51	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	351	351	0.01	0.01	1.35	357
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.3	26.3	< 0.005	< 0.005	0.06	27.5
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.13	0.13	1.35	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	325	325	0.01	0.01	0.04	329
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.3	26.3	< 0.005	< 0.005	< 0.005	27.5
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.49	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	125	125	< 0.005	0.01	0.22	127
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.98	9.98	< 0.005	< 0.005	0.01	10.4
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	20.7	20.7	< 0.005	< 0.005	0.04	21.0
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.65	1.65	< 0.005	< 0.005	< 0.005	1.73

Hauling	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	0.00

3.7. Linear, Drainage, Utilities, & Sub-Grade (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.85	2.39	21.2	23.3	0.05	0.83	—	0.83	0.76	—	0.76	—	5,693	5,693	0.23	0.05	—	5,712
Dust From Material Movement	—	—	—	—	—	—	1.03	1.03	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.85	2.39	21.2	23.3	0.05	0.83	—	0.83	0.76	—	0.76	—	5,693	5,693	0.23	0.05	—	5,712
Dust From Material Movement	—	—	—	—	—	—	1.03	1.03	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	7.08	7.81	0.02	0.28	—	0.28	0.25	—	0.25	—	1,905	1,905	0.08	0.02	—	1,911

Dust From Material Movement	—	—	—	—	—	—	0.35	0.35	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.29	1.42	< 0.005	0.05	—	0.05	0.05	—	0.05	—	315	315	0.01	< 0.005	—	316
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.09	1.32	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	307	307	0.01	0.01	1.18	312
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.11	1.18	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	284	284	0.01	0.01	0.03	288
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.38	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.17	97.7
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.2
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Linear, Drainage, Utilities, & Sub-Grade (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.76	2.32	19.8	23.2	0.05	0.76	—	0.76	0.70	—	0.70	—	5,692	5,692	0.23	0.05	—	5,711
Dust From Material Movement	—	—	—	—	—	—	1.03	1.03	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.76	2.32	19.8	23.2	0.05	0.76	—	0.76	0.70	—	0.70	—	5,692	5,692	0.23	0.05	—	5,711
Dust From Material Movement	—	—	—	—	—	—	1.03	1.03	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.17	0.98	8.41	9.86	0.02	0.32	—	0.32	0.30	—	0.30	—	2,417	2,417	0.10	0.02	—	2,425
Dust From Material Movement	—	—	—	—	—	—	0.44	0.44	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.54	1.80	< 0.005	0.06	—	0.06	0.05	—	0.05	—	400	400	0.02	< 0.005	—	402
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.08	1.23	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	301	301	0.01	0.01	1.08	306
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.10	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	279	279	0.01	0.01	0.03	283
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.45	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	120	120	< 0.005	0.01	0.20	122

Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	19.8	19.8	< 0.005	< 0.005	0.03	20.1
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Linear, Paving (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.82	7.18	10.8	0.01	0.28	—	0.28	0.26	—	0.26	—	1,619	1,619	0.07	0.01	—	1,625
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.82	7.18	10.8	0.01	0.28	—	0.28	0.26	—	0.26	—	1,619	1,619	0.07	0.01	—	1,625
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.08	3.12	< 0.005	0.08	—	0.08	0.07	—	0.07	—	469	469	0.02	< 0.005	—	471
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.38	0.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	77.7	77.7	< 0.005	< 0.005	—	77.9
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.06	0.97	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	237	237	< 0.005	0.01	0.85	240
Vendor	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	0.00
Hauling	0.04	0.01	0.73	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.05	—	608	608	0.02	0.10	1.21	639
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.08	0.87	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	219	219	0.01	0.01	0.02	222
Vendor	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	0.00
Hauling	0.04	0.01	0.78	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.05	—	608	608	0.02	0.10	0.03	638
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.02	0.02	—	64.2	64.2	< 0.005	< 0.005	0.11	65.2
Vendor	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	0.00
Hauling	0.01	< 0.005	0.22	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	176	176	0.01	0.03	0.15	185
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.02	10.8
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.2	29.2	< 0.005	< 0.005	0.03	30.6

3.13. Linear, Paving (2028) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92	0.77	6.92	10.8	0.01	0.24	—	0.24	0.22	—	0.22	—	1,619	1,619	0.07	0.01	—	1,625
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	60.2	60.2	< 0.005	< 0.005	—	60.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.97	9.97	< 0.005	< 0.005	—	10.0
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	0.81	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	215	215	0.01	0.01	0.02	218
Vendor	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	0.00
Hauling	0.04	0.01	0.75	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.05	—	593	593	0.02	0.09	0.03	622

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.09	8.09	< 0.005	< 0.005	0.01	8.21
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	0.02	23.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.34	1.34	< 0.005	< 0.005	< 0.005	1.36
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.65	3.65	< 0.005	< 0.005	< 0.005	3.83

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	1/5/2025	4/25/2025	5.00	79.0	—

Linear, Grading & Excavation	Linear, Grading & Excavation	4/26/2025	7/13/2026	5.00	317	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	7/14/2026	8/5/2027	5.00	277	—
Linear, Paving	Linear, Paving	8/6/2027	1/19/2028	5.00	119	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	8.00	8.00	6.00	0.82
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grading & Excavation	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Grading & Excavation	Signal Boards	Electric	Average	8.00	8.00	6.00	0.82
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	2.00	8.00	423	0.48

Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	8.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Signal Boards	Electric	Average	8.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	15.0	11.7	LDA,LDT1,LDT2

Linear, Grubbing & Land Clearing	Vendor	0.00	8.40	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	40.0	11.7	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	8.40	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	35.0	11.7	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.40	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	27.5	11.7	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.40	HHDT,MHDT
Linear, Paving	Hauling	9.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	30.9	0.00	—
Linear, Grading & Excavation	—	—	30.9	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	30.9	0.00	—

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Construction	30.9	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2025	470	204	0.03	< 0.005
2026	470	204	0.03	< 0.005
2027	470	204	0.03	< 0.005
2028	235	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit

Temperature and Extreme Heat	18.1	annual days of extreme heat
Extreme Precipitation	5.35	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	13.3	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	17.9
AQ-PM	25.3
AQ-DPM	43.2
Drinking Water	25.5
Lead Risk Housing	6.38

Pesticides	85.7
Toxic Releases	61.5
Traffic	73.6
Effect Indicators	—
CleanUp Sites	2.07
Groundwater	60.8
Haz Waste Facilities/Generators	47.4
Impaired Water Bodies	66.7
Solid Waste	2.52
Sensitive Population	—
Asthma	60.5
Cardio-vascular	27.8
Low Birth Weights	64.2
Socioeconomic Factor Indicators	—
Education	17.8
Housing	0.19
Linguistic	19.9
Poverty	6.92
Unemployment	18.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.40343898
Employed	68.92082638
Median HI	82.97189786

Education	—
Bachelor's or higher	62.35082767
High school enrollment	100
Preschool enrollment	19.70999615
Transportation	—
Auto Access	66.18760426
Active commuting	39.27883998
Social	—
2-parent households	88.19453356
Voting	69.25445913
Neighborhood	—
Alcohol availability	59.88707815
Park access	22.77685102
Retail density	11.34351341
Supermarket access	44.18067496
Tree canopy	82.92056974
Housing	—
Homeownership	71.32041576
Housing habitability	92.8140639
Low-inc homeowner severe housing cost burden	92.66007956
Low-inc renter severe housing cost burden	79.28910561
Uncrowded housing	86.21840113
Health Outcomes	—
Insured adults	90.86359553
Arthritis	30.2
Asthma ER Admissions	37.4
High Blood Pressure	35.1

Cancer (excluding skin)	29.3
Asthma	58.2
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	65.3
Diagnosed Diabetes	62.8
Life Expectancy at Birth	56.4
Cognitively Disabled	25.4
Physically Disabled	39.7
Heart Attack ER Admissions	29.8
Mental Health Not Good	71.0
Chronic Kidney Disease	64.9
Obesity	55.2
Pedestrian Injuries	71.8
Physical Health Not Good	71.4
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	66.4
No Leisure Time for Physical Activity	69.5
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	34.6
Children	43.1
Elderly	28.7
English Speaking	80.5
Foreign-born	31.4
Outdoor Workers	54.0

Climate Change Adaptive Capacity	—
Impervious Surface Cover	62.6
Traffic Density	78.2
Traffic Access	49.9
Other Indices	—
Hardship	16.6
Other Decision Support	—
2016 Voting	70.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	28.0
Healthy Places Index Score for Project Location (b)	80.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: On-Road Fugitive Dust	On site speeds limited to 15 mph
Construction: Trips and VMT	Based on 17,600 CY asphalt and 18,400 CY concrete per WMH 12-15-23

I80 WB CCVEF Bridges Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	I80 WB CCVEF Bridges
Construction Start Date	1/5/2025
Lead Agency	STA/Caltrans
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.70
Precipitation (days)	37.6
Location	38.23716080764015, -122.10098975406333
County	Solano-San Francisco
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	857
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Bridge/Overpass Construction	0.03	Mile	0.08	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.69	6.48	55.2	60.3	0.12	2.47	2.92	5.39	2.27	0.37	2.64	—	13,974	13,974	0.56	0.13	2.00	14,029
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.67	6.47	55.2	60.1	0.12	2.47	2.92	5.39	2.27	0.37	2.64	—	13,938	13,938	0.56	0.13	0.05	13,991
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.67	3.10	26.9	28.6	0.06	1.16	1.46	2.62	1.07	0.18	1.25	—	6,832	6,832	0.27	0.06	0.41	6,859
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.67	0.57	4.91	5.22	0.01	0.21	0.27	0.48	0.20	0.03	0.23	—	1,131	1,131	0.05	0.01	0.07	1,136

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	7.69	6.48	55.2	60.3	0.12	2.47	2.92	5.39	2.27	0.37	2.64	—	13,974	13,974	0.56	0.13	2.00	14,029
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	7.67	6.47	55.2	60.1	0.12	2.47	2.92	5.39	2.27	0.37	2.64	—	13,938	13,938	0.56	0.13	0.05	13,991
2026	0.74	0.62	5.69	9.22	0.01	0.23	0.11	0.34	0.21	0.03	0.24	—	1,458	1,458	0.06	0.02	0.01	1,465
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.67	3.10	26.9	28.6	0.06	1.16	1.46	2.62	1.07	0.18	1.25	—	6,832	6,832	0.27	0.06	0.41	6,859
2026	0.02	0.01	0.12	0.20	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.01	—	31.4	31.4	< 0.005	< 0.005	< 0.005	31.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.67	0.57	4.91	5.22	0.01	0.21	0.27	0.48	0.20	0.03	0.23	—	1,131	1,131	0.05	0.01	0.07	1,136
2026	< 0.005	< 0.005	0.02	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.20	5.20	< 0.005	< 0.005	< 0.005	5.23

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	4.22	4.50	0.01	0.24	—	0.24	0.22	—	0.22	—	632	632	0.03	0.01	—	634

Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.32	< 0.005	0.02	—	0.02	0.02	—	0.02	—	45.0	45.0	< 0.005	< 0.005	—	45.2
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.45	7.45	< 0.005	< 0.005	—	7.48
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.27	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	62.1	62.1	< 0.005	< 0.005	0.01	62.9
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.47	4.47	< 0.005	< 0.005	0.01	4.54
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.74	0.74	< 0.005	< 0.005	< 0.005	0.75
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Grading & Excavation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.47	6.27	55.0	58.2	0.12	2.47	—	2.47	2.27	—	2.27	—	13,477	13,477	0.55	0.11	—	13,523
Dust From Material Movement	—	—	—	—	—	—	2.48	2.48	—	0.27	0.27	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.47	6.27	55.0	58.2	0.12	2.47	—	2.47	2.27	—	2.27	—	13,477	13,477	0.55	0.11	—	13,523

Dust From Material Movement	—	—	—	—	—	—	2.48	2.48	—	0.27	0.27	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.17	1.82	16.0	16.9	0.04	0.72	—	0.72	0.66	—	0.66	—	3,914	3,914	0.16	0.03	—	3,927
Dust From Material Movement	—	—	—	—	—	—	0.72	0.72	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.33	2.92	3.08	0.01	0.13	—	0.13	0.12	—	0.12	—	648	648	0.03	0.01	—	650
Dust From Material Movement	—	—	—	—	—	—	0.13	0.13	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	0.13	2.13	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	470	470	0.01	0.02	1.93	478
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	0.07	28.0
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.20	0.20	0.18	1.90	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	434	434	0.01	0.02	0.05	440
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	< 0.005	27.9
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.53	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.24	130
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.76	7.76	< 0.005	< 0.005	0.01	8.11
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.1	21.1	< 0.005	< 0.005	0.04	21.5
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.29	1.29	< 0.005	< 0.005	< 0.005	1.34
Hauling	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	0.00

3.5. Linear, Drainage, Utilities, & Sub-Grade (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.17	4.34	39.7	38.6	0.09	1.61	—	1.61	1.48	—	1.48	—	10,050	10,050	0.41	0.08	—	10,085
Dust From Material Movement	—	—	—	—	—	—	2.07	2.07	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	5.17	4.34	39.7	38.6	0.09	1.61	—	1.61	1.48	—	1.48	—	10,050	10,050	0.41	0.08	—	10,085
Dust From Material Movement	—	—	—	—	—	—	2.07	2.07	—	0.22	0.22	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.30	1.09	10.00	9.72	0.02	0.41	—	0.41	0.37	—	0.37	—	2,533	2,533	0.10	0.02	—	2,542
Dust From Material Movement	—	—	—	—	—	—	0.52	0.52	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.82	1.77	< 0.005	0.07	—	0.07	0.07	—	0.07	—	419	419	0.02	< 0.005	—	421
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.32	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	291	291	0.01	0.01	1.20	296
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.11	1.17	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	269	269	0.01	0.01	0.03	273
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.28	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	68.6	68.6	< 0.005	< 0.005	0.13	69.6
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.4	11.4	< 0.005	< 0.005	0.02	11.5
Vendor	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	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Linear, Paving (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.61	5.93	8.81	0.01	0.26	—	0.26	0.24	—	0.24	—	1,337	1,337	0.05	0.01	—	1,341
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.53	0.79	< 0.005	0.02	—	0.02	0.02	—	0.02	—	120	120	< 0.005	< 0.005	—	121
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.9	19.9	< 0.005	< 0.005	—	20.0
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.45	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	103	103	< 0.005	< 0.005	0.01	105
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.1	21.1	< 0.005	< 0.005	< 0.005	22.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.43	9.43	< 0.005	< 0.005	0.02	9.57
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.90	1.90	< 0.005	< 0.005	< 0.005	2.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.56	1.56	< 0.005	< 0.005	< 0.005	1.58
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.33

3.9. Linear, Paving (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	0.58	5.63	8.79	0.01	0.23	—	0.23	0.21	—	0.21	—	1,336	1,336	0.05	0.01	—	1,341
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.12	0.19	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.8	28.8	< 0.005	< 0.005	—	28.9
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.76	4.76	< 0.005	< 0.005	—	4.78
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.04	0.04	0.42	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	101	101	< 0.005	< 0.005	0.01	103
Vendor	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	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.7	20.7	< 0.005	< 0.005	< 0.005	21.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.21	2.21	< 0.005	< 0.005	< 0.005	2.24
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.47
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.37
Vendor	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	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.08

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description

Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	1/5/2025	2/10/2025	5.00	26.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	2/11/2025	7/9/2025	5.00	106	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	7/10/2025	11/15/2025	5.00	92.0	—
Linear, Paving	Linear, Paving	11/16/2025	1/11/2026	5.00	40.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Linear, Grading & Excavation	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Grading & Excavation	Graders	Diesel	Average	2.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Grading & Excavation	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Grading & Excavation	Scrapers	Diesel	Average	4.00	8.00	423	0.48

Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	3.00	8.00	150	0.36
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	4.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	2.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Linear, Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Linear, Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Linear, Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Linear, Paving	Signal Boards	Electric	Average	0.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	7.50	11.7	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	8.40	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	52.5	11.7	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.00	8.40	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	32.5	11.7	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	8.40	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	8.40	HHDT,MHDT
Linear, Paving	Hauling	0.30	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%

Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	0.08	0.00	—
Linear, Grading & Excavation	—	—	0.08	0.00	—
Linear, Drainage, Utilities, & Sub-Grade	—	—	0.08	0.00	—

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Bridge/Overpass Construction	0.08	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	18.1	annual days of extreme heat
Extreme Precipitation	5.35	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	13.3	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	17.9
AQ-PM	25.3
AQ-DPM	43.2

Drinking Water	25.5
Lead Risk Housing	6.38
Pesticides	85.7
Toxic Releases	61.5
Traffic	73.6
Effect Indicators	—
CleanUp Sites	2.07
Groundwater	60.8
Haz Waste Facilities/Generators	47.4
Impaired Water Bodies	66.7
Solid Waste	2.52
Sensitive Population	—
Asthma	60.5
Cardio-vascular	27.8
Low Birth Weights	64.2
Socioeconomic Factor Indicators	—
Education	17.8
Housing	0.19
Linguistic	19.9
Poverty	6.92
Unemployment	18.3

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	92.40343898

Employed	68.92082638
Median HI	82.97189786
Education	—
Bachelor's or higher	62.35082767
High school enrollment	100
Preschool enrollment	19.70999615
Transportation	—
Auto Access	66.18760426
Active commuting	39.27883998
Social	—
2-parent households	88.19453356
Voting	69.25445913
Neighborhood	—
Alcohol availability	59.88707815
Park access	22.77685102
Retail density	11.34351341
Supermarket access	44.18067496
Tree canopy	82.92056974
Housing	—
Homeownership	71.32041576
Housing habitability	92.8140639
Low-inc homeowner severe housing cost burden	92.66007956
Low-inc renter severe housing cost burden	79.28910561
Uncrowded housing	86.21840113
Health Outcomes	—
Insured adults	90.86359553
Arthritis	30.2

Asthma ER Admissions	37.4
High Blood Pressure	35.1
Cancer (excluding skin)	29.3
Asthma	58.2
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	65.3
Diagnosed Diabetes	62.8
Life Expectancy at Birth	56.4
Cognitively Disabled	25.4
Physically Disabled	39.7
Heart Attack ER Admissions	29.8
Mental Health Not Good	71.0
Chronic Kidney Disease	64.9
Obesity	55.2
Pedestrian Injuries	71.8
Physical Health Not Good	71.4
Stroke	64.5
Health Risk Behaviors	—
Binge Drinking	36.9
Current Smoker	66.4
No Leisure Time for Physical Activity	69.5
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	34.6
Children	43.1
Elderly	28.7
English Speaking	80.5

Foreign-born	31.4
Outdoor Workers	54.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	62.6
Traffic Density	78.2
Traffic Access	49.9
Other Indices	—
Hardship	16.6
Other Decision Support	—
2016 Voting	70.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	28.0
Healthy Places Index Score for Project Location (b)	80.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: On-Road Fugitive Dust	Onsite travel speed limit is 15 mph
Construction: Trips and VMT	Based on 450 CY concrete per WMH 12-15-2023

Appendix D – Operational Roadway Input Assumptions and CT-EMFAC2021 Output

Daily Regional VMT - All Periods

From "VMT by Speed Bin.xlsx"

Daily VMT (Project Influence Area)										
	2019 Base Year		2030 Opening Year				2050 RTP/Design Year			
Speed Bin	Existing	%	NoBuild	%	Build	%	NoBuild	%	Build	%
<5	21,396	0.482%	16,201	0.322%	16,201	0.322%	6,756	0.111%	6,756	0.111%
10	7,319	0.165%	19,119	0.380%	19,119	0.380%	40,574	0.664%	40,574	0.664%
15	51,344	1.158%	83,140	1.653%	83,140	1.653%	140,951	2.307%	140,951	2.306%
20	196,921	4.440%	301,872	6.002%	301,872	6.001%	492,691	8.063%	492,691	8.062%
25	127,122	2.866%	186,360	3.705%	186,360	3.705%	294,066	4.812%	294,066	4.812%
30	333,450	7.518%	407,086	8.093%	407,086	8.093%	540,969	8.853%	540,969	8.852%
35	479,274	10.806%	486,833	9.679%	486,833	9.678%	500,576	8.192%	500,576	8.191%
40	212,767	4.797%	301,893	6.002%	301,940	6.002%	463,939	7.592%	464,001	7.593%
45	279,643	6.305%	380,962	7.574%	381,021	7.574%	565,178	9.249%	565,254	9.249%
50	284,329	6.411%	469,810	9.341%	469,883	9.341%	807,047	13.207%	807,156	13.208%
55	39,115	0.882%	185,076	3.680%	185,105	3.680%	450,460	7.372%	450,520	7.372%
60	152,519	3.439%	249,524	4.961%	249,563	4.961%	425,897	6.970%	425,954	6.970%
65	2,250,092	50.732%	1,941,930	38.608%	1,942,232	38.610%	1,381,634	22.610%	1,381,820	22.611%
70		0.000%		0.000%		0.000%		0.000%		0.000%
>70		0.00%		0.000%		0.00%		0.00%		0.000%
TOTAL	4,435,292	100.00%	5,029,805	100%	5,030,355	100%	6,110,739	100%	6,111,289	100%
Change				594,513	550			1,675,447	550	
Truck %	5.20		5.10		5.10		5.00		5.00	

File Name: CCVEF 2019 Baseline.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 1:34:36 PM
Area: Solano (SF)
Analysis Year: 2019
Season: Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.023	0.472	0.528
Truck 2	0.029	0.943	0.037
Non-Truck	0.948	0.008	0.981

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Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

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Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.018214	0.013268	0.009243	0.006678	0.005249	0.004408	0.003876	0.003591	0.003518	0.003641	0.003955	0.004296	0.004612	0.004780	0.004780
PM10	0.019439	0.014122	0.009830	0.007099	0.005575	0.004677	0.004108	0.003803	0.003723	0.003849	0.004178	0.004538	0.004874	0.005055	0.005055
NOx	0.718260	0.593315	0.463432	0.391216	0.347398	0.316537	0.293347	0.277220	0.267780	0.264832	0.268302	0.277754	0.292744	0.297914	0.297914
CO	2.700785	2.359336	2.076572	1.857204	1.681771	1.536162	1.412957	1.308682	1.221100	1.149364	1.092750	1.052246	1.029914	1.027820	1.027833
HC	0.298688	0.197824	0.130130	0.090169	0.067936	0.054082	0.045037	0.039263	0.035894	0.034499	0.034879	0.037097	0.041304	0.044379	0.044380
TOG	0.338913	0.226069	0.147653	0.101413	0.076360	0.060811	0.050590	0.044019	0.040153	0.038518	0.038893	0.041317	0.045908	0.049266	0.049267
ROG	0.247111	0.165860	0.107887	0.073494	0.055237	0.043944	0.036486	0.031683	0.028866	0.027683	0.028003	0.029806	0.033195	0.035669	0.035670
1,3-Butadiene	0.000591	0.000581	0.000395	0.000283	0.000214	0.000170	0.000142	0.000125	0.000115	0.000112	0.000114	0.000122	0.000138	0.000138	0.000138
Acetaldehyde	0.002646	0.002470	0.001671	0.001177	0.000904	0.000729									

0.000610 0.000530 0.000480 0.000456 0.000455 0.000478 0.000518 0.000519
0.000519
Acrolein 0.000048 0.000047 0.000032 0.000024 0.000018 0.000015
0.000012 0.000011 0.000010 0.000010 0.000010 0.000011 0.000013 0.000013
0.000013
Benzene 0.006863 0.006732 0.004570 0.003246 0.002441 0.001933
0.001608 0.001405 0.001291 0.001248 0.001270 0.001356 0.001518 0.001521
0.001521
Diesel PM 0.008070 0.007608 0.005495 0.004011 0.003329 0.002929
0.002675 0.002563 0.002590 0.002757 0.003066 0.003326 0.003464 0.003472
0.003472
Ethylbenzene 0.002073 0.002041 0.001386 0.000987 0.000742 0.000588
0.000490 0.000429 0.000395 0.000382 0.000389 0.000417 0.000468 0.000469
0.000469
Formaldehyde 0.006067 0.005706 0.003862 0.002726 0.002090 0.001682
0.001406 0.001223 0.001111 0.001059 0.001061 0.001117 0.001218 0.001221
0.001221
Naphthalene 0.000588 0.000580 0.000394 0.000279 0.000210 0.000166
0.000138 0.000120 0.000110 0.000107 0.000109 0.000116 0.000130 0.000130
0.000130
POM 0.000157 0.000150 0.000102 0.000072 0.000055 0.000044
0.000037 0.000032 0.000029 0.000028 0.000028 0.000030 0.000033 0.000033
0.000033
DEOG 0.052973 0.050641 0.029155 0.016619 0.012571 0.010201
0.008368 0.007010 0.006081 0.005552 0.005397 0.005507 0.005592 0.005597
0.005598
CO2 905.355701 740.092104 604.821754 505.835529 434.794689 387.321255
358.789392 345.510746 344.045247 351.409245 363.825618 377.793386 390.186435 394.188503
394.188503
N2O 0.031101 0.031138 0.025730 0.022880 0.020726 0.019105
0.017876 0.017079 0.016496 0.016317 0.016253 0.016667 0.017476 0.017472
0.017473
CH4 0.047738 0.032833 0.022636 0.016668 0.013101 0.010794
0.009261 0.008259 0.007650 0.007384 0.007403 0.007759 0.008434 0.008923
0.008923
BC 0.002094 0.001988 0.001383 0.001008 0.000776 0.000626
0.000525 0.000461 0.000423 0.000411 0.000419 0.000443 0.000485 0.000487
0.000487

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph
Gasoline 0.076579 0.075913 0.062671 0.051787 0.044206 0.039337
0.036408 0.035136 0.035188 0.036215 0.037922 0.039445 0.040369 0.040131
0.040131
Diesel 0.010060 0.009874 0.008082 0.007020 0.006307 0.005770
0.005363 0.005060 0.004862 0.004775 0.004801 0.004914 0.005109 0.005110
0.005110

Fleet Average Natural Gas Consumption (diesel-equivalent gallons/veh-mile)

Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph

Natural Gas	0.000357	0.000602	0.000375	0.000279	0.000225	0.000190	0.000166	0.000148	0.000134	0.000128	0.000123	0.000123	0.000123	0.000123	0.000123					

Fleet Average Electricity Consumption (kilowatt-hours/veh-mile)

Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Electricity	0.008600	0.005937	0.005095	0.004753	0.004427	0.003301	0.003454	0.003371	0.003951	0.002835	0.002561	0.002330	0.002383	0.006263	0.006263

==========

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	1.291788
TOG	1.381088
ROG	1.381088
1,3-Butadiene	0.000000
Benzene	0.019933
Ethylbenzene	0.012903
Naphthalene	0.000000
HFC	0.028841

==========

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002172
PM10	0.008689

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004344	0.004887	0.005416	0.005933	0.006202	0.006295	0.006256	0.005699	0.004569	0.003468	0.002807	0.002501	0.002195	0.002195	0.002195
PM10	0.012411	0.013964	0.015475	0.016952	0.017719	0.017986	0.017875	0.016283	0.013054	0.009910	0.008019	0.007145	0.006271	0.006271	0.006271

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.016786
PM10	0.111906

==========END==========

File Name: CCVEM 2019 Baseline.EM
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 1:42:53 PM
Area: Solano (SF)
Analysis Year: 2019
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.023	0.472	0.528
Truck 2	0.029	0.943	0.037
Non-Truck	0.948	0.008	0.981

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Road Length: 4435292 miles
Volume: 1 vehicles per hour
Number of Hours: 1 hours
VMT: 4435292 miles

VMT Distribution by Speed Bin (mph):

<= 5 mph	0.48%
10 mph	0.16%
15 mph	1.16%
20 mph	4.44%
25 mph	2.87%
30 mph	7.52%
35 mph	10.81%
40 mph	4.80%
45 mph	6.30%
50 mph	6.41%
55 mph	0.88%
60 mph	3.44%
65 mph	50.73%
70 mph	0.00%
75 mph	0.00%

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Summary of Emissions

	Running Exhaust	Running Loss	Tire Wear	Brake Wear	Road Dust	Total	Total

Pollutant Name	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	(pounds)	(US tons)
PM2.5	20,238.9	-	9,633.5	16,368.6	74,450.8	120,691.7	266.080	0.133
PM10	21,423.3	-	38,538.3	46,767.1	496,335.8	603,064.4	1,329.529	0.665
NOx	1,331,495.7	-	-	-	1,331,495.7	2,935.445	1.468	
CO	5,417,810.2	-	-	-	5,417,810.2	11,944.226	5.972	
HC	208,646.7	148,560.5	-	-	357,207.2	787.507		0.394
TOG	233,303.2	158,830.3	-	-	392,133.5	864.506		0.432
ROG	168,654.5	158,830.3	-	-	327,484.7	721.980		0.361
1,3-Butadiene	668.9	0.0	-	-	668.9	1.475	<	0.001
Acetaldehyde	2,675.1	-	-	-	2,675.1	5.898	0.003	
Acrolein	60.1	-	-	-	60.1	0.132	< 0.001	
Benzene	7,481.3	2,292.4	-	-	9,773.7	21.547		0.011
Diesel PM	14,456.0	-	-	-	14,456.0	31.870	0.016	
Ethylbenzene	2,291.9	1,483.9	-	-	3,775.8	8.324		0.004
Formaldehyde	6,230.6	-	-	-	6,230.6	13.736		0.007
Naphthalene	641.3	0.0	-	-	641.3	1.414	<	0.001
POM	166.0	-	-	-	166.0	0.366	< 0.001	
DEOG	33,677.5	-	-	-	33,677.5	74.246	0.037	
CO2	1,731,179,746.6	-	-	-	1,731,179,746.6	3,816,597.779		1,908.299
N2O	79,676.8	-	-	-	79,676.8	175.657	0.088	
CH4	41,849.0	-	-	-	41,849.0	92.261	0.046	
BC	2,396.0	-	-	-	2,396.0	5.282	0.003	
HFC	-	3,316.8	-	-	3,316.8	7.312	0.004	

==========

Summary of GHG Emissions

Pollutant Name	Emissions (metric tons)	CO2e (metric tons)
CO2	1,731.180	1,731.180
N2O	0.080	23.744
CH4	0.042	1.046
BC	0.002	1.102
HFC	0.003	4.743
Total CO2e	-	1,761.815

==========

Summary of Consumptions

Gasoline	177,733.220	gallons
Diesel	23,606.977	gallons
Natural Gas	663.372	diesel-equivalent gallons
Electricity	13,188.834	kilowatt-hours

==========END==========

File Name: CCVEF 2030 NoBuild.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 1:46:50 PM
Area: Solano (SF)
Analysis Year: 2030
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.021	0.437	0.492
Truck 2	0.030	0.886	0.030
Non-Truck	0.949	0.006	0.924

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.007282	0.004842	0.003346	0.002432	0.001863	0.001510	0.001300	0.001195	0.001175	0.001229	0.001352	0.001542	0.001806	0.001901	0.001901
PM10	0.007866	0.005222	0.003604	0.002617	0.002003	0.001622	0.001394	0.001280	0.001257	0.001312	0.001441	0.001642	0.001922	0.002024	0.002024
NOx	0.341303	0.258405	0.186571	0.151381	0.125830	0.105592	0.089964	0.078781	0.071937	0.069385	0.071092	0.077051	0.087255	0.089014	0.089014
CO	1.301923	1.146379	1.016963	0.916429	0.834089	0.763861	0.703117	0.650452	0.604880	0.566185	0.533387	0.506757	0.485917	0.478810	0.478814
HC	0.102031	0.066348	0.044632	0.032125	0.024605	0.019836	0.016745	0.014770	0.013597	0.013100	0.013177	0.013907	0.015342	0.016374	0.016374
TOG	0.111818	0.072797	0.048920	0.035170	0.026939	0.021710	0.018307	0.016123	0.014820	0.014257	0.014330	0.015118	0.016681	0.017798	0.017799
ROG	0.075616	0.048834	0.032729	0.023250	0.017563	0.013948	0.011600	0.010107	0.009237	0.008872	0.008971	0.009556	0.010720	0.011547	0.011547
1,3-Butadiene	0.000217	0.000214	0.000145	0.000103	0.000078	0.000062	0.000051	0.000045	0.000041	0.000040	0.000040	0.000043	0.000049	0.000049	0.000049
Acetaldehyde	0.000963	0.000901	0.000621	0.000453	0.000352	0.000287									

0.000240 0.000207 0.000186 0.000173 0.000168 0.000175 0.000189 0.000189
0.000189
Acrolein 0.000020 0.000020 0.000014 0.000010 0.000007 0.000006
0.000005 0.000004 0.000004 0.000004 0.000004 0.000004 0.000005 0.000005
0.000005
Benzene 0.002372 0.002336 0.001573 0.001120 0.000836 0.000662
0.000549 0.000478 0.000439 0.000422 0.000429 0.000458 0.000514 0.000514
0.000514
Diesel PM 0.001263 0.001089 0.000854 0.000685 0.000574 0.000506
0.000476 0.000483 0.000526 0.000606 0.000722 0.000866 0.001029 0.001034
0.001034
Ethylbenzene 0.000726 0.000718 0.000483 0.000343 0.000256 0.000203
0.000168 0.000147 0.000135 0.000130 0.000133 0.000142 0.000160 0.000160
0.000160
Formaldehyde 0.002208 0.002082 0.001431 0.001039 0.000804 0.000652
0.000546 0.000472 0.000424 0.000397 0.000388 0.000407 0.000442 0.000442
0.000442
Naphthalene 0.000199 0.000199 0.000134 0.000095 0.000071 0.000057
0.000047 0.000041 0.000038 0.000036 0.000037 0.000040 0.000044 0.000044
0.000044
POM 0.000058 0.000056 0.000038 0.000028 0.000021 0.000017
0.000014 0.000012 0.000011 0.000010 0.000010 0.000011 0.000012 0.000012
0.000012
DEOG 0.007575 0.006695 0.004368 0.003128 0.002544 0.002132
0.001801 0.001542 0.001352 0.001226 0.001164 0.001210 0.001274 0.001276
0.001277
CO2 707.024391 576.012720 470.494860 394.234392 339.489789 302.871737
280.799253 270.534988 269.446476 275.255431 285.026740 296.164728 306.305447 309.552063
309.552063
N2O 0.019785 0.020172 0.016689 0.014553 0.013328 0.012255
0.011496 0.011003 0.010549 0.010578 0.010685 0.010967 0.011492 0.011470
0.011470
CH4 0.024486 0.017042 0.011927 0.009136 0.007438 0.006333
0.005592 0.005093 0.004770 0.004619 0.004585 0.004722 0.004984 0.005174
0.005174
BC 0.001176 0.001128 0.000778 0.000563 0.000429 0.000344
0.000286 0.000249 0.000228 0.000221 0.000226 0.000241 0.000267 0.000268
0.000268

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph
Gasoline 0.058548 0.058152 0.047585 0.039747 0.033804 0.030372
0.028043 0.027101 0.027271 0.028075 0.029369 0.030567 0.031333 0.030649
0.030649
Diesel 0.007794 0.007651 0.006289 0.005534 0.005030 0.004649
0.004363 0.004163 0.004050 0.004026 0.004092 0.004229 0.004439 0.004440
0.004440

Fleet Average Natural Gas Consumption (diesel-equivalent gallons/veh-mile)

Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph

Natural Gas	0.000464	0.000860	0.000524	0.000384	0.000308	0.000259	0.000225	0.000200	0.000180	0.000172	0.000165	0.000165	0.000165	0.000165	0.000165				

Fleet Average Electricity Consumption (kilowatt-hours/veh-mile)

Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Electricity	0.056442	0.038811	0.032879	0.030623	0.029299	0.026114	0.026686	0.026633	0.028159	0.025910	0.024999	0.025330	0.026301	0.038884	0.038884

==========

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	1.055577
TOG	1.128548
ROG	1.128548
1,3-Butadiene	0.000000
Benzene	0.016288
Ethylbenzene	0.010544
Naphthalene	0.000000
HFC	0.011617

==========

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002177
PM10	0.008707

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004125	0.004661	0.005182	0.005691	0.005956	0.006042	0.005995	0.005453	0.004365	0.003307	0.002669	0.002369	0.002070	0.002070	0.002070
PM10	0.011786	0.013317	0.014805	0.016261	0.017018	0.017263	0.017128	0.015581	0.012471	0.009447	0.007626	0.006770	0.005915	0.005915	0.005915

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Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.016822
PM10	0.112148

==========END==========

File Name: CCVEM 2030 NoBuild.EM
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 1:50:05 PM
Area: Solano (SF)
Analysis Year: 2030
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.021	0.437	0.492
Truck 2	0.030	0.886	0.030
Non-Truck	0.949	0.006	0.924

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Road Length: 5029805 miles
Volume: 1 vehicles per hour
Number of Hours: 1 hours
VMT: 5029805 miles

VMT Distribution by Speed Bin (mph):

<= 5 mph	0.32%
10 mph	0.38%
15 mph	1.65%
20 mph	6.00%
25 mph	3.71%
30 mph	8.09%
35 mph	9.68%
40 mph	6.00%
45 mph	7.58%
50 mph	9.34%
55 mph	3.68%
60 mph	4.96%
65 mph	38.61%
70 mph	0.00%
75 mph	0.00%

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Summary of Emissions

	Running Exhaust	Running Loss	Tire Wear	Brake Wear	Road Dust	Total
Total	Total					

Pollutant Name	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	(pounds)	(US tons)
PM2.5	8,344.6	-	10,949.9	18,760.3	84,611.4	122,666.2	270.433	0.135
PM10	8,918.6	-	43,794.5	53,602.2	564,082.6	670,397.9	1,477.974	0.739
NOx	467,479.7	-	-	-	-	467,479.7	1,030.616	0.515
CO	3,074,346.8	-	-	-	-	3,074,346.8	6,777.774	3.389
HC	88,623.6	144,389.9	-	-	-	233,013.4	513.707	0.257
TOG	96,671.8	154,371.4	-	-	-	251,043.2	553.455	0.277
ROG	62,086.7	154,371.4	-	-	-	216,458.1	477.208	0.239
1,3-Butadiene	276.6	0.0	-	-	-	276.6	0.610	< 0.001
Acetaldehyde	1,176.7	-	-	-	-	1,176.7	2.594	0.001
Acrolein	27.1	-	-	-	-	27.1	0.060	< 0.001
Benzene	2,945.8	2,228.0	-	-	-	5,173.8	11.406	0.006
Diesel PM	3,842.5	-	-	-	-	3,842.5	8.471	0.004
Ethylbenzene	908.8	1,442.3	-	-	-	2,351.1	5.183	0.003
Formaldehyde	2,711.2	-	-	-	-	2,711.2	5.977	0.003
Naphthalene	252.2	0.0	-	-	-	252.2	0.556	< 0.001
POM	71.7	-	-	-	-	71.7	0.158	< 0.001
DEOG	8,323.7	-	-	-	-	8,323.7	18.351	0.009
CO2	1,538,897,028.5	-	-	-	-	1,538,897,028.5	3,392,686.977	1,696.344
N2O	58,895.2	-	-	-	-	58,895.2	129.842	0.065
CH4	28,385.6	-	-	-	-	28,385.6	62.580	0.031
BC	1,520.6	-	-	-	-	1,520.6	3.352	0.002
HFC	-	1,589.1	-	-	-	1,589.1	3.503	0.002

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Summary of GHG Emissions

Pollutant Name	Emissions (metric tons)	CO2e (metric tons)
CO2	1,538.897	1,538.897
N2O	0.059	17.551
CH4	0.028	0.710
BC	0.002	0.699
HFC	0.002	2.272
Total CO2e	-	1,560.129

==========

Summary of Consumptions

Gasoline	155,994.722	gallons
Diesel	22,543.178	gallons
Natural Gas	1,057.617	diesel-equivalent gallons
Electricity	135,675.838	kilowatt-hours

==========END==========

File Name: CCVEF 2030 Build.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 1:56:43 PM
Area: Solano (SF)
Analysis Year: 2030
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.021	0.437	0.492
Truck 2	0.030	0.886	0.030
Non-Truck	0.949	0.006	0.924

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.007282	0.004842	0.003346	0.002432	0.001863	0.001510	0.001300	0.001195	0.001175	0.001229	0.001352	0.001542	0.001806	0.001901	0.001901
PM10	0.007866	0.005222	0.003604	0.002617	0.002003	0.001622	0.001394	0.001280	0.001257	0.001312	0.001441	0.001642	0.001922	0.002024	0.002024
NOx	0.341303	0.258405	0.186571	0.151381	0.125830	0.105592	0.089964	0.078781	0.071937	0.069385	0.071092	0.077051	0.087255	0.089014	0.089014
CO	1.301923	1.146379	1.016963	0.916429	0.834089	0.763861	0.703117	0.650452	0.604880	0.566185	0.533387	0.506757	0.485917	0.478810	0.478814
HC	0.102031	0.066348	0.044632	0.032125	0.024605	0.019836	0.016745	0.014770	0.013597	0.013100	0.013177	0.013907	0.015342	0.016374	0.016374
TOG	0.111818	0.072797	0.048920	0.035170	0.026939	0.021710	0.018307	0.016123	0.014820	0.014257	0.014330	0.015118	0.016681	0.017798	0.017799
ROG	0.075616	0.048834	0.032729	0.023250	0.017563	0.013948	0.011600	0.010107	0.009237	0.008872	0.008971	0.009556	0.010720	0.011547	0.011547
1,3-Butadiene	0.000217	0.000214	0.000145	0.000103	0.000078	0.000062	0.000051	0.000045	0.000041	0.000040	0.000040	0.000043	0.000049	0.000049	0.000049
Acetaldehyde	0.000963	0.000901	0.000621	0.000453	0.000352	0.000287									

0.000240 0.000207 0.000186 0.000173 0.000168 0.000175 0.000189 0.000189
0.000189
Acrolein 0.000020 0.000020 0.000014 0.000010 0.000007 0.000006
0.000005 0.000004 0.000004 0.000004 0.000004 0.000004 0.000005 0.000005
0.000005
Benzene 0.002372 0.002336 0.001573 0.001120 0.000836 0.000662
0.000549 0.000478 0.000439 0.000422 0.000429 0.000458 0.000514 0.000514
0.000514
Diesel PM 0.001263 0.001089 0.000854 0.000685 0.000574 0.000506
0.000476 0.000483 0.000526 0.000606 0.000722 0.000866 0.001029 0.001034
0.001034
Ethylbenzene 0.000726 0.000718 0.000483 0.000343 0.000256 0.000203
0.000168 0.000147 0.000135 0.000130 0.000133 0.000142 0.000160 0.000160
0.000160
Formaldehyde 0.002208 0.002082 0.001431 0.001039 0.000804 0.000652
0.000546 0.000472 0.000424 0.000397 0.000388 0.000407 0.000442 0.000442
0.000442
Naphthalene 0.000199 0.000199 0.000134 0.000095 0.000071 0.000057
0.000047 0.000041 0.000038 0.000036 0.000037 0.000040 0.000044 0.000044
0.000044
POM 0.000058 0.000056 0.000038 0.000028 0.000021 0.000017
0.000014 0.000012 0.000011 0.000010 0.000010 0.000011 0.000012 0.000012
0.000012
DEOG 0.007575 0.006695 0.004368 0.003128 0.002544 0.002132
0.001801 0.001542 0.001352 0.001226 0.001164 0.001210 0.001274 0.001276
0.001277
CO2 707.024391 576.012720 470.494860 394.234392 339.489789 302.871737
280.799253 270.534988 269.446476 275.255431 285.026740 296.164728 306.305447 309.552063
309.552063
N2O 0.019785 0.020172 0.016689 0.014553 0.013328 0.012255
0.011496 0.011003 0.010549 0.010578 0.010685 0.010967 0.011492 0.011470
0.011470
CH4 0.024486 0.017042 0.011927 0.009136 0.007438 0.006333
0.005592 0.005093 0.004770 0.004619 0.004585 0.004722 0.004984 0.005174
0.005174
BC 0.001176 0.001128 0.000778 0.000563 0.000429 0.000344
0.000286 0.000249 0.000228 0.000221 0.000226 0.000241 0.000267 0.000268
0.000268

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph
Gasoline 0.058548 0.058152 0.047585 0.039747 0.033804 0.030372
0.028043 0.027101 0.027271 0.028075 0.029369 0.030567 0.031333 0.030649
0.030649
Diesel 0.007794 0.007651 0.006289 0.005534 0.005030 0.004649
0.004363 0.004163 0.004050 0.004026 0.004092 0.004229 0.004439 0.004440
0.004440

Fleet Average Natural Gas Consumption (diesel-equivalent gallons/veh-mile)

Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph

Natural Gas	0.000464	0.000860	0.000524	0.000384	0.000308	0.000259	0.000225	0.000200	0.000180	0.000172	0.000165	0.000165	0.000165	0.000165	0.000165				

Fleet Average Electricity Consumption (kilowatt-hours/veh-mile)

Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Electricity	0.056442	0.038811	0.032879	0.030623	0.029299	0.026114	0.026686	0.026633	0.028159	0.025910	0.024999	0.025330	0.026301	0.038884	0.038884

==========

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	1.055577
TOG	1.128548
ROG	1.128548
1,3-Butadiene	0.000000
Benzene	0.016288
Ethylbenzene	0.010544
Naphthalene	0.000000
HFC	0.011617

==========

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002177
PM10	0.008707

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004125	0.004661	0.005182	0.005691	0.005956	0.006042	0.005995	0.005453	0.004365	0.003307	0.002669	0.002369	0.002070	0.002070	0.002070
PM10	0.011786	0.013317	0.014805	0.016261	0.017018	0.017263	0.017128	0.015581	0.012471	0.009447	0.007626	0.006770	0.005915	0.005915	0.005915

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.016822
PM10	0.112148

==========END==========

File Name: CCVEM 2030 Build.EM
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 1:59:21 PM
Area: Solano (SF)
Analysis Year: 2030
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.021	0.437	0.492
Truck 2	0.030	0.886	0.030
Non-Truck	0.949	0.006	0.924

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Road Length: 5030355 miles
Volume: 1 vehicles per hour
Number of Hours: 1 hours
VMT: 5030355 miles

VMT Distribution by Speed Bin (mph):

<= 5 mph	0.32%
10 mph	0.38%
15 mph	1.65%
20 mph	6.00%
25 mph	3.71%
30 mph	8.09%
35 mph	9.68%
40 mph	6.00%
45 mph	7.58%
50 mph	9.34%
55 mph	3.68%
60 mph	4.96%
65 mph	38.61%
70 mph	0.00%
75 mph	0.00%

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Summary of Emissions

	Running Exhaust	Running Loss	Tire Wear	Brake Wear	Road Dust	Total
Total	Total					

Pollutant Name	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	(pounds)	(US tons)
PM2.5	8,345.5	-	10,951.1	18,762.3	84,620.6	122,679.6	270.462	0.135
PM10	8,919.6	-	43,799.3	53,608.1	564,144.3	670,471.2	1,478.136	0.739
NOx	467,530.8	-	-	-	467,530.8	1,030.729	0.515	
CO	3,074,683.0	-	-	-	3,074,683.0	6,778.515	3.389	
HC	88,633.3	144,405.7	-	-	233,038.9	513.763	0.257	
TOG	96,682.4	154,388.3	-	-	251,070.7	553.516	0.277	
ROG	62,093.5	154,388.3	-	-	216,481.8	477.261	0.239	
1,3-Butadiene	276.6	0.0	-	-	276.6	0.610	< 0.001	
Acetaldehyde	1,176.9	-	-	-	1,176.9	2.595	0.001	
Acrolein	27.1	-	-	-	27.1	0.060	< 0.001	
Benzene	2,946.1	2,228.2	-	-	5,174.4	11.407	0.006	
Diesel PM	3,842.9	-	-	-	3,842.9	8.472	0.004	
Ethylbenzene	908.9	1,442.4	-	-	2,351.4	5.184	0.003	
Formaldehyde	2,711.4	-	-	-	2,711.4	5.978	0.003	
Naphthalene	252.2	0.0	-	-	252.2	0.556	< 0.001	
POM	71.7	-	-	-	71.7	0.158	< 0.001	
DEOG	8,324.7	-	-	-	8,324.7	18.353	0.009	
CO2	1,539,065,304.0	-	-	-	1,539,065,304.0	3,393,057.961	1,696.529	
N2O	58,901.6	-	-	-	58,901.6	129.856	0.065	
CH4	28,388.7	-	-	-	28,388.7	62.586	0.031	
BC	1,520.8	-	-	-	1,520.8	3.353	0.002	
HFC	-	1,589.2	-	-	1,589.2	3.504	0.002	

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Summary of GHG Emissions

Pollutant Name	Emissions (metric tons)	CO2e (metric tons)
CO2	1,539.065	1,539.065
N2O	0.059	17.553
CH4	0.028	0.710
BC	0.002	0.700
HFC	0.002	2.273
Total CO2e	-	1,560.300

==========

Summary of Consumptions

Gasoline	156,011.780	gallons
Diesel	22,545.643	gallons
Natural Gas	1,057.733	diesel-equivalent gallons
Electricity	135,690.674	kilowatt-hours

==========END==========

File Name: CCVEF 2050 No Build.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 2:04:04 PM
Area: Solano (SF)
Analysis Year: 2050
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.239	0.275
Truck 2	0.033	0.721	0.011
Non-Truck	0.950	0.004	0.892

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003149	0.002067	0.001423	0.001038	0.000795	0.000651	0.000580	0.000563	0.000591	0.000660	0.000767	0.000914	0.001103	0.001138	0.001138
PM10	0.003407	0.002234	0.001536	0.001119	0.000856	0.000701	0.000622	0.000602	0.000631	0.000702	0.000814	0.000969	0.001169	0.001207	0.001207
NOx	0.257034	0.187093	0.127861	0.099946	0.079961	0.063658	0.050915	0.041650	0.035811	0.033368	0.034305	0.038640	0.046378	0.046976	0.046976
CO	0.909196	0.808846	0.724644	0.656530	0.599088	0.548938	0.504713	0.465645	0.431125	0.400655	0.373819	0.350750	0.330512	0.321803	0.321803
HC	0.054243	0.034334	0.022438	0.015766	0.011789	0.009294	0.007693	0.006677	0.006077	0.005804	0.005822	0.006191	0.006916	0.007416	0.007416
TOG	0.059225	0.037466	0.024444	0.017164	0.012846	0.010135	0.008392	0.007284	0.006628	0.006328	0.006348	0.006749	0.007539	0.008073	0.008073
ROG	0.040076	0.025195	0.016519	0.011562	0.008619	0.006774	0.005593	0.004851	0.004426	0.004251	0.004305	0.004600	0.005185	0.005573	0.005573
1,3-Butadiene	0.000116	0.000116	0.000077	0.000054	0.000040	0.000032	0.000026	0.000023	0.000021	0.000020	0.000020	0.000022	0.000024	0.000024	0.000024
Acetaldehyde	0.000403	0.000391	0.000263	0.000187	0.000143	0.000116									

0.000097 0.000084 0.000075 0.000070 0.000068 0.000072 0.000079 0.000079
0.000079
Acrolein 0.000012 0.000012 0.000008 0.000006 0.000004 0.000003
0.000003 0.000002 0.000002 0.000002 0.000002 0.000002 0.000003 0.000003
0.000003
Benzene 0.001210 0.001206 0.000804 0.000563 0.000418 0.000329
0.000271 0.000235 0.000214 0.000207 0.000211 0.000227 0.000255 0.000255
0.000255
Diesel PM 0.000371 0.000349 0.000282 0.000239 0.000206 0.000194
0.000205 0.000241 0.000300 0.000384 0.000490 0.000622 0.000775 0.000775
0.000775
Ethylbenzene 0.000380 0.000379 0.000253 0.000177 0.000131 0.000103
0.000085 0.000074 0.000067 0.000065 0.000066 0.000071 0.000080 0.000080
0.000080
Formaldehyde 0.000959 0.000935 0.000628 0.000445 0.000339 0.000273
0.000228 0.000197 0.000177 0.000166 0.000163 0.000173 0.000191 0.000191
0.000191
Naphthalene 0.000101 0.000101 0.000067 0.000047 0.000035 0.000027
0.000023 0.000020 0.000018 0.000017 0.000018 0.000019 0.000021 0.000021
0.000021
POM 0.000026 0.000026 0.000017 0.000012 0.000009 0.000007
0.000006 0.000005 0.000005 0.000004 0.000004 0.000005 0.000005 0.000005
0.000005
DEOG 0.002866 0.002696 0.001544 0.001056 0.000859 0.000727
0.000621 0.000538 0.000478 0.000440 0.000424 0.000463 0.000521 0.000521
0.000521
CO2 575.154711 468.894136 383.893267 321.747278 277.436894 247.824571
230.131026 222.123160 221.600574 226.597368 234.718813 243.817736 251.903135 254.251485
254.251485
N2O 0.014215 0.014048 0.011778 0.010462 0.009577 0.008890
0.008379 0.008041 0.007832 0.007794 0.007884 0.008087 0.008482 0.008454
0.008454
CH4 0.014114 0.009458 0.006295 0.004602 0.003573 0.002907
0.002464 0.002168 0.001977 0.001867 0.001829 0.001908 0.002060 0.002168
0.002168
BC 0.000474 0.000468 0.000319 0.000229 0.000173 0.000139
0.000115 0.000101 0.000092 0.000090 0.000092 0.000099 0.000111 0.000111
0.000111

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph
Gasoline 0.048314 0.048160 0.039523 0.032821 0.028080 0.025297
0.023356 0.022702 0.022645 0.023497 0.024692 0.025704 0.026335 0.025485
0.025485
Diesel 0.005666 0.005566 0.004596 0.004055 0.003713 0.003459
0.003269 0.003139 0.003070 0.003062 0.003114 0.003221 0.003384 0.003384
0.003384

Fleet Average Natural Gas Consumption (diesel-equivalent gallons/veh-mile)

Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph

Natural Gas	0.000246	0.000245	0.000179	0.000146	0.000125	0.000111	0.000100	0.000092	0.000085	0.000080	0.000075	0.000075	0.000075	0.000075	0.000075					

Fleet Average Electricity Consumption (kilowatt-hours/veh-mile)

Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Electricity	0.110910	0.077834	0.065549	0.060498	0.057439	0.050671	0.051580	0.052018	0.054806	0.053038	0.051717	0.052520	0.054511	0.070247	0.070247

==========

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	0.703711
TOG	0.752358
ROG	0.752358
1,3-Butadiene	0.000000
Benzene	0.010859
Ethylbenzene	0.007029
Naphthalene	0.000000
HFC	0.000398

==========

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002192
PM10	0.008770

==========

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003911	0.004438	0.004949	0.005448	0.005713	0.005798	0.005729	0.005183	0.004105	0.003062	0.002440	0.002145	0.001851	0.001851	0.001851
PM10	0.011173	0.012680	0.014140	0.015564	0.016323	0.016567	0.016368	0.014808	0.011728	0.008747	0.006970	0.006130	0.005290	0.005290	0.005290

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.017159
PM10	0.114391

==========END==========

File Name: CCVEM 2050 No Build.EM
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 2:08:37 PM
Area: Solano (SF)
Analysis Year: 2050
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.239	0.275
Truck 2	0.033	0.721	0.011
Non-Truck	0.950	0.004	0.892

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Road Length: 6110739 miles
Volume: 1 vehicles per hour
Number of Hours: 1 hours
VMT: 6110739 miles

VMT Distribution by Speed Bin (mph):

<= 5 mph	0.11%
10 mph	0.67%
15 mph	2.31%
20 mph	8.06%
25 mph	4.81%
30 mph	8.85%
35 mph	8.19%
40 mph	7.59%
45 mph	9.25%
50 mph	13.21%
55 mph	7.37%
60 mph	6.97%
65 mph	22.61%
70 mph	0.00%
75 mph	0.00%

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Summary of Emissions

	Running Exhaust	Running Loss	Tire Wear	Brake Wear	Road Dust	Total	Total

Pollutant Name	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	(pounds)	(US tons)
PM2.5	5,080.5	-	13,394.7	23,037.7	104,854.2	146,367.1	322.684	0.161
PM10	5,421.3	-	53,591.2	65,821.6	699,013.5	823,847.6	1,816.273	0.908
NOx	322,552.4	-	-	-	-	322,552.4	711.106	0.356
CO	2,747,893.3	-	-	-	-	2,747,893.3	6,058.067	3.029
HC	51,075.4	124,181.5	-	-	-	175,256.9	386.375	0.193
TOG	55,675.5	132,766.1	-	-	-	188,441.5	415.442	0.208
ROG	37,568.2	132,766.1	-	-	-	170,334.2	375.523	0.188
1,3-Butadiene	175.3	0.0	-	-	-	175.3	0.386	< 0.001
Acetaldehyde	609.6	-	-	-	-	609.6	1.344	< 0.001
Acrolein	18.5	-	-	-	-	18.5	0.041	< 0.001
Benzene	1,825.8	1,916.3	-	-	-	3,742.0	8.250	0.004
Diesel PM	2,590.1	-	-	-	-	2,590.1	5.710	0.003
Ethylbenzene	572.9	1,240.4	-	-	-	1,813.2	3.998	0.002
Formaldehyde	1,450.3	-	-	-	-	1,450.3	3.197	0.002
Naphthalene	152.2	0.0	-	-	-	152.2	0.336	< 0.001
POM	38.2	-	-	-	-	38.2	0.084	< 0.001
DEOG	3,807.0	-	-	-	-	3,807.0	8.393	0.004
CO2	1,535,254,925.5	-	-	-	-	1,535,254,925.5	3,384,657.515	1,692.329
N2O	52,464.2	-	-	-	-	52,464.2	115.664	0.058
CH4	15,605.4	-	-	-	-	15,605.4	34.404	0.017
BC	772.2	-	-	-	-	772.2	1.702	< 0.001
HFC	-	70.2	-	-	-	70.2	0.155	< 0.001

==========

Summary of GHG Emissions

Pollutant Name	Emissions (metric tons)	CO2e (metric tons)
CO2	1,535.255	1,535.255
N2O	0.052	15.634
CH4	0.016	0.390
BC	< 0.001	0.355
HFC	< 0.001	0.100
Total CO2e	-	1,551.735

==========

Summary of Consumptions

Gasoline	158,414.008	gallons
Diesel	20,622.623	gallons
Natural Gas	580.315	diesel-equivalent gallons
Electricity	331,975.528	kilowatt-hours

==========END==========

File Name: CCVEF 2050 Build.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 2:15:15 PM
Area: Solano (SF)
Analysis Year: 2050
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.239	0.275
Truck 2	0.033	0.721	0.011
Non-Truck	0.950	0.004	0.892

==========

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003149	0.002067	0.001423	0.001038	0.000795	0.000651	0.000580	0.000563	0.000591	0.000660	0.000767	0.000914	0.001103	0.001138	0.001138
PM10	0.003407	0.002234	0.001536	0.001119	0.000856	0.000701	0.000622	0.000602	0.000631	0.000702	0.000814	0.000969	0.001169	0.001207	0.001207
NOx	0.257034	0.187093	0.127861	0.099946	0.079961	0.063658	0.050915	0.041650	0.035811	0.033368	0.034305	0.038640	0.046378	0.046976	0.046976
CO	0.909196	0.808846	0.724644	0.656530	0.599088	0.548938	0.504713	0.465645	0.431125	0.400655	0.373819	0.350750	0.330512	0.321803	0.321803
HC	0.054243	0.034334	0.022438	0.015766	0.011789	0.009294	0.007693	0.006677	0.006077	0.005804	0.005822	0.006191	0.006916	0.007416	0.007416
TOG	0.059225	0.037466	0.024444	0.017164	0.012846	0.010135	0.008392	0.007284	0.006628	0.006328	0.006348	0.006749	0.007539	0.008073	0.008073
ROG	0.040076	0.025195	0.016519	0.011562	0.008619	0.006774	0.005593	0.004851	0.004426	0.004251	0.004305	0.004600	0.005185	0.005573	0.005573
1,3-Butadiene	0.000116	0.000116	0.000077	0.000054	0.000040	0.000032	0.000026	0.000023	0.000021	0.000020	0.000020	0.000022	0.000024	0.000024	0.000024
Acetaldehyde	0.000403	0.000391	0.000263	0.000187	0.000143	0.000116									

0.000097 0.000084 0.000075 0.000070 0.000068 0.000072 0.000079 0.000079
0.000079
Acrolein 0.000012 0.000012 0.000008 0.000006 0.000004 0.000003
0.000003 0.000002 0.000002 0.000002 0.000002 0.000002 0.000003 0.000003
0.000003
Benzene 0.001210 0.001206 0.000804 0.000563 0.000418 0.000329
0.000271 0.000235 0.000214 0.000207 0.000211 0.000227 0.000255 0.000255
0.000255
Diesel PM 0.000371 0.000349 0.000282 0.000239 0.000206 0.000194
0.000205 0.000241 0.000300 0.000384 0.000490 0.000622 0.000775 0.000775
0.000775
Ethylbenzene 0.000380 0.000379 0.000253 0.000177 0.000131 0.000103
0.000085 0.000074 0.000067 0.000065 0.000066 0.000071 0.000080 0.000080
0.000080
Formaldehyde 0.000959 0.000935 0.000628 0.000445 0.000339 0.000273
0.000228 0.000197 0.000177 0.000166 0.000163 0.000173 0.000191 0.000191
0.000191
Naphthalene 0.000101 0.000101 0.000067 0.000047 0.000035 0.000027
0.000023 0.000020 0.000018 0.000017 0.000018 0.000019 0.000021 0.000021
0.000021
POM 0.000026 0.000026 0.000017 0.000012 0.000009 0.000007
0.000006 0.000005 0.000005 0.000004 0.000004 0.000005 0.000005 0.000005
0.000005
DEOG 0.002866 0.002696 0.001544 0.001056 0.000859 0.000727
0.000621 0.000538 0.000478 0.000440 0.000424 0.000463 0.000521 0.000521
0.000521
CO2 575.154711 468.894136 383.893267 321.747278 277.436894 247.824571
230.131026 222.123160 221.600574 226.597368 234.718813 243.817736 251.903135 254.251485
254.251485
N2O 0.014215 0.014048 0.011778 0.010462 0.009577 0.008890
0.008379 0.008041 0.007832 0.007794 0.007884 0.008087 0.008482 0.008454
0.008454
CH4 0.014114 0.009458 0.006295 0.004602 0.003573 0.002907
0.002464 0.002168 0.001977 0.001867 0.001829 0.001908 0.002060 0.002168
0.002168
BC 0.000474 0.000468 0.000319 0.000229 0.000173 0.000139
0.000115 0.000101 0.000092 0.000090 0.000092 0.000099 0.000111 0.000111
0.000111

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph
Gasoline 0.048314 0.048160 0.039523 0.032821 0.028080 0.025297
0.023356 0.022702 0.022645 0.023497 0.024692 0.025704 0.026335 0.025485
0.025485
Diesel 0.005666 0.005566 0.004596 0.004055 0.003713 0.003459
0.003269 0.003139 0.003070 0.003062 0.003114 0.003221 0.003384 0.003384
0.003384

Fleet Average Natural Gas Consumption (diesel-equivalent gallons/veh-mile)

Type <= 5 mph 10 mph 15 mph 20 mph 25 mph 30 mph 35 mph
40 mph 45 mph 50 mph 55 mph 60 mph 65 mph 70 mph 75 mph

Natural Gas	0.000246	0.000245	0.000179	0.000146	0.000125	0.000111	0.000100	0.000092	0.000085	0.000080	0.000075	0.000075	0.000075	0.000075	0.000075					

Fleet Average Electricity Consumption (kilowatt-hours/veh-mile)

Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Electricity	0.110910	0.077834	0.065549	0.060498	0.057439	0.050671	0.051580	0.052018	0.054806	0.053038	0.051717	0.052520	0.054511	0.070247	0.070247

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Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	0.703711
TOG	0.752358
ROG	0.752358
1,3-Butadiene	0.000000
Benzene	0.010859
Ethylbenzene	0.007029
Naphthalene	0.000000
HFC	0.000398

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002192
PM10	0.008770

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Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003911	0.004438	0.004949	0.005448	0.005713	0.005798	0.005729	0.005183	0.004105	0.003062	0.002440	0.002145	0.001851	0.001851	0.001851
PM10	0.011173	0.012680	0.014140	0.015564	0.016323	0.016567	0.016368	0.014808	0.011728	0.008747	0.006970	0.006130	0.005290	0.005290	0.005290

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Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.017159
PM10	0.114391

==========END==========

File Name: CCVEM 2050 Build.EM
CT-EMFAC2021 Version: 1.0.2.0
Run Date: 12/20/2023 2:18:19 PM
Area: Solano (SF)
Analysis Year: 2050
Season: Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.239	0.275
Truck 2	0.033	0.721	0.011
Non-Truck	0.950	0.004	0.892

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Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 64 days N = 365 days

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Road Length: 6111289 miles
Volume: 1 vehicles per hour
Number of Hours: 1 hours
VMT: 6111289 miles

VMT Distribution by Speed Bin (mph):

<= 5 mph	0.11%
10 mph	0.67%
15 mph	2.31%
20 mph	8.06%
25 mph	4.81%
30 mph	8.85%
35 mph	8.19%
40 mph	7.59%
45 mph	9.25%
50 mph	13.21%
55 mph	7.37%
60 mph	6.97%
65 mph	22.61%
70 mph	0.00%
75 mph	0.00%

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Summary of Emissions

	Running Exhaust	Running Loss	Tire Wear	Brake Wear	Road Dust	Total	Total

Pollutant Name	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	(pounds)	(US tons)
PM2.5	5,081.0	-	13,395.9	23,039.7	104,863.6	146,380.3	322.713	0.161
PM10	5,421.8	-	53,596.0	65,827.5	699,076.5	823,921.8	1,816.436	0.908
NOx	322,581.4	-	-	-	322,581.4	711.170	0.356	
CO	2,748,140.7	-	-	-	2,748,140.7	6,058.613	3.029	
HC	51,080.0	124,192.7	-	-	175,272.7	386.410	0.193	
TOG	55,680.5	132,778.0	-	-	188,458.5	415.480	0.208	
ROG	37,571.6	132,778.0	-	-	170,349.6	375.557	0.188	
1,3-Butadiene	175.3	0.0	-	-	175.3	0.386	< 0.001	
Acetaldehyde	609.6	-	-	-	609.6	1.344	< 0.001	
Acrolein	18.5	-	-	-	18.5	0.041	< 0.001	
Benzene	1,825.9	1,916.4	-	-	3,742.4	8.251	0.004	
Diesel PM	2,590.3	-	-	-	2,590.3	5.711	0.003	
Ethylbenzene	572.9	1,240.5	-	-	1,813.4	3.998	0.002	
Formaldehyde	1,450.5	-	-	-	1,450.5	3.198	0.002	
Naphthalene	152.2	0.0	-	-	152.2	0.336	< 0.001	
POM	38.2	-	-	-	38.2	0.084	< 0.001	
DEOG	3,807.4	-	-	-	3,807.4	8.394	0.004	
CO2	1,535,393,106.8	-	-	-	1,535,393,106.8	3,384,962.153	1,692.481	
N2O	52,469.0	-	-	-	52,469.0	115.674	0.058	
CH4	15,606.8	-	-	-	15,606.8	34.407	0.017	
BC	772.3	-	-	-	772.3	1.703	< 0.001	
HFC	-	70.2	-	-	70.2	0.155	< 0.001	

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Summary of GHG Emissions

Pollutant Name	Emissions (metric tons)	CO2e (metric tons)
CO2	1,535.393	1,535.393
N2O	0.052	15.636
CH4	0.016	0.390
BC	< 0.001	0.355
HFC	< 0.001	0.100
Total CO2e	-	1,551.875

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Summary of Consumptions

Gasoline	158,428.266	gallons
Diesel	20,624.479	gallons
Natural Gas	580.367	diesel-equivalent gallons
Electricity	332,005.407	kilowatt-hours

==========END==========

Pollutant Name	Total (Grams)	Total (Tons)	Total (Pounds)	Exhaust (Grams)	Non-Exhaust (Grams)	PM TOTAL (Tons)
PM2.5	120,691.70	0.13	266.0796521	20,238.90	100,452.90	0.13
PM10	603,064.40	0.66	1329.529419	21,423.30	581,641.20	0.66
NOx	1,331,495.70	1.47	2935.445541			
CO	5,417,810.20	5.97	11944.22693			
HC	357,207.20	0.39	787.5070738			
TOG	392,133.50	0.43	864.5063849			
ROG	327,484.70	0.36	721.9801779			
1,3-Butadiene	668.90	0.00	1.474672072			
Acetaldehyde	2,675.10	0.00	5.897585976			
Acrolein	60.10	0.00	0.13249782			
Benzene	9,773.70	0.01	21.54732012			
Diesel PM	14,456.00	0.02	31.87002462			
Ethylbenzene	3,775.80	0.00	8.324214096			
Formaldehyde	6,230.60	0.01	13.73612171			
Naphthalene	641.30	0.00	1.413824487			
POM	166.00	0.00	0.365967355			
DEOG	33,677.50	0.04	74.24617835			
CO2	1,731,179,746.60	1,908.30	3816598.032			
N2O	79,676.80	0.09	175.6572757			
CH4	41,849.00	0.05	92.2612521			
BC	2,396.00	0.00	5.282275802			
HFC	3,316.80	0.00	7.312292312			

Pollutant Name	Total (Grams)	Total (US Tons)	Total (Pounds)	Exhaust (Grams)	Non-Exhaust (Grams)	Total (Tons)
PM2.5	122,666.20	0.135216	270.4326795	8,344.60	114,321.60	0.14
PM10	670,397.90	0.738987	1477.974376	8,918.60	661,479.30	0.74
NOx	467,479.70	0.515308	1030.616322			0.515308
CO	3,074,346.80	3.388887	6777.774503			3.388887
HC	233,013.40	0.256853	513.7066128	88,623.60	144,389.90	0.256853417
TOG	251,043.20	0.276728	553.4555178	96,671.80	154,371.40	0.276727759
ROG	216,458.10	0.238604	477.2084239	62,086.70	154,371.40	0.238604
1,3-Butadiene	276.60	0.000305	0.609798617	276.60	0	0.000305
Acetaldehyde	1,176.70	0.001297	2.594179439	1,176.70	-	0.001297
Acrolein	27.10	0.000030	0.059745273	27.10	-	0.000030
Benzene	5,173.80	0.005703	11.40627652	2,945.80	2,228.00	0.005703
Diesel PM	3,842.50	0.004236	8.471262424			0.004236
Ethylbenzene	2,351.10	0.002592	5.183288246	908.80	1,442.30	0.002592
Formaldehyde	2,711.20	0.002989	5.977172852	2,711.20	-	0.002989
Naphthalene	252.20	0.000278	0.556005825	252.20	0.00	0.000278
POM	71.70	0.000079	0.158071442	71.70	-	0.000079
DEOG	8,323.70	0.009175	18.35061732	8,323.70	-	0.009175
CO2	1,538,897,028.50	1,696.343601	3392687.202			1696.343601
N2O	58,895.20	0.064921	129.8416902			0.064921
CH4	28,385.60	0.031290	62.57953589			0.031290
BC	1,520.60	0.001676	3.352349159			0.001676
HFC	1,589.10	0.001752	3.503365808			0.001752

Pollutant Name	Total (Grams)	Total (US Tons)	Total (Pounds)	Exhaust (Grams)	Non-Exhaust (Grams)	Total (Tons)
PM2.5	122,679.60	0.135231	270.4622214	8,345.50	114,334.00	0.14
PM10	670,471.20	0.739068	1478.135975	8,919.60	661,551.70	0.74
NOx	467,530.80	0.515364	1030.728978			0.515364
CO	3,074,683.00	3.389258	6778.515697			3.389258
HC	233,038.90	0.256881	513.7628307	88,633.30	144,405.70	0.256881526
TOG	251,070.70	0.276758	553.5161449	96,682.40	154,388.30	0.276758072
ROG	216,481.80	0.238630	477.2606735	62,093.50	154,388.30	0.238630
1,3-Butadiene	276.60	0.000305	0.609798617	276.60	0	0.000305
Acetaldehyde	1,176.90	0.001297	2.594620364	1,176.90	-	0.001297
Acrolein	27.10	0.000030	0.059745273	27.10	-	0.000030
Benzene	5,174.40	0.005704	11.40759929	2,946.10	2,228.20	0.005704
Diesel PM	3,842.90	0.004236	8.472144274			0.004236
Ethylbenzene	2,351.40	0.002592	5.183949633	908.90	1,442.40	0.002592
Formaldehyde	2,711.40	0.002989	5.977613777	2,711.40	-	0.002989
Naphthalene	252.20	0.000278	0.556005825	252.20	0.00	0.000278
POM	71.70	0.000079	0.158071442	71.70	-	0.000079
DEOG	8,324.70	0.009176	18.35282194	8,324.70	-	0.009176
CO2	1,539,065,304.00	1,696.529093	3393058.186			1696.529093
N2O	58,901.60	0.064928	129.8557998			0.064928
CH4	28,388.70	0.031293	62.58637022			0.031293
BC	1,520.80	0.001676	3.352790083			0.001676
HFC	1,589.20	0.001752	3.503586271			0.001752

Pollutant Name	Total (Grams)	Total (US Tons)	Total (Pounds)	Exhaust (Grams)	Non-Exhaust (Grams)	Total (Tons)
PM2.5	146,367.10	0.161342	322.6842198	5,080.50	141,286.60	0.16
PM10	823,847.60	0.908137	1816.273056	5,421.30	818,426.30	0.91
NOx	322,552.40	0.355553	711.1063178			0.355553
CO	2,747,893.30	3.029034	6058.067732			3.029034
HC	175,256.90	0.193188	386.3753264	51,075.40	124,181.50	0.193187663
TOG	188,441.50	0.207721	415.4423938	55,675.50	132,766.10	0.207721307
ROG	170,334.20	0.187761	375.5226306	37,568.20	132,766.10	0.187761
1,3-Butadiene	175.30	0.000193	0.386470346	175.30	0	0.000193
Acetaldehyde	609.60	0.000672	1.34393795	609.60	-	0.000672
Acrolein	18.50	0.000020	0.040785519	18.50	-	0.000020
Benzene	3,742.00	0.004125	8.249697851	1,825.80	1,916.30	0.004125
Diesel PM	2,590.10	0.002855	5.710193053			0.002855
Ethylbenzene	1,813.20	0.001999	3.997421738	572.90	1,240.40	0.001999
Formaldehyde	1,450.30	0.001599	3.197364188	1,450.30	-	0.001599
Naphthalene	152.20	0.000168	0.335543563	152.20	0.00	0.000168
POM	38.20	0.000042	0.084216584			0.000042
DEOG	3,807.00	0.004196	8.392998321			0.004196
CO2	1,535,254,925.50	1,692.328870	3384657.739			1692.32887
N2O	52,464.20	0.057832	115.6637622			0.057832
CH4	15,605.40	0.017202	34.40401786			0.017202
BC	772.20	0.000851	1.702409589			0.000851
HFC	70.20	0.000077	0.154764508			0.000077

Pollutant Name	Total (Grams)	Total (US Tons)	Total (Pounds)	Exhaust (Grams)	Non-Exhaust (Grams)	Total (Tons)
PM2.5	146,380.30	0.161357	322.7133208	5,081.00	141,299.20	0.16
PM10	823,921.80	0.908218	1816.436639	5,421.80	818,500.00	0.91
NOx	322,581.40	0.355585	711.1702518			0.355585
CO	2,748,140.70	3.029307	6058.613155			3.029307
HC	175,272.70	0.193205	386.4101594	51,080.00	124,192.70	0.19320508
TOG	188,458.50	0.207740	415.4798724	55,680.50	132,778.00	0.207739936
ROG	170,349.60	0.187778	375.5565818	37,571.60	132,778.00	0.187778
1,3-Butadiene	175.30	0.000193	0.386470346	175.30	0.00	0.000193
Acetaldehyde	609.60	0.000672	1.34393795	609.60	-	0.000672
Acrolein	18.50	0.000020	0.040785519	18.50	-	0.000020
Benzene	3,742.40	0.004125	8.2505797	1,825.90	1,916.40	0.004125
Diesel PM	2,590.30	0.002855	5.710633977			0.002855
Ethylbenzene	1,813.40	0.001999	3.997862662	572.90	1,240.50	0.001999
Formaldehyde	1,450.50	0.001599	3.197805113	1,450.50	-	0.001599
Naphthalene	152.20	0.000168	0.335543563	152.20	0.00	0.000168
POM	38.20	0.000042	0.084216584			0.000042
DEOG	3,807.40	0.004197	8.39388017			0.004197
CO2	1,535,393,106.80	1,692.481188	3384962.377			1692.481188
N2O	52,469.00	0.057837	115.6743443			0.057837
CH4	15,606.80	0.017204	34.40710433			0.017204
BC	772.30	0.000851	1.702630051			0.000851
HFC	70.20	0.000077	0.154764508			0.000077

Total Emissions

General	2019 Existing	2030 No Build	2030 Build	2050 No Build	2050 Build	
$PM_{2.5}$	0.133	0.135	0.135	0.161	0.161	tons/day
PM_{10}	0.665	0.739	0.739	0.908	0.908	tons/day
NO_x	1.468	0.515	0.515	0.356	0.356	tons/day
CO	5.972	3.389	3.389	3.029	3.029	tons/day
ROG	0.361	0.239	0.239	0.188	0.188	tons/day

Total Emissions

General	2019 Existing	2030 No Build	2030 Build	2050 No Build	2050 Build	
$PM_{2.5}$	266.1	270.4	270.5	322.7	322.7	pounds/day
PM_{10}	1,329.5	1,478.0	1,478.1	1,816.3	1,816.4	pounds/day
NO_x	2,935.4	1,030.6	1,030.7	711.1	711.2	pounds/day
CO	11,944.2	6,777.8	6,778.5	6,058.1	6,058.6	pounds/day
ROG	722.0	477.2	477.3	375.5	375.6	pounds/day

GHGS	2019 Existing	2030 No Build	2030 Build	2050 No Build	2050 Build	
CO_2	1908.30	1696.3	1696.53	1692.33	1692.48	tons/day
N_2O	0.09	0.06	0.06	0.06	0.06	tons/day
CH_4	0.05	0.03	0.03	0.02	0.02	tons/day
BC	0.003	0.002	0.002	0.0009	0.0009	tons/day
HFCs	0.004	0.002	0.002	0.00008	0.00008	tons/day

GHGS	2019 Existing	2030 No Build	2030 Build	2050 No Build	2050 Build	
CO_2	1,731	1,539	1,539	1,535	1,535	Metric Tons CO_2e/Day
N_2O	23.74	17.55	17.55	15.63	15.64	Metric Tons CO_2e/Day
CH_4	1.05	0.71	0.71	0.39	0.39	Metric Tons CO_2e/Day
BC	1.10	0.70	0.70	0.36	0.36	Metric Tons CO_2e/Day
HFCs	4.74	2.27	2.27	0.10	0.10	Metric Tons CO_2e/Day
CO2e (Daily MT)	1,762	1,560	1,560	1,552	1,552	Metric Tons CO_2e/Day
Difference		-202	0.17	-210	0.14	Metric Tons CO_2e/Day
CO2e (Annual MT)	643,062	569,447	569,510	566,383	566,434	Metric Tons CO_2e/Year
Difference			62		51	Metric Tons CO_2e/Year
Changes over Existing		-73,615	-73,553	-76,679	-76,628	Metric Tons CO_2e/Year
US ton to Metric Ton Converstion Rate	1.102					

MSATS	2019 Existing	2030 No Build	2030 Build	2050 No Build	2050 Build	
1,3-Butadiene	0.001	0.000	0.000	0.000	0.000	tons/day
Acetaldehyde	0.003	0.001	0.001	0.001	0.001	tons/day
Acrolein	0.000	0.000	0.000	0.000	0.000	tons/day
Benzene	0.011	0.006	0.006	0.004	0.004	tons/day
Diesel PM	0.016	0.004	0.004	0.003	0.003	tons/day
Ethylbenzene	0.004	0.003	0.003	0.002	0.002	tons/day
Formaldehyde	0.007	0.003	0.003	0.002	0.002	tons/day
Naphthalene	0.0007	0.0003	0.0003	0.0002	0.0002	tons/day
POM	0.00018	0.00008	0.00008	0.00004	0.00004	tons/day
DEOG	0.037	0.009	0.009	0.004	0.004	tons/day

MSATS	2019 Existing	2030 No Build	2030 Build	2050 No Build	2050 Build	
1,3-Butadiene	1.47	0.61	0.61	0.39	0.39	pounds/day
Acetaldehyde	5.90	2.59	2.59	1.34	1.34	pounds/day
Acrolein	0.13	0.06	0.06	0.04	0.04	pounds/day
Benzene	21.55	11.41	11.41	8.25	8.25	pounds/day
Diesel PM	31.87	8.47	8.47	5.71	5.71	pounds/day
Ethylbenzene	8.32	5.18	5.18	4.00	4.00	pounds/day
Formaldehyde	13.74	5.98	5.98	3.20	3.20	pounds/day
Naphthalene	1.41	0.56	0.56	0.34	0.34	pounds/day
POM	0.37	0.16	0.16	0.08	0.08	pounds/day
DEOG	74.25	18.35	18.35	8.39	8.39	pounds/day

Daily VMT	4,435,292	5,029,805	5,030,355	6,110,739	6,111,289
Annual VMT*	1,539,046,226	1,745,342,393	1,745,533,243	2,120,426,333	2,120,617,183
*multiply by 347					
Difference (Daily)			550		550

Appendix E – CO EPA Letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MAR 21 2018

Muhaned Aljabiry, Chief
Office of Federal Transportation Management Program
California Department of Transportation
1120 N Street, Rm 4400, MS-82
Sacramento, CA 95814

Dear Mr. Aljabiry:

The U.S. Environmental Protection Agency (EPA) is providing this letter to document that the transportation conformity requirements under Clean Air Action (CAA) section 176(c) for the Carbon Monoxide (CO) maintenance areas included in the table below will end on June 1, 2018. This date marks 20 years from the redesignation of the areas to attainment for the CO National Ambient Air Quality Standard (NAAQS)[1].

California Carbon Monoxide Maintenance Areas

Bakersfield	Chico
Fresno	Modesto
Lake Tahoe North Shore	Lake Tahoe South Shore
Sacramento	San Diego
San Francisco-Oakland-San Jose	Stockton

Under 40 CFR 93.102(b)(4) of the EPA's regulations, transportation conformity applies to maintenance areas through the 20-year maintenance planning period, unless the maintenance plan specifies that the transportation conformity requirements apply for a longer time period. Pursuant to CAA's section 176(c)(5) and as explained in the preamble of the 1993 final rule, conformity applies to areas that are designated nonattainment or are subject to a maintenance plan approved under CAA section 175A. The section 175A maintenance planning period is 20 years, unless the applicable implementation plan specifies a longer maintenance period[2]. The EPA further clarified this conformity provision in its January 24, 2008 final rule[3].

The approved maintenance plan for these areas did not extend the maintenance plan period beyond 20 years from redesignation. Consequently, transportation conformity requirements for CO will cease to apply after June 1, 2018 (i.e., 20 years after the effective date of the EPA's approval of the first 10-year maintenance plan and redesignation of the areas to attainment for the CO NAAQS). As a result, these areas' Metropolitan Planning Organizations may reference this letter to indicate that as of June 1, 2018,

1 *See* 63 FR 15305 (March 31, 1998) (approval of redesignation request and first 10-year maintenance plan) and 70 FR 71776 (November 30, 2005) (approval of second 10-year maintenance plan)
2 *See* 58 FR 62188, 62206 (November 24, 1993)
3 *See* 73 FR 4420, at 4434-5 (January 24, 2008)

transportation conformity requirements no longer apply for the CO NAAQS for Federal Highway Administration / Federal Transit Association projects as defined in 40 CFR 93.101. Even though the conformity obligation for CO has ended, the terms of the maintenance plans remain in effect and all measures and requirements contained in the plans apply until the state submits, and the EPA approves, a revision to the state plan[4]. Such a State Implementation Plan revision would have to comply with the anti-backsliding requirements of CAA section 110(l), and if applicable, CAA section 193, if the intent of the revision is to remove a control measure or to reduce its stringency.

If you have any questions about the transportation conformity requirements, please contact me at (415) 972-3183 or Karina O'Connor of my staff at (775) 434-8176.

Sincerely,

Elizabeth J. Adams

Elizabeth L. Adams
Acting Director, Air Division

cc: Rodeny Langstaff, Caltrans
Nesamani Kalandiyur, California Air Resources Board
Tasha Clemons, Federal Highway Administration
Stew Sonnenberg, Federal Highway Administration
Christina Leach, Federal Highway Administration
Ted Matley, Federal Transit Administration
Ahron Hakimi, Kern Council of Governments
Jon Clark, Butte County Association of Governments
Steve Heminger, Metropolitan Transportation Commission
James Corless, Sacramento Area Council of Governments
Kim Kawanda, San Diego Association of Governments
Tony Boren, Fresno Council of Governments
Rosa De Leon Park, Stanislaus Council of Governments
Andrew Chesley, San Joaquin Council of Governments
Joanne Marchetta, Tahoe Regional Planning Association

4 See *General Motors Corp. v. United States*, 496 U.S. 530 (1990)