AIR QUALITY REPORT

BROADWAY BRIDGE PROJECT

Jefferson Boulevard, West Sacramento to Broadway/5th Street Intersection, Sacramento

City of West Sacramento and City of Sacramento, California

Federal Project No.: TGR2DGL 5447(043)

Prepared by

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Caltrans

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AIR QUALITY REPORT

BROADWAY BRIDGE PROJECT

CITY OF WEST SACRAMENTO AND CITY OF SACRAMENTO
SACRAMENTO AND YOLO COUNTIES, CALIFORNIA

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 3

Federal Project No.: TGR2DGL 5447(043)

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Acronyms and Abbreviations

Term	Definition
AADT	Average Annual Daily Traffic
AB	Assembly Bill
ADT	Average Daily Traffic
ARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CAP	Climate Action Program
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
EO	Executive Order
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
ft	Feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	International Panel on Climate Change
LOS	Level of Service
MOVES	Motor Vehicle Emission Simulator
mph	Miles per Hour

Term	Definition
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MTIP	Metropolitan Transportation and Improvement Program
MTP	Metropolitan Transportation Plan
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
NOP	Notice of Preparation
NO_x	Nitrogen Oxide
O_3	Ozone
PM	Particulate Matter
PM_{10}	Particulate Matter less than 10 microns in diameter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
POAQC	Project of Air Quality Concern
ppm	Parts per Million
ROGs	Reactive Organic Gases
RTP	Regional Transportation Plan
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur Dioxide
TACs	Toxic Air Contaminants
TIP	Transportation Improvement Program

Term	Definition
US 50	Pioneer Bridge
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds
YSAQMD	Yolo-Solano Air Quality Management District

1. Proposed Project Description

1.1 Introduction

The City of West Sacramento, in cooperation with the City of Sacramento and the California Department of Transportation (Caltrans), proposes to construct a new bridge over the Sacramento River south of the Pioneer Bridge (U.S. 50) to provide local interconnectivity across the river and between neighborhoods. The project would be located over the Sacramento River between the cities of West Sacramento and Sacramento, approximately 1,000 feet south of the existing US 50. The total length of the project is approximately one mile from Jefferson Boulevard in West Sacramento to 5th Street and Broadway intersection in Sacramento. Caltrans is the lead agency under National Environmental Protection Agency (NEPA). The City of West Sacramento is the lead agency under California Environmental Quality Act (CEQA).

1.2 Location and Background

This project is included in the Sacramento Area Council of Governments (SACOG) SACOG 2019-22 Metropolitan Transportation and Improvement Program (MTIP) and is proposed for funding from the 2014 Transportation Investment Generating Economic Recovery Discretionary Grants program. It is also included in the SACOG 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). Figure 1-1 shows the project location.

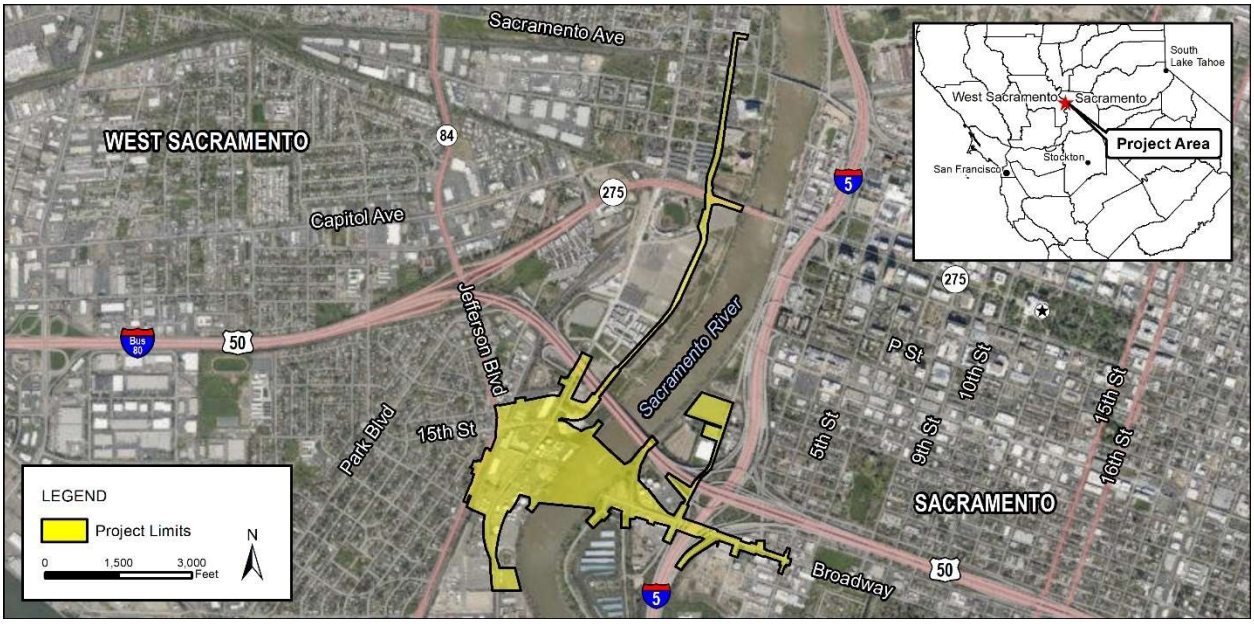

Figure 1-1. Map of the Project Location.

1.3 Purpose and Need

The purpose and objectives of the project are listed below.

- Increase the number of river crossings that meet current design standards and encourage travel by walking, bicycling, low energy vehicles, and public transit.
- Increase the number of persons that can safely, efficiently, and reliably cross the river.
- Increase options for emergency response teams to cross the river.
- Increase options for evacuations.
- Improve the connectivity to, and accessibility of, business, recreational areas, and new or redevelopment opportunity sites located in the urban core of Sacramento and West Sacramento without affecting the use of Miller Regional Park or the Sacramento Marina and without precluding, or negatively restricting, redevelopment options in the Pioneer Bluff or West Broadway areas of the cities.
- Reduce trip length distances across the river between major origins and destination.
- Reduce the growth in transportation-related energy use, air pollution emissions, and greenhouse gas (GHG) emissions.
- Reduce the growth in vehicle traffic on local neighborhood streets, especially cut-through traffic.
- Alleviate growth of local trips on the State Highway System.
- Provide a project design that does not preclude the future addition of light-rail, streetcar, or other mass transit mode, as a separate stand-alone project.

The project is needed for the following reasons.

- Limited connectivity across the river creates longer trip lengths, which discourage walking and bicycling.
- Longer trip lengths create dependence on automobile use that generates negative public health effects and adverse environmental effects such as emissions of air pollutants and GHGs.
- Limited connectivity across the river creates concentrated vehicle traffic flows on existing bridges and their connecting approach roadways, resulting in undesirable travel delays for vehicular traffic, including public bus, transit during weekday peak periods and special events.
- Limited connectivity across the river reduces options for emergency response teams, thereby increasing response times and limiting alternatives for evacuations.
- Limited connectivity across the river is a barrier to economic activity, social exchanges, recreational opportunity, and access to jobs within the urban core of Sacramento and West Sacramento.

- Limited connectivity to the riverfront reduces the potential to achieve planned urban development and redevelopment of opportunity sites identified in the adopted plans of Sacramento and West Sacramento.
- Limited connectivity reduces opportunity to use the riverfront for enjoyment and recreation.
- Peak AM/PM congestion is caused by local intercity commuters using the State Highway System as a result of having few local river crossing options.

Construction of the project has independent utility because it can provide a local roadway connection between West Sacramento and Sacramento and their existing roadway networks that does not rely on construction of other facilities to operate. The project would meet the purpose and need without being dependent on construction of other projects or improvements.

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

The proposed alternatives include the No-Build Alternative and two Build Alternatives. These alternatives are discussed below.

1.4.1 Existing Roadways and Traffic Conditions

Under CEQA, the baseline for environmental impact analysis consists of the existing conditions (referred to in this document as Baseline) at the time of the Notice of Preparation (NOP) or at the time the environmental studies began. The Baseline year for the analysis is 2017 as the NOP was issued on July 12, 2017 and the scoping period was held from July 12 through August 10, 2017. Fehr & Peers, transportation consultants, prepared a circulation assessment for the study area that produced data describing intersection turning movements, estimates of average daily traffic (ADT) along certain roadway segments, and daily vehicle miles traveled (VMT) within the study area. The roadway segments evaluated in the transportation analyses include Jefferson Boulevard, 15th Street, Alameda Boulevard, and South River Road in West Sacramento and Broadway, 3rd Street, 5th Street, and Riverside Boulevard in Sacramento. Figure 1-2 below displays the existing roadway configuration and segments included in the circulation assessment, as well as the two proposed alignments. Transportation analyses prepared by Fehr & Peers included data describing existing annual ADT along study area roadway segments, as well as a distribution of the daily VMT throughout the study area in speed bins organized by five mile per hour (mph) increments. Table 1-1 presents the traffic volumes along primary study area roadway segments under existing conditions in the baseline year of 2017. Refer to Section 0

Comparison of Existing/Baseline and Build Alternatives for a presentation of the distribution of VMT in the study area under existing conditions, the future No Build Alternatives, and with the Build Alternatives.

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

Table 1-1. Summary of Existing Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
Existing/Baseline Year 2017	Jefferson Blvd, North of 15th St (N/S)	27,900	837	3%
Existing/Baseline Year 2017	15th St, West of Jefferson Blvd (E/W)	3,400	102	3%
Existing/Baseline Year 2017	Alameda Blvd, West of Jefferson Blvd (E/W	1,100	33	3%
Existing/Baseline Year 2017	Jefferson Blvd, South of Alameda Blvd (N/S)	30,300	909	3%
Existing/Baseline Year 2017	South River Rd, South of 15th St (N/S)	9,300	279	3%
Existing/Baseline Year 2017	Jefferson Blvd, South of Locks Dr (N/S)	30,500	915	3%
City of Sacramento				
Existing/Baseline Year 2017	Broadway Blvd, Between 3rd St & 5th St (E/W)	8,000	240	3%
Existing/Baseline Year 2017	Broadway Blvd, Between 9th St & 10th St (E/W)	13,100	393	3%
Existing/Baseline Year 2017	Broadway Blvd, East of Riverside Blvd (E/W)	11,600	348	3%
Existing/Baseline Year 2017	3rd St, North of W St (N/S)	3,200	96	3%
Existing/Baseline Year 2017	5th St, North of W St (N/S)	2,700	81	3%
Existing/Baseline Year 2017	5th St, South of Broadway (N/S)	7,000	210	3%
Existing/Baseline Year 2017	Riverside Blvd, South of Broadway (N/S)	11,400	342	3%

Source: Fehr & Peers, 2020.

1.4.2 No-Build Alternative

The No-Build (No Action) Alternative consists of those transportation projects that are already planned for construction by or before the project opening year of 2030 and the project design year of 2040. Consequently, the No-Build Alternative represents future travel conditions in 2030 and 2040 throughout the Broadway Bridge study area without implementation of the Broadway Bridge project and is the baseline against which the other Broadway Bridge alternatives will be assessed to meet NEPA requirements. Other transportation projects planned for implementation within one mile of the Broadway Bridge study area by the 2040 design year include:

Project ID	Project Name/Location	Completion Date Range
SAC24683	I-Street Bridge Replacement Project	2020-2025
SAC22530	Bridging I-5/Riverfront Reconnection	2020-2025
YOL15680	U.S. 50/South River Road Ramp Redesign	2026-2030
YOL15950	Lake Washington Blvd Road Widening	2026-2036
YOL15180	South River Road Reconfiguration (Phase 3)	2031-2035
YOL15900	U.S. 50/Jefferson Blvd Interchange Project	2031-2035

Additional planned local roadway projects in West Sacramento included in the approved mobility network for Pioneer Bluff deindustrialization are the Riverfront Street Extension and 5th Street widening project and construction of Rail Street from Merkley Avenue to 15th Street. According to planning projections from the City of West Sacramento, the western shoreline along the Sacramento River will be entirely deindustrialized by 2040. No new industrial developments are planned that would increase truck traffic in the study area. The percentage of vehicles that are trucks was held constant at three percent in the transportation analyses.
Table 1-2 presents the traffic volumes along primary study area roadway segments in 2030 for the No Build Alternative, and Table 1-3 presents the traffic volumes in 2040 for the No Build Alternative. Refer to Section 0

Comparison of Existing/Baseline and Build Alternatives for a presentation of the distribution of VMT in the SACOG area under existing conditions, in the future No Build Alternatives, and with implementation of the Build Alternatives.

Table 1-2. Summary of 2030 No Build Alternative Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
No Build Alternative 2030	Jefferson Blvd, North of 15th St (N/S)	40,500	1,215	3%
No Build Alternative 2030	15th St, West of Jefferson Blvd (E/W)	3,600	108	3%
No Build Alternative 2030	Alameda Blvd, West of Jefferson Blvd (E/W	1,200	36	3%
No Build Alternative 2030	Jefferson Blvd, South of Alameda Blvd (N/S)	39,100	1,173	3%
No Build Alternative 2030	South River Rd, South of 15th St (N/S)	17,200	516	3%
No Build Alternative 2030	Jefferson Blvd, South of Locks Dr (N/S)	38,900	1,167	3%
City of Sacramento				
No Build Alternative 2030	Broadway, Between 3rd St & 5th St (E/W)	9,100	273	3%
No Build Alternative 2030	Broadway, Between 9th St & 10th St (E/W)	13,600	408	3%
No Build Alternative 2030	Broadway, East of Riverside Blvd (E/W)	12,800	384	3%
No Build Alternative 2030	3rd St, North of W St (N/S)	2,000	60	3%
No Build Alternative 2030	5th St, North of W St (N/S)	11,800	354	3%
No Build Alternative 2030	5th St, South of Broadway (N/S)	7,000	210	3%
No Build Alternative 2030	Riverside Blvd, South of Broadway (N/S)	12,200	366	3%

Source: Fehr & Peers, 2020.

Table 1-3. Summary of 2040 No Build Alternative Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
No Build Alternative 2040	Jefferson Blvd, North of 15th St (N/S)	42,900	1,287	3%
No Build Alternative 2040	15th St, West of Jefferson Blvd (E/W)	4,000	120	3%
No Build Alternative 2040	Alameda Blvd, West of Jefferson Blvd (E/W	1,200	36	3%
No Build Alternative 2040	Jefferson Blvd, South of Alameda Blvd (N/S)	40,200	1,206	3%
No Build Alternative 2040	South River Rd, South of 15th St (N/S)	19,900	597	3%
No Build Alternative 2040	Jefferson Blvd, South of Locks Dr (N/S)	39,600	1,188	3%
City of Sacramento				
No Build Alternative 2040	Broadway, Between 3rd St & 5th St (E/W)	10,400	312	3%
No Build Alternative 2040	Broadway, Between 9th St & 10th St (E/W)	14,600	438	3%
No Build Alternative 2040	Broadway, East of Riverside Blvd (E/W)	13,500	405	3%
No Build Alternative 2040	3rd St, North of W St (N/S)	2,300	69	3%
No Build Alternative 2040	5th St, North of W St (N/S)	13,200	396	3%
No Build Alternative 2040	5th St, South of Broadway (N/S)	7,400	222	3%
No Build Alternative 2040	Riverside Blvd, South of Broadway (N/S)	12,900	387	3%

Source: Fehr & Peers, 2020.

1.4.3 Project Build Alternatives

The proposed project would construct a new bridge over the Sacramento River, south of the Pioneer Bridge, between West Sacramento and Sacramento to facilitate vehicular and multi-modal traffic over the river and reduce traffic congestion, improve multi-modal transportation, and increase emergency options. The total length of the new bridge would vary from approximately 800 to 1,020 feet, with an up to 83-foot-wide deck consisting of two vehicle lanes, a median, on-street Class II buffered bike lanes, and sidewalks along both sides of the bridge. The bridge would include two fixed-span approach structures that tie into the banks of the river; the structures would vary from approximately 200 to 300 feet in length on the West Sacramento bank and from approximately 450 to 600 feet in length on the Sacramento bank. The Build Alternatives under consideration are two alignments for the new bridge and approach roadways. The lettering of each Build Alternative reflects its similarity to alignments considered in the feasibility study.

Alternative B would realign 15th Street to connect to Jefferson Boulevard in West Sacramento and connect to Broadway at 5th Street in Sacramento. This alignment would require modification to the planned mobility network for South River Road and 15th Street in Pioneer Bluff. Under Alternative B, roadway modifications would include a redesigned intersection connection for the bridge at 15th Street and new turn pockets on South River Road to facilitate traffic turning movements at the bridge connection in West Sacramento. Additional roadway alignment modifications in West Sacramento would be necessary to shift the alignment of South River Road and connection of the new bridge to the east to conform with the approved mobility network alignment of South River Road, and roadway striping and turn pocket additions on Jefferson Boulevard, South River Road, and Alameda Boulevard.

In West Sacramento, modifications to the approved mobility network would be necessary for construction of Alternative B. These modifications include the following.

- Constructing a northbound right-turn pocket on South River Road at 15th Street.
- Constructing a southbound right-turn pocket on South River Road at 15th Street.

In Sacramento, Alternative B requires the following modifications to the existing (or planned opening day) conditions.

- Reconstructing 350 feet of Marina View Drive to provide for a new connection to Broadway.
- Modifying property access along Broadway west of Interstate-5.
- The existing at-grade State Parks railroad crossing at Broadway would remain in the same location.

Transportation analyses included data describing ADT along the study area roadway segments for the Build Alternatives in 2030 and 2040. Table 1-4 and Table 1-5 present the traffic volumes along primary the study area roadway segments with implementation of Alternative B in the opening year of 2030 and the design year of 2040, respectively.

Table 1-4. Summary of 2030 Alternative B Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
Alternative B 2030	Jefferson Blvd, North of 15th St (N/S)	33,400	1,002	3%
Alternative B 2030	15th St, West of Jefferson Blvd (E/W)	4,600	138	3%
Alternative B 2030	Alameda Blvd, West of Jefferson Blvd (E/W	1,400	42	3%
Alternative B 2030	Jefferson Blvd, South of Alameda Blvd (N/S)	40,600	1,218	3%
Alternative B 2030	South River Rd, South of 15th St (N/S)	19,300	579	3%
Alternative B 2030	Jefferson Blvd, South of Locks Dr (N/S)	40,200	1,206	3%
Alternative B Bridge				
Alternative B 2030	Broadway, Jefferson Blvd to 5th St (E/W)	25,700	771	3%
City of Sacramento				
Alternative B 2030	Broadway, between 3rd St & 5th St (E/W)	15,600	468	3%
Alternative B 2030	Broadway, between 9th St & 10th St (E/W)	16,600	498	3%
Alternative B 2030	Broadway Blvd, East of Riverside Blvd (E/W)	14,200	426	3%
Alternative B 2030	3rd St, North of W St (N/S)	2,500	75	3%
Alternative B 2030	5th St, North of W St (N/S)	12,100	363	3%
Alternative B 2030	5th St, South of Broadway (N/S)	7,100	213	3%
Alternative B 2030	Riverside Blvd, South of Broadway (N/S)	12,600	378	3%

Source: Fehr & Peers, 2020.

Table 1-5. Summary of 2040 Alternative B Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
Alternative B 2040	Jefferson Blvd, North of 15th St (N/S)	35,300	1,059	3%
Alternative B 2040	15th St, West of Jefferson Blvd (E/W)	4,700	141	3%
Alternative B 2040	Alameda Blvd, West of Jefferson Blvd (E/W	1,400	42	3%
Alternative B 2040	Jefferson Blvd, South of Alameda Blvd (N/S)	41,700	1,251	3%
Alternative B 2040	South River Rd, South of 15th St (N/S)	22,600	678	3%
Alternative B 2040	Jefferson Blvd, South of Locks Dr (N/S)	41,400	1,242	3%
Alternative B Bridge				
Alternative B 2040	Broadway, Jefferson Blvd to 5th St (E/W)	28,100	843	3%
City of Sacramento				
Alternative B 2040	Broadway, between 3rd St & 5th St (E/W)	16,400	492	3%
Alternative B 2040	Broadway, between 9th St & 10th St (E/W)	17,300	519	3%
Alternative B 2040	Broadway, East of Riverside Blvd (E/W)	14,600	438	3%
Alternative B 2040	3rd St, North of W St (N/S)	2,800	84	3%
Alternative B 2040	5th St, North of W St (N/S)	13,600	408	3%
Alternative B 2040	5th St, South of Broadway (N/S)	7,400	222	3%
Alternative B 2040	Riverside Blvd, South of Broadway (N/S)	13,300	399	3%

Source: Fehr & Peers, 2020.

Alternative C (modified Alignment C from the *Broadway Bridge Feasibility Study*) would connect to South River Road at a new intersection between 15th Street and Circle Street on the West Sacramento side and would connect to Broadway on the Sacramento side. Alternative C (a modified Alignment C from the *Broadway Bridge Feasibility Study*) would connect as a "T" intersection to South River Road in West Sacramento and connect to Broadway at 5th Street in Sacramento. The new alignment of South River Road would require the proposed project to reconstruct the bridge's roadway connection to match. Roadway alignment modifications in West Sacramento would shift the alignment of South River Road and the "T" intersection connection of the new bridge approximately 100 feet to the east to conform with the approved mobility network alignment of South River Road. This alignment would require modification to the planned mobility network for South River Road in Pioneer Bluff. Roadway striping and turn pocket additions on Jefferson Boulevard, South River Road, and Alameda Boulevard would also occur.

In West Sacramento, modifications to the approved mobility network would be necessary for Alternative C. These modifications include the following.

- Creating a new "T" intersection matching the new more eastern alignment of South River Road between 15th Street and Circle Street.
- Constructing a northbound right-turn pocket on the existing alignment of South River Road at Broadway.
- Constructing a southbound left-turn pocket on the existing alignment of South River Road at Broadway.

In Sacramento, Alternative C requires the following modifications to existing conditions.

- Reconstructing 350 feet of Marina View Drive to provide for a new connection to Broadway.
- Modifying property access along Broadway west of Interstate-5.

Table 1-6 and Table 1-7 present the traffic volumes along primary study area roadway segments with implementation of Alternative C in the opening year of 2030 and the design year of 2040, respectively.

Table 1-6. Summary of 2030 Alternative C Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
Alternative C 2030	Jefferson Blvd, North of 15th St (N/S)	33,900	1,017	3%
Alternative C 2030	15th St, West of Jefferson Blvd (E/W)	4,400	132	3%
Alternative C 2030	Alameda Blvd, West of Jefferson Blvd (E/W	1,400	42	3%
Alternative C 2030	Jefferson Blvd, South of Alameda Blvd (N/S)	40,900	1,227	3%
Alternative C 2030	South River Rd, South of 15th St (N/S)	19,200	576	3%
Alternative C 2030	Jefferson Blvd, South of Locks Dr (N/S)	40,300	1,209	3%
Alternative C Bridge				
Alternative C 2030	Broadway, Jefferson Blvd to 5th St (E/W)	25,500	765	3%
City of Sacramento				
Alternative C 2030	Broadway, Between 3rd St & 5th St (E/W)	15,500	465	3%
Alternative C 2030	Broadway, Between 9th St & 10th St (E/W)	16,400	492	3%
Alternative C 2030	Broadway, East of Riverside Blvd (E/W)	14,200	426	3%
Alternative C 2030	3rd St, North of W St (N/S)	2,400	72	3%
Alternative C 2030	5th St, North of W St (N/S)	12,100	363	3%
Alternative C 2030	5th St, South of Broadway (N/S)	7,100	213	3%
Alternative C 2030	Riverside Blvd, South of Broadway (N/S)	12,600	378	3%

Source: Fehr & Peers, 2020.

Table 1-7. Summary of 2040 Alternative C Traffic Conditions.

Scenario/Analysis Year	Location	AADT		% Truck
		Total	Truck	
City of West Sacramento				
Alternative C 2040	Jefferson Blvd, North of 15th St (N/S)	35,700	1,071	3%
Alternative C 2040	15th St, West of Jefferson Blvd (E/W)	4,600	138	3%
Alternative C 2040	Alameda Blvd, West of Jefferson Blvd (E/W	1,400	42	3%
Alternative C 2040	Jefferson Blvd, South of Alameda Blvd (N/S)	42,000	1,260	3%
Alternative C 2040	South River Rd, South of 15th St (N/S)	23,000	690	3%
Alternative C 2040	Jefferson Blvd, South of Locks Dr (N/S)	41,600	1,248	3%
Alternative C Bridge				
Alternative C 2040	Broadway, Jefferson Blvd to 5th St (E/W)	28,800	864	3%
City of Sacramento				
Alternative C 2040	Broadway, between 3rd St & 5th St (E/W)	16,200	486	3%
Alternative C 2040	Broadway, between 9th St & 10th St (E/W)	17,000	510	3%
Alternative C 2040	Broadway, East of Riverside Blvd (E/W)	14,600	438	3%
Alternative C 2040	3rd St, North of W St (N/S)	2,700	81	3%
Alternative C 2040	5th St, North of W St (N/S)	13,500	405	3%
Alternative C 2040	5th St, South of Broadway (N/S)	7,300	219	3%
Alternative C 2040	Riverside Blvd, South of Broadway (N/S)	13,300	399	3%

Source: Fehr & Peers, 2020.

1.4.4 Comparison of Existing/Baseline and Build Alternatives

Under CEQA, existing (Baseline) and future No Build conditions without the project are compared to Build scenarios. The difference between future No Build and Build may help inform significance determinations and contributions to cumulative impacts. The transportation analyses prepared for the project produced summaries of the daily VMT throughout the SACOG region using the SACMET travel demand model. Scenarios analyzed included:

- 2017 Baseline: Existing Conditions
- 2030 Opening Year: No Build Alternative, Alternative B, Alternative C
- 2040 Design Year: No Build Alternative, Alternative B, Alternative C

In the short term, the bridge would provide a shorter path for people already crossing the river using Pioneer Bridge (US 50). In the long term (as represented by Design Year), travel patterns may change to incorporate the effects of a new bridge that would be adding capacity to a constrained route across the river; therefore, there would be some induced demand for travel.

Table 1-8 presents the daily regional VMT summary for the 2017 Baseline/Existing year.

Table 1-8. Summary of Daily SACOG Regional Vehicle Miles Traveled – Baseline Year 2017.

Speed Range (mph)	Existing Conditions
0-5	10,450
5-10	97,539
10-15	250,088
15-20	6,848,827
20-25	3,101,882
25-30	2,910,591
30-35	5,953,540
35-40	6,521,347
40-45	6,145,961
45-50	2,822,044
50-55	5,704,319
55-60	10,128,856
60-65	3,464,858
65-70	1,863,649
TOTAL	**55,823,951**

Table 1-9 presents the daily VMT summary for the 2030 Opening Year analysis. In 2030, implementation of Alternative B would reduce daily regional VMT by approximately 13,400 relative to the No Build Alternative, and implementation of Alternative C would reduce daily regional VMT by approximately 15,995 relative to the No Build Alternative. Implementation of Alternative B or Alternative C would improve connectivity across the Sacramento River Channel in the Opening Year of 2030, thereby decreasing the local trip distances in the vicinity of the project area.

Table 1-9. Summary of Daily SACOG Regional Vehicle Miles Traveled – Opening Year 2030.

Speed Range (mph)	Existing Conditions (2017)	No Build Alternative	Alternative B	Alternative C
0-5	10,450	13,002	12,178	12,326
5-10	97,539	141,626	144,687	140,694
10-15	250,088	355,227	355,467	337,309
15-20	6,848,827	8,624,258	8,588,472	8,625,960
20-25	3,101,882	3,717,665	3,694,057	3,687,213
25-30	2,910,591	3,459,556	3,492,570	3,499,847
30-35	5,953,540	7,403,272	7,438,531	7,404,620
35-40	6,521,347	9,584,828	9,499,321	9,478,374
40-45	6,145,961	7,289,934	7,333,080	7,394,919
45-50	2,822,044	4,151,237	4,181,626	4,137,120
50-55	5,704,319	6,662,439	6,603,946	6,646,128
55-60	10,128,856	13,093,948	13,149,596	13,115,952
60-65	3,464,858	3,243,687	3,233,775	3,244,223
65-70	1,863,649	2,219,167	2,219,139	2,219,166
TOTAL	**55,823,951**	**69,959,846**	**69,946,445**	**69,943,851**
Change from Existing Conditions		***14,135,895***	***14,122,494***	***14,119,900***
Percent Change from Existing Conditions		***+25.3%***	***+20.2%***	***+20.2%***
Change from No Build Alternative			***-13,401***	***-15,995***
Percent Change from No Build Alternative			***-0.02%***	***-0.02%***

Table 1-10 presents the daily VMT summary for the 2040 Design Year analysis. By 2040, implementation of Alternative B would increase daily regional VMT by approximately 6,230 relative to the No Build Alternative and implementation of Alternative C would increase daily regional VMT by approximately 42,893 relative to the No Build Alternative. The increase in the design year can be attributed to induced demand as a result of project connectivity across the River, which would provide for incentivized development throughout the region beyond the immediate project limits. The planned deindustrialization of Pioneer Bluff in West Sacramento and enhancements to the local circulation network would accommodate the introduction of new trip-generating land uses. The vehicle fleet within the immediate project area would remain approximately three percent trucks. The truck percentage within the greater SACOG region is approximately eight percent, which is the percent utilized in the emissions analysis based on the regional VMT.

Table 1-10. Summary of Daily SACOG Regional Vehicle Miles Traveled – Design Year 2040.

Speed Range (mph)	Existing Conditions (2017)	No Build Alternative	Alternative B	Alternative C
0-5	10,450	45,077	43,821	47,254
5-10	97,539	214,995	217,507	216,597
10-15	250,088	506,819	489,519	502,677
15-20	6,848,827	9,487,486	9,461,722	9,483,068
20-25	3,101,882	4,194,189	4,238,409	4,204,869
25-30	2,910,591	4,071,122	4,091,043	4,067,752
30-35	5,953,540	8,358,948	8,403,089	8,423,322
35-40	6,521,347	10,535,221	10,505,968	10,524,718
40-45	6,145,961	8,103,876	8,089,208	8,121,705
45-50	2,822,044	4,375,207	4,351,552	4,349,451
50-55	5,704,319	7,279,442	7,338,498	7,374,517
55-60	10,128,856	12,896,980	12,844,114	12,801,062
60-65	3,464,858	3,004,116	3,006,414	2,999,669
65-70	1,863,649	2,240,735	2,239,579	2,240,445
TOTAL	**55,823,951**	**75,314,213**	**75,320,443**	**75,357,106**
Change from Existing Conditions		**19,490,262**	**19,496,492**	**19,533,155**
Percent Change from Existing Conditions		**+34.9%**	**+25.9%**	**+25.9%**
Change from No Build Alternative			**6,230**	**42,893**
Percent Change from No Build Alternative			**+0.02%**	**+0.06%**

1.5 Construction Activities and Schedule

Under transportation conformity analysis, construction emissions are considered temporary if the duration of activities lasts five years or less at any individual site. Construction is planned to last approximately three years; no construction activities are anticipated to last more than five years at any individual site. Emissions from construction-related activities are thus considered temporary as defined in 40 Code of Federal Regulations (CFR) 93.123(c)(5); and are not required to be included in PM hot-spot analyses to meet conformity requirements. The length of the project construction period is approximately three years, and the following milestone completion dates are anticipated:

Table 1-11. Construction Activities and Schedule.

Construction Phase	Description/List of Activities	Begin Date	Completion Date
Advertisement/Award of Contract	RFP Circulated – NOP Circulated	December 2016	July 2017
Bridge Foundations	Install piles/pier columns in channel	May 2026	October 2026
Approach Span	Install approach superstructure	May 2026	February 2028
Movable Span	Erect movable span superstructure	July 2026	February 2028
Grubbing/Land Clearing	Demolish & clear project ROW	March 2027	March 2027
Grading/Excavation	Earthmoving & site leveling	March 2027	April 2027
Drainage/Utilities/Subgrade	Install utility lines and drainage	April 2027	April 2027
Paving (Alt B/C)	Roadway repaving on riverbanks	April/May 2027	May/June 2027
End of Construction	Demobilization and clean-up	-	June 2029

Construction activities in the Sacramento River channel would be restricted to the period between May 1 and November 30 annually, resulting in intermittent gaps throughout the three-year duration.

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 regulation and 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 United States Environmental Protection Agency (U.S.EPA) has also identified nine priority mobile source air toxics: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter (https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/). In California, sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

2.1.1 Criteria Pollutants

The Clean Air Act requires the U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria air contaminants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 2-1 documents the current air quality standards while Table 2-2 summarizes the sources and health effects of the six criteria pollutants and pollutants regulated in the state of California.

Table 2-1. Table of State and Federal Ambient Air Quality Standards. Accessed October 23, 2019, www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 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 ...

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2.1.2 Mobile Source Air Toxics

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

The 2007 U.S. EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using U.S. EPA's MOVES2014a model, even if vehicle activity (vehicle-miles traveled, VMT) increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emission rate for the priority MSATs is projected for the same time period, as shown in Figure 2-1.

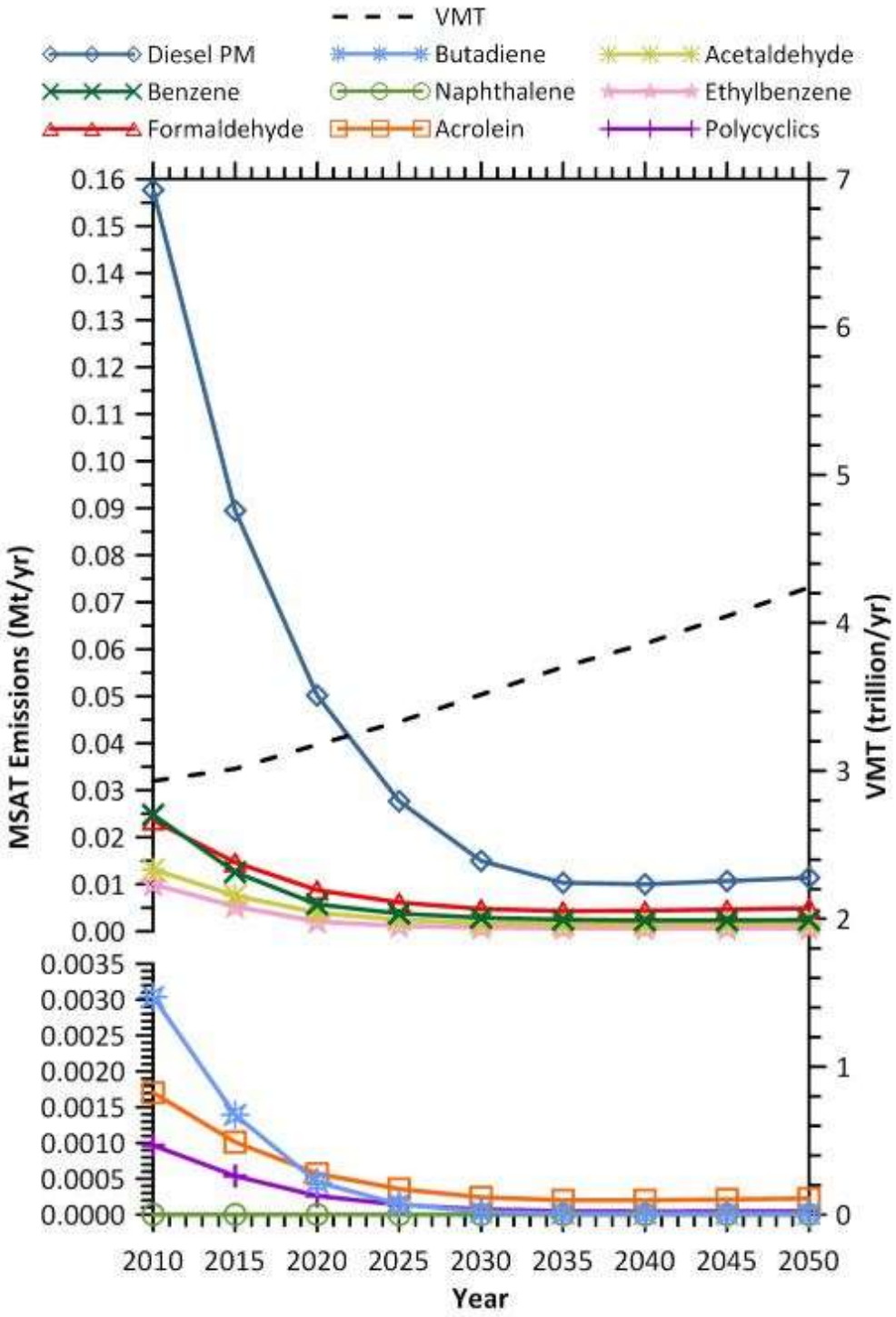

Figure 2-1. Projected National MSAT Trends, 2010-2050 (Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/).

2.1.3 Greenhouse Gases

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

GHGs differ in how much heat each traps in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO_2. For example, the 2007 International Panel on Climate Change *Fourth Assessment Report* calculates the GWP of CH_4 as 25 and the GWP of N_2O as 298, over a 100-year time horizon.[1] Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in metric tons ($MTCO_2e$), or million metric tons ($MMTCO_2e$).[2]

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

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

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

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

[1] 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.

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

goal and to update it every five 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 (SCS). The ARB sets GHG emissions reduction targets for passenger vehicles for each region. Each regional metropolitan planning organization must include in its regional transportation plan an SCS proposing actions toward achieving the regional emissions reduction targets.[3]

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

2.1.4 Asbestos

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

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

Serpentine may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology has developed a map showing the general location of ultramafic rock in the state (www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Pages/index.aspx).

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

2.2 Regulations

2.2.1 Federal and California Clean Air Act

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

2.2.2 Transportation Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming level—and the project level. The 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 carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California), sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP), and 4 years (for the FTIP). RTP and FTIP

conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA), make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and the TIP, then the 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 TIP and the project has a design concept and scope[4] that has not changed significantly from those in the RTP and TIP. If the design concept and scope have changed substantially from that used in the RTP Conformity analysis, RTP and TIP amendments may be needed. Project-level conformity also needs to demonstrate that project analyses have used the latest planning assumptions and U.S. EPA-approved emissions models; the project complies with any control measures in the SIP in PM areas. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.3 National Environmental Policy Act (NEPA)

NEPA requires that policies and regulations administered by the federal government are consistent with its environmental protection goals. NEPA also requires that federal agencies use an interdisciplinary approach to planning and decision-making for any actions that could impact the environment. It requires environmental review of federal actions including the creation of Environmental Documents (EDs) that describe the environmental effects of a 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. 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 to air districts to establish local rules to protect air quality. Caltrans' Standard Specification 14-9.02 (Caltrans, 2015) requires compliance with all applicable air

[4] "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.

quality laws and regulations including local and air district ordinances and rules. The regulation of air quality on the west side of the Sacramento River is under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). The regulation of air quality on the east side of the Sacramento River is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD).

The YSAQMD is responsible for protecting human health and property from the harmful effects of air pollution. Established in 1971 by a joint powers agreement between the Yolo and Solano County boards of supervisors, the YSAQMD is governed by an air quality management board composed of representatives from both the County Boards of Supervisors and Mayors/City council members from the cities within the District. YSAQMD has jurisdiction over all of Yolo County and the northeast portion of Solano County, from Vacaville on the west, to Rio Vista on the south. Rules relevant to the project include:

- Rule 2-1: Control of Emissions
- Rule 2-11: Particulate Matter Concentration
- Rule 4-3: Fees - Asbestos Demolition/Renovations
- Rule 9-8: Asbestos - Serpentine Rock
- Rule 9-9: Asbestos
- Rule 10-2: Transportation Conformity

The SMAQMD operates at the local level with primary responsibility for attaining and maintaining the federal and State ambient air quality standards in Sacramento County. The SMAQMD works jointly with U.S. EPA, ARB, SACOG, other air districts in the Sacramento region, county and city transportation and planning departments, and various non-governmental organizations to improve air quality through a variety of programs. These programs include the adoption of regulations, policies and guidance, extensive education and public outreach programs, as well as emission reducing incentive programs. Rules relevant to the project include:

- Rule 402: Nuisance
- Rule 403: Fugitive Dust
- Rule 902: Asbestos
- Rule 1006: Transportation Conformity

3. Affected Environment

The proposed project is in both Yolo and Sacramento Counties and would cross over the Sacramento River and between the cities of West Sacramento and Sacramento. Both Counties are located in the Sacramento Valley Air Basin, which also includes Butte County, Colusa County, Glenn County, Placer County, Shasta County, Solano County, Sutter County, and Tehama County. The estimated 2018 population in Yolo County was 220,408 people (U.S. Census Bureau) and the 2036 forecasted population is 274,682 people (2016 MTP/SCS). The estimated 2018 population in Sacramento County was 1,540,975 people (U.S. Census Bureau) and the 2036 forecasted population is 1,879,302 people (2016 MTP/SCS).

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 ozone and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

The Sacramento Executive Airport climatological station, maintained by National Oceanic and Atmospheric Administration, is located near the project site and is representative of meteorological conditions near the project. Figure 3-1 shows a wind rose illustrating the predominant wind patterns near the project. Hot dry summers and mild rainy winters characterize the Mediterranean-type climate of the MTP/SCS plan area. The temperature may range during the year from around 20 to 115 degrees Fahrenheit, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 15 inches, about 75 percent of which occur during the rainy season generally from November through March. Light and infrequent thunderstorms may occur at any time of year, typically whenever cool, moist air moves in to break a prolonged hot spell. Humidity levels vary within the region, often dropping below 10 percent in the warm season, while increasing during colder months to form shallow layers of ground fog (i.e., tule fog) in the valley. The prevailing winds are moderate in strength, primarily from the south or southeast.

The mountains surrounding the Sacramento Valley Air Basin create a barrier to airflow, which can trap air pollutants when certain meteorological conditions exist. The highest frequency of air stagnation occurs between mid-November and mid-January when large high-pressure cells lie over the Sacramento Valley Air Basin. The lack of surface wind during these periods, and the reduced vertical flow caused by less surface heating, reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog and pollutants near the ground. The ozone season (May through October) in the Sacramento Valley Air Basin is characterized by stagnant morning air or light winds, with the Delta sea breeze arriving in the afternoon out of the southwest. In addition, longer daylight hours provide a plentiful

amount of sunlight to fuel photochemical reactions between ROG and NO_X, which result in ozone formation.

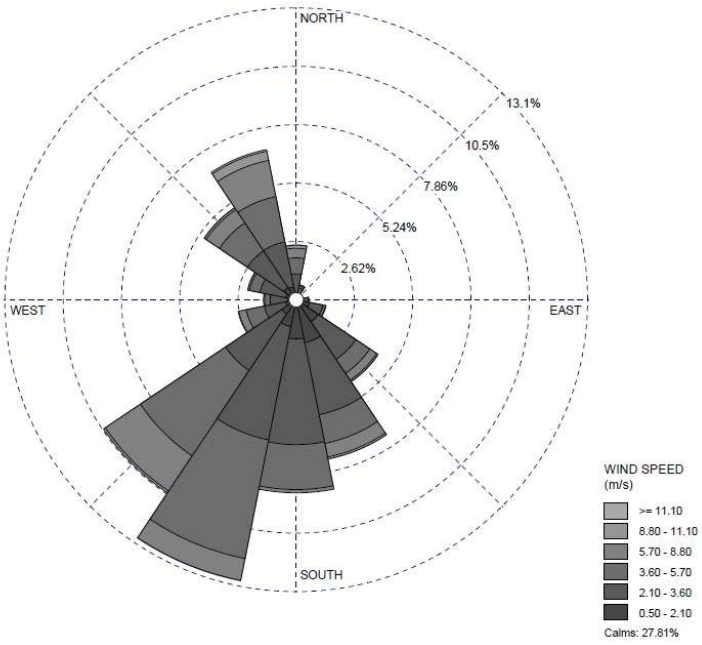

Figure 3-1. Predominant Wind Patterns Near the Project.

3.2 Existing Air Quality

This section summarizes existing air quality conditions near the proposed project area. It includes attainment statuses for criteria pollutants, describes local ambient concentrations of criteria pollutants for the past five years, and discusses MSAT and GHG emissions.

3.2.1 Criteria Pollutants and Attainment Status

Table 3-1 lists the state and federal attainment status for all regulated pollutants. Under the federal standards, the regional O_3 designation is Nonattainment (Severe 15). Yolo County is in attainment of all other NAAQS. Sacramento County is designated as Maintenance (Moderate) for PM_{10} and Nonattainment (Moderate) for $PM_{2.5}$. For the more stringent CAAQS, both Sacramento County and Yolo County are designated Nonattainment for O_3 and PM_{10} and are in attainment of all other State standards.

Table 3-1. State and Federal Attainment Status.

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3)	Nonattainment	Nonattainment (Severe 15)
Respirable Particulate Matter (PM_{10})	Nonattainment	Sacramento County: Maintenance (Moderate) Yolo County: Attainment/Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Sacramento County: Attainment Yolo County: Unclassified	Sacramento County: Nonattainment (Moderate) Yolo County: Attainment/Unclassified
Carbon Monoxide (CO)	Attainment	Attainment/Unclassified
Nitrogen Dioxide (NO_2)	Attainment	Attainment – Unclassified
Sulfur Dioxide (SO_2)	Attainment	Attainment – Unclassified
Lead (Pb)	Attainment	Attainment – Unclassified
Visibility-Reducing Particles	Unclassified	N/A
Sulfates	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Vinyl Chloride	Unclassified	N/A

Source: ARB, State Area Designations, April 22, 2019 (https://www.arb.ca.gov/desig/adm/adm.htm); U.S. EPA, Status of California Designated Areas, October 21, 2019 (https://www3.epa.gov/airquality/urbanair/sipstatus/reports/ca_areabypoll.html)

Ambient air quality in the project area is best characterized by pollutant concentrations measured at the air monitoring station located at the ARB office at 1309 T Street in Sacramento, located approximately 0.75 miles northeast of the project. The T Street monitoring station actively measures concentrations of ground-level O_3, NO_2, PM_{10}, and $PM_{2.5}$, but does not maintain CO measurement capabilities. CO concentrations in the project area are best represented by conditions recorded at the 100 Bercut Drive monitoring station in Sacramento, located approximately two miles north of the project. Figure 3-2 displays a map of the air monitoring stations relative to the project location.

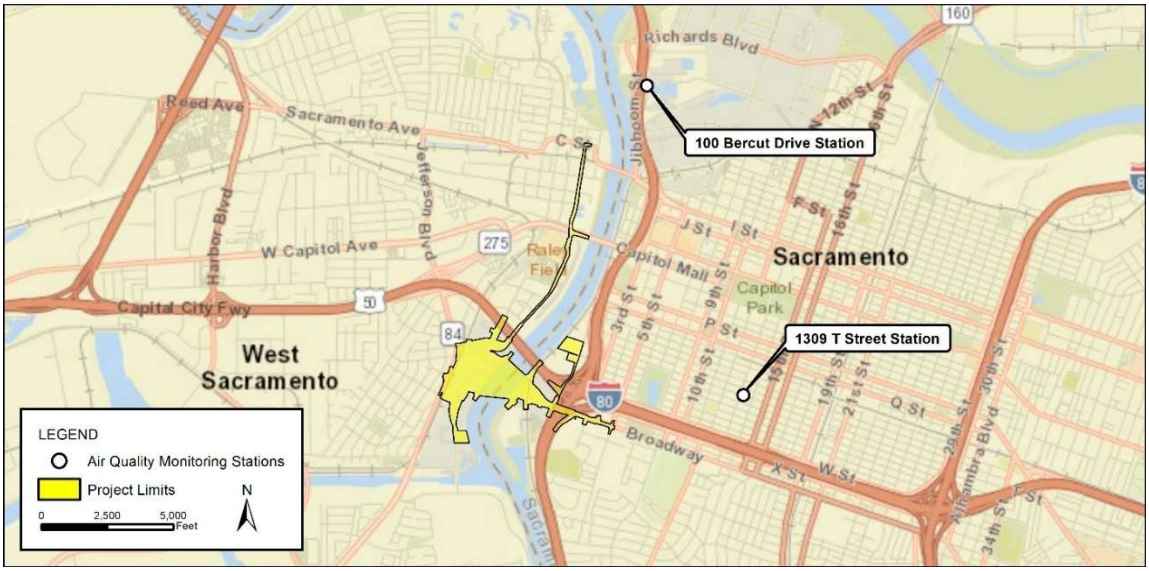

Figure 3-2. Map of Air Quality Monitoring Stations Located Near the Project.

Table 3-2 presents air quality trends in data collected at 1309 T Street (O_3, PM_{10}, $PM_{2.5}$, and NO_2) and 100 Bercut Drive (CO) Stations for the past five years. The monitored data shows that O_3 and PM_{10} concentrations in the Project Area have recently exceeded the NAAQS and/or CAAQS at least once in each of the last five years. In addition, the $PM_{2.5}$ NAAQS was exceeded once in 2015, twice in 2017, and three times in 2018, with an exceptionally high annual average in 2018 compared to other years.

Table 3-2. Air Quality Concentrations Measured in the Project Area for the Past Five Years.

Pollutant	Standard	2015	2016	2017	2018	2019
Ozone (O_3)						
Max 1-hr concentration		0.092	0.094	0.107	0.097	0.100
No. days exceeded: State	0.09 ppm	1	1	1	1	1
Max 8-hr concentration		0.076	0.073	0.077	0.084	0.074
No. days exceeded: State	0.07 ppm	4	3	3	1	1
Federal	0.07 ppm	4	3	3	1	1
PM_{10}						
Max 24-hr concentration		57.8	50.3	149.9	292.6	174.7
No. days exceeded: State	50 µg/m^3	6	1	21	22	24
Federal	150 µg/m^3	0	0	0	6	1
Max annual concentration		22.6	19.1	23.8	29.2	20.2
Exceeded: State	20 µg/m^3	Yes	No	Yes	Yes	Yes
$PM_{2.5}$						
Max 24-hr concentration		36.3	24.4	44.5	149.9	32.3
No. days exceeded: Federal	35 µg/m^3	1	0	2	3	0
Max annual concentration		9.5	7.7	9.2	12.8	7.7
Exceeded: State	12 µg/m^3	No	No	No	Yes	No
Federal	12.0 µg/m^3	No	No	No	Yes	No
Nitrogen Dioxide (NO_2)						
Max 1-hr concentration		0.055 ppm 55 ppb	0.055 ppm 55 ppb	0.059 ppm 59 ppb	0.066 ppm 66 ppb	0.062 ppm 62 ppb
No. days exceeded: State	0.18 ppm	0	0	0	0	0
Federal	100 ppb	0	0	0	0	0
Max annual concentration		0.011 ppm 11 ppb	0.010 ppm 10 ppb	0.009 ppm 9.7 ppb	0.009 ppm 9.5 ppb	0.009 ppm 9.3 ppb
Exceeded: State	0.03 ppm	No	No	No	No	No
Federal	53 ppb	No	No	No	No	No
Carbon Monoxide (CO)						
Max 1-hr concentration			1.6	1.8	3.2	1.4
No. days exceeded: State	20 ppm		0	0	0	0
Federal	35 ppm		0	0	0	0
Max 8-hr concentration			1.3	1.2	3	1.3
No. days exceeded: State	9.0 ppm		0	0	0	0
Federal	9 ppm		0	0	0	0

Source: U.S. EPA, Outdoor Air Quality Data – Monitor Values Reports (https://www.epa.gov/outdoor-air-quality-data/monitor-values-repor); CARB, iADAM: Air Quality Data Statistics Top 4 Summary (https://www.arb.ca.gov/adam/topfour/topfour1.php).

Table 3-3 presents the status of relevant SIPs for Sacramento and Yolo Counties. There is a regional SIP related to O_3 and Sacramento County has active SIPs for PM_{10} and $PM_{2.5}$. Sacramento County was designated attainment of the 24-hour PM_{10} NAAQS and the annual average $PM_{2.5}$ NAAQS in 2013 and has been in Maintenance (Moderate) since.

Table 3-3. Status of SIPs Relevant to the Project Area.

Name/Description	Status
Carbon Monoxide	Attainment – Meets NAAQS
Lead	Attainment – Meets NAAQS
Nitrous Oxide	Attainment – Meets NAAQS
Ozone	Nonattainment (Severe 15) – Does not meet NAAQS Sacramento Metro Region 2008 8-Hour Ozone Attainment & Reasonable Further Progress Plan – July 2017, ARB Approved November 2017 2018 SIP Updated and Adopted by CARB October 2018
PM_{10}	24-Hour Primary NAAQS: Sacramento County: Maintenance (Moderate) – NAAQS Attained September 2013 (40 CFR V78 #187, p. 59261) Yolo County: Attainment – Meets NAAQS
$PM_{2.5}$	24-Hour Primary NAAQS: Sacramento County: Nonattainment (Moderate) Annual $PM_{2.5}$ Maintenance Plan and Redesignation Request (2013) Approved by USEPA in May 2017 (40 CFR V82 #89, p. 21711) – Meets Annual NAAQS Yolo County: Attainment – Meets NAAQS

Source: U.S. EPA, Status of California Designated Areas, October 21, 2019 (https://www3.epa.gov/airquality/urbanair/sipstatus/reports/ca_areabypoll.html)

3.2.2 Mobile Source Air Toxics

The primary sources of MSAT pollutant emissions in and surrounding the project area include river boats, rail tracks, and industrial uses including tank farms and corporation yards. The ARB website for monitored data was reviewed for local MSAT data. Monitored MSAT data was not identified within 25 miles of the project area. There are no active MSAT monitors within 10 miles of the project area that would be representative of local ambient concentrations because of dispersion caused by distance.

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.

To adapt to the impacts of climate change, SACOG developed the Sacramento Region Transportation Climate Adaptation Plan. This plan examines the likely effects of four climate impacts—extreme heat, changes in precipitation, wildfire, and landslides—on different types of transportation infrastructure. For example, extreme heat poses a high risk to roads, railways, and bridges (because of heat's effects

on asphalt, rail tracks and bridge joints) and a moderate risk to public transit (passenger discomfort, vehicle overheating, and network delays). To address these risks, the plan offers planning, design, and maintenance strategies for each type of infrastructure; these strategies are part of SACOG's 2020 MTP/SCS. The project is also included in the 2016 MTP/SCS, which estimated 2012 baseline emissions of 20.78 million metric tons of CO_2e emissions for the Plan Area. The primary source of emissions was identified as the transportation sector followed by electricity generation.

3.3 Sensitive Receptors

On the basis of research showing that the zone of greatest concern near roadways is within 500 feet (or 150 meters), sensitive receptors within 500 feet (or 150 meters) have been identified and are documented in Table 3-4.

Table 3-4. Sensitive Receptors Located Within 500 Feet of the Project Site.

Receptor	Description	Distance Between Receptor and Project (ft)
City of West Sacramento		
3rd Street Residences	Between North B Street and Tower Bridge Gateway	25-500
River Walk Park	Public park adjacent to Sacramento River	50-500
5th & Tower/Mill Residences	Southwest and northeast corners of intersection	50-500
Mill St/Central St Residences	Northeast corner of intersection	50-500
3rd/Tower Bridge GW Res.	Future residences on northeast intersection corner	50-500
Riverfront St Residences	Between Bridge St and Mill St	50-500
Virginia Ave Residences	From 11th St Corner to Alameda Blvd Corner	25-500
Vermont Ave Residences	Corner of Vermont Ave and Jefferson Blvd	75
City of Sacramento		
Miller Park	Public Park adjacent to Sacramento River	50-500
The Mill at Broadway	Residences north of Smith School Park along 3rd St	50-500
O'Neil Park	Public Park on Broadway at 6th St	400

Figure 3-2 shows the locations of existing and planned sensitive receptors relative to the project site.

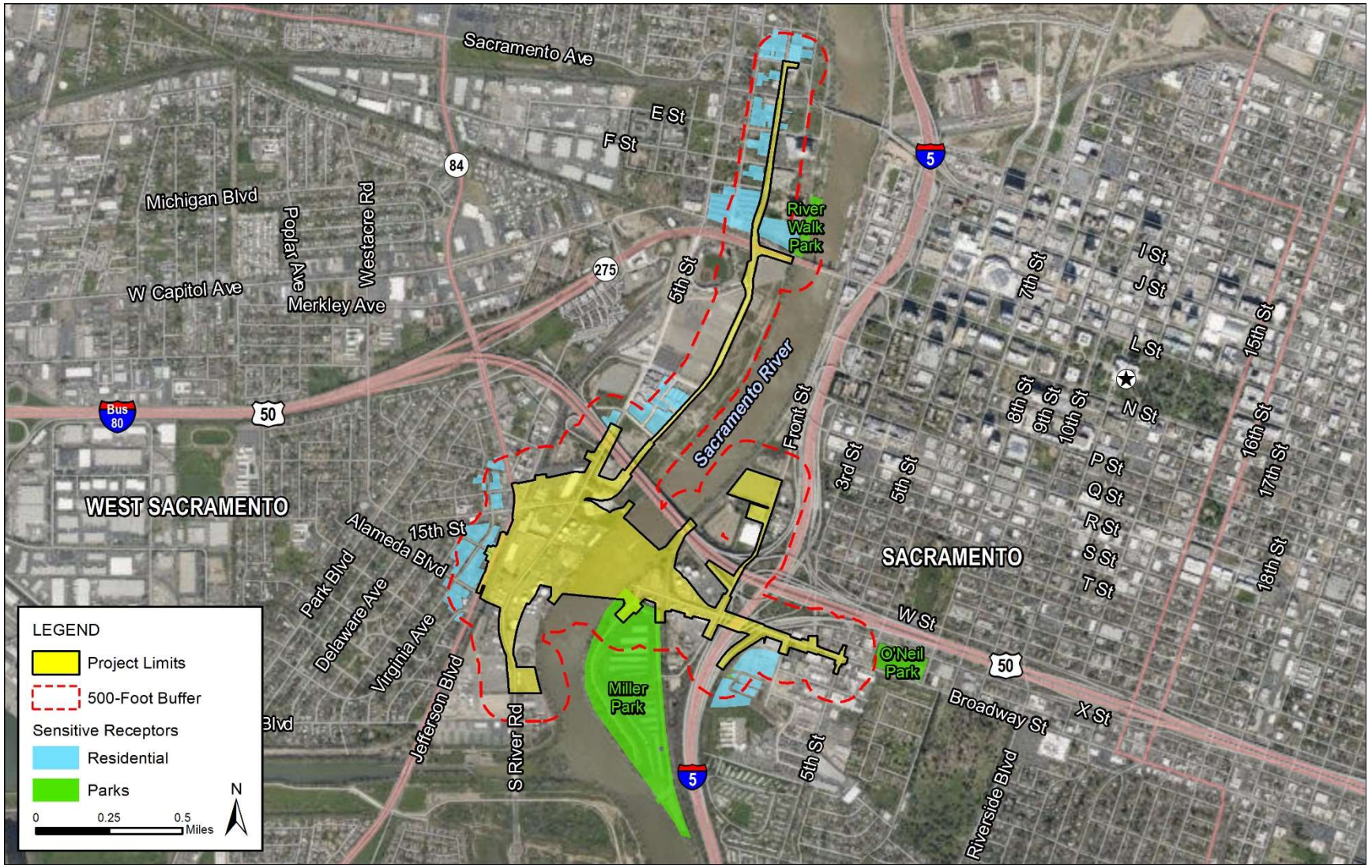

Figure 3-2. Sensitive Receptors Located Near the Proposed Project.

3.4 Conformity Status

3.4.1 Regional Conformity

The proposed project is listed (ID YOL19328) in the financially constrained 2020 MTP/SCS which was found to conform by SACOG on November 18, 2019, and FHWA and FTA made a regional conformity determination finding on November 20, 2019. The project is also included in SACOG financially constrained 2019 MTIP. The 2019 MTIP was determined to conform by FHWA and FTA on December 17, 2018, and Amendment #18 was approved and issued a final conformity determination on November 20, 2019. The design concept and scope of the proposed project is consistent with the project description in the 2020 MTP/SCS, 2019–2022 MTIP, and the "open to traffic" assumptions of the SACOG regional emissions analysis.

Table 3-5. 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
SACOG	2020 MTP/SCS	November 18, 2019	November 20, 2019	-	-
SACOG	2019-22 MTIP	December 17, 2018	December 17, 2018	Amendment #18	November 20, 2019

3.4.2 Project-Level Conformity

The project region is designated as is a Nonattainment (Severe 15) area for O_3. In addition, Sacramento County is designated as Maintenance (Moderate) area for PM_{10} and Nonattainment (Moderate) area for $PM_{2.5}$. Thus, a project-level hot-spot analysis for PM_{10} and $PM_{2.5}$ is required under 40 CFR 93.109. The proposed project is not designated as a transportation control measure (TCM) and would not interfere with any TCMs. The project does not cause or contribute to any new localized PM_{10} and/or $PM_{2.5}$ violations, or delay timely attainment of any NAAQS or any required interim emission reductions or other milestones during the timeframe of the transportation plan (or regional emissions analysis).

3.4.3 Interagency Consultation

The proposed project completed Interagency Consultation for Transportation Conformity. The proposed project was emailed to the SACOG Transportation Conformity Working Group on Friday, November 13, 2020. Interagency Consultation participants concurred that the meeting that the proposed project is not a Project of Air Quality Concern (POAQC). Table 3-6 summarizes the Interagency Consultation process and documentation is included in Appendix E.

Table 3-6. Summary of Interagency Consultation Process.

Date	Format	Participants	Discussion Summary	Outcomes
November 13, 2020	Email	SACOG	Project summary form submitted to SACOG.	Project summary form accepted by SACOG.
November 16, 2020	Email	SACOG, Caltrans, FHWA, CARB, FRAQMD, El Dorado County AQMD, SMAQMD, YSAQMD, EDCTC, USEPA, PCTPA, PCAPCD, City of West Sacramento	Project summary form circulated by SACOG to Project Level Conformity Group for POAQC Determination	N/A
November 17, 2020	Email	USEPA, SACOG	POAQC Determination	USEPA concurs that the project is not a POAQC.
November 19, 2020	Email	FHWA, Caltrans, SACOG	POAQC Determination	FHWA and Caltrans concur that the project is not a POAQC.
November 19, 2020	Email	SACOG, Caltrans, FHWA, CARB, FRAQMD, El Dorado County AQMD, SMAQMD, YSAQMD, EDCTC, USEPA, PCTPA, PCAPCD, City of West Sacramento	POAQC Determination	Project Level Conformity Group determines that the project is not a POAQC.

4. Environmental Consequences

This section describes the methods, impact criteria, and results of air quality analyses of the proposed project. Analyses in this report were conducted using methodology and assumptions that are consistent with the requirements of NEPA, CEQA, the CAAAs of 1990, and the CCAA of 1988. The analyses also use guidelines and procedures provided in applicable air quality analysis protocols, such as the Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Areas (U.S. EPA, 2015) and the FHWA Updated Interim Guidance on Air Toxics Analysis in NEPA Documents (FHWA, 2016).

4.1 Impact Criteria

Project-related emissions will have an adverse environmental impact if they result in pollutant emissions levels that either create or worsen a violation of an ambient air quality standard (identified in Table 2.1) or contribute to an existing air quality violation.

4.2 Short-Term Effects (Construction Emissions)

4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust

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

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

- *Fugitive Dust*: A major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit "visible emissions" exceeding three minutes in one hour – this applies not only to dust but also to

engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line.

Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

- *Construction equipment emissions*: Diesel exhaust particulate matter is a California-identified toxic air contaminant, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

The construction period spans approximately three years regardless of the Build Alternative, with activities occurring intermittently throughout the timeframe. In addition, transportation project construction emissions have not been identified as a significant contributor to nonattainment conditions. Therefore, an analysis of construction emissions is not needed for conformity purposes. However, construction emissions have been estimated in accordance with CEQA requirements and for disclosure in the NEPA document. Construction emissions were estimated using the latest SMAQMD's Roadway Construction Emissions Model (http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools, Version 9.0). Table 4-1 presents daily emissions that would be generated by construction of the project.

Table 4-1. Maximum Daily Emissions Generated by Construction Activities

Phase	ROG/VOC (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	CO_2 (tons/day)
Foundations	7.1	22.6	6.5	62.4	64.9	8.5
Approach Span	1.4	20.7	4.7	15.9	12.7	1.9
Movable Span	1.9	0.7	0.6	19.2	15.4	2.1
Grubbing/Land Clearing	1.9	41.0	9.1	18.9	23.4	3.6
Grading/Excavation	4.7	43.1	10.5	60.8	72.0	13.5
Drainage/Utilities/Sub-Grade	1.0	40.5	8.7	18.5	9.1	1.9
Paving	1.3	1.1	0.7	21.1	26.6	5.9
Potentially Overlapping Phases						
Foundation + Approach Span	8.5	43.3	11.2	78.3	77.6	10.4
Approach Span + Movable Span	3.3	21.4	5.3	35.1	28.1	4.0
Maximum Daily Emissions	**8.5**	**43.3**	**11.2**	**78.3**	**77.6**	**13.5**
SMAQMD Construction Threshold	***-***	***80***	***82***	***-***	***85***	***-***
YSAQMD Construction Threshold [a]	***55***	***80***	***-***	***-***	***55***	***-***

Source: Roadway Construction Emissions Model.

a) Note: YSAQMD ROG/VOC & NO construction thresholds based on 10 tons/year averaged over 365 days.

Construction emissions were estimated for the Build Alternative using detailed equipment inventories and construction scheduling information provided by the engineering team. Daily emissions presented in Table 4-1 represent peak daily emissions and would not occur continuously throughout the construction period. Detailed emissions modeling files can be found in Appendix B.

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

AQ-1 (Minimization): The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2018).

AQ-2 (Minimization): Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.

AQ-3 (Minimization): During construction, contractors are required to comply with the requirements of all applicable state and local regulations including, but not limited to, YSAQMD Rule 2-11 (Particulate Matter Concentration) and SMAQMD Rule 403 (Fugitive Dust).

4.2.2 Asbestos

Naturally Occurring Asbestos (NOA)

NOA can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. The State Department of Conservation, in conjunction with the United States Geological Survey, has prepared a map and spreadsheet inventory of asbestos areas and areas known to contain serpentinite and ultraformic rocks. The project is not in an area containing NOA.[5] Standard dust control measures such as watering would effectively control unanticipated NOA exposure.

Structural Asbestos

Demolition activities would be subject to YSAQMD Rule 9-9 (Asbestos) and SMAQMD Rule 902 (Asbestos). These rules include specific requirements for surveying, notification, removal, and disposal of material containing asbestos. These rules would ensure that asbestos-containing materials would be disposed of appropriately and safely. In addition, construction activities would be completed by asbestos-certified contracts per Caltrans standards.

[5] U.S. Department of Conservation, 2010. A General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos. Available: http://www.capcoa.org/Docs/noa/%5B15%5D%20Map%20NOA%20California%20by%20USGS.pdf

4.2.3 Lead

Lead is normally not an air quality issue for transportation projects unless the project involves disturbance of soils containing high levels of aerially deposited lead or painting or modification of structures with lead-based coatings. No industrial sources of lead emissions have been identified near the project site. Regardless, soils will be tested for the presence of hazardous materials such as lead. If lead is present, the project would be required to develop a Lead Compliance Plan to minimize exposure per SMAQMD and YSAQMD rules and regulations.

4.3 Long-Term Effects (Operational Emissions)

Operational emissions take into account long-term changes in emissions due to the project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for Existing/Baseline conditions, No Build, and Build Alternatives in 2017 (Baseline Year used for CEQA analysis), 2030 (Opening Year), and 2040 (Design Year).

Regional operational emissions associated with project implementation were calculated using CT-EMFAC2017. CT-EMFAC2017 is the most recent on-road emissions modeling tool in California that has been approved for use by the U.S. EPA. CT-EMFAC2017 contains a comprehensive emissions inventory of motor vehicles that provides estimated emission rates for air pollutants. The emission rates for the SACOG area provided by CT-EMFAC2017 in grams per mile were used in conjunction with traffic data presented in Tables 1-8 through 1-10, above to estimate daily air pollutant emissions under each of the analyzed scenarios. Table 4-2 shows emissions in the 2017 Baseline Year, 2030 Opening Year, and 2040 Design Year for the No Build and Build Alternatives. The 2030 and 2040 analyses incorporate off-model adjustment factors published by CARB in November 2019 and approved by USEPA in March 2020 that account for federal changes to the Safer Affordable Fuel-Efficient (SAFE) Vehicle Rule Part One. The results of the emission calculations are included in Appendix D.

In 2017 and 2030, implementation of either Alternative B or Alternative C would reduce daily regional VMT compared to the No Build Alternative, resulting in an induced decrease in daily emissions of ROG/VOC, CO, PM_{10}, $PM_{2.5}$, and NO_X compared to existing conditions and the No Build Alternative. In the Design Year of 2040, daily air pollutant emissions from regional VMT throughout the SACOG region would increase with implementation of Build Alternative B or Build Alternative C, compared to the No Build Alternative. The incremental increase in emissions would be distributed across the six-county roadway network within the SACOG region. Also presented in the bottom of Table 4-2 are the operational mass daily air quality significance thresholds for criteria pollutants propagated by the SMAQMD, the YSAQMD, the Placer County APCD, the El Dorado County APCD, and the Feather River AQMD. Although daily pollutant emissions from regional VMT within the SACOG region would increase in 2040 with implementation of the project, the incremental increase would be dispersed throughout the six-county region and would remain below the daily operational threshold for all pollutants in every air quality management jurisdiction.

Table 4-2. Summary of Comparative Emissions Analysis.

Scenario/Analysis Year	ROG/VOC (lbs./day)	CO (lbs./day)	PM_{10} (lbs./day)	$PM_{2.5}$ (lbs./day)	NOx (surrogate for NO_2) (lbs./day)
Baseline/Existing Condition (2017)	7,539.8	183,553.6	22,652.7	5,678.3	58,148.9
OPENING YEAR ANALYSIS					
No Build Alternative (2030)	2,710.9	88,877.3	27,475.9	6,277.9	22,419.5
Difference from Existing Conditions	*-4,828.8*	*-94,676.3*	*4,823.2*	*599.6*	*-35,729.4*
% Difference from Existing Conditions	*-64.0%*	*-51.6%*	*+21.3%*	*+10.6%*	*-61.4%*
Build Alternative B (2030)	2,709.2	88,839.7	27,470.6	6,276.7	22,405.5
Difference from No Build Alternative	*-1.7*	*-37.4*	*-5.3*	*-1.3*	*-14.0*
% Difference from No Build Alternative	*-0.06%*	*-0.04%*	*-0.02%*	*-0.02%*	*-0.06%*
Difference from Existing Conditions	*-4,830.6*	*-94,713.9*	*4,817.9*	*598.3*	*-35,743.4*
% Difference from Existing Conditions	*-64.1%*	*-51.6%*	*+21.3%*	*+10.5%*	*-61.5%*
Build Alternative C (2030)	2,708.6	88,832.2	27,469.6	6,276.4	22,402.7
Difference from No Build Alternative	*-2.4*	*-45.0*	*-6.4*	*-1.5*	*-16.8*
% Difference from No Build Alternative	*-0.09%*	*-0.05%*	*-0.02%*	*-0.02%*	*-0.08%*
Difference from Existing Conditions	*-4,831.2*	*-94,721.4*	*4,816.9*	*598.1*	*-35,746.2*
% Difference from Existing Conditions	*-64.1%*	*-51.6%*	*+21.3%*	*+10.5%*	*-61.5%*
DESIGN YEAR ANALYSIS					
No Build Alternative (2040)	2,289.5	83,091.4	29,700.5	6,700.7	19,269.3
Difference from Existing Conditions	*-5,250.3*	*-100,462.2*	*7,047.8*	*1,022.3*	*-38.879.6*
% Difference from Existing Conditions	*-69.6%*	*-54.7%*	*+31.1%*	*+18.0%*	*-66.9%*
Build Alternative B (2040)	2,888.9	83,100.4	29,702.9	6,701.1	19,270.1
Difference from No Build Alternative	*-0.5*	*9.1*	*2.4*	*0.5*	*0.8*
% Difference from No Build Alternative	*-0.02%*	*+0.01%*	*+0.01%*	*+0.01%*	*+0.003%*
Difference from Existing Conditions	*-5,250.9*	*-100,453.2*	*7,050.1*	*1,022.8*	*-38,878.8*
% Difference from Existing Conditions	*-69.6%*	*-54.7%*	*+31.1%*	*+18.0%*	*-66.9%*
Build Alternative C (2040)	2,290.9	83,150.9	29,717.3	6,704.4	19,282.3
Difference from No Build Alternative	*1.4*	*59.5*	*16.8*	*3.7*	*13.0*
% Difference from No Build Alternative	*+0.05%*	*+0.07%*	*+0.06%*	*+0.06%*	*+0.06%*
Difference from Existing Conditions	*-5,248.9*	*-100,402.7*	*7,064.6*	*1,026.1*	*-38,866.5*
% Difference from Existing Conditions	*-69.6%*	*-54.7%*	*+31.1%*	*+18.0%*	*-66.8%*
DISTRICT THRESHOLDS					
SMAQMD Daily Operational Threshold	65	-	80	82	65
YSAQMD Daily Operational Threshold*	55	-	80	-	55
PCAPCD Daily Operational Threshold	55	-	82	-	55
EDCAPCD Daily Operational Threshold	82	-	-	-	82
FRAQMD Daily Operational Threshold	25	-	80	-	25

Source: CT-EMFAC2017, CARB 2019

**Note:* YSAQMD ROG/VOC & NO_X threshold of 55 pounds per day is derived from the annual threshold of 10 tons per year.

4.3.1 CO Analysis

U.S. EPA declared that Transportation Conformity requirements related to CO in Sacramento ended on June 1, 2018. That date marked 20 years from the redesignation of the areas to attainment and implementation of a maintenance plan. The approved maintenance plan for Sacramento did not extend the maintenance plan period beyond 20 years from redesignation. Consequently, Transportation Conformity requirements for CO ceased to apply after June 1, 2018 (i.e., 20 years after the effective date of the U.S. EPA's approval of the first ten-year maintenance plan and redesignation of the areas to attainment for the CO NAAQS.

4.3.2 PM Analysis

Emissions Analysis

PM emissions were estimated for Existing Conditions along with the No Build and Build Alternatives for the baseline year 2017, interim year 2030 and design year 2040. Table 4-2 shows that implementation of Build Alternative B or Build Alternative C would decrease daily PM emissions relative to Existing Conditions and the No Build Alternative in 2017 and 2030, respectively.

In 2040, increases in daily regional VMT resulting from induced demand and ambient regional growth projections with implementation of Alternative B would increase daily PM_{10} emissions by approximately 2.4 pounds per day (+0.01%) and increase daily $PM_{2.5}$ emissions by approximately 0.5 pounds per day (+0.01%) relative to the No Build Alternative.

In 2040, implementation of Alternative C would increase daily PM_{10} emissions by approximately 16.8 pounds per day (+0.06%) and increase daily $PM_{2.5}$ emissions by approximately 3.7 pounds per day (+0.06%). As demonstrated in Table 4-2, the incremental increase would remain below all of the air district thresholds. The emissions would be dispersed throughout the six-county region and distributed across multiple air districts' jurisdictions and would not have the potential to result in long term adverse effects related to air quality.

Hot-Spot Analysis

In November 2015, the U.S. EPA released an updated version of Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The U.S. EPA originally released the quantitative guidance in December 2010 and released a revised version in November 2013 to reflect the approval of EMFAC 2011 and U.S. EPA's 2012 PM NAAQS final rule. The November 2015 version reflects MOVES2014 and its subsequent minor revisions such as MOVES2014a, to revise design value calculations to be more consistent with other U.S. EPA programs, and to reflect guidance implementation and experience in the field. Note that EMFAC, not MOVES, should be used for project hot-spot analysis in California. The Guidance requires a hot-spot analysis to be completed for 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;

The project does not comprise a new or expanded highway project that would increase diesel vehicle traffic.

(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;

The project would not introduce a significant number of diesel vehicles to the project area.

(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

The project does not comprise a bus or rail terminal or transfer point.

(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

The project does not comprise expansion of a bus or rail terminal.

(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.

The proposed project has undergone Interagency Consultation regarding POAQC determination. Interagency Consultation participants concurred that the project is not a POAQC on November 19, 2020. The proposed project is not considered a POAQC because it does not meet the definition as defined in U.S. EPA's Transportation Conformity Guidance. Therefore, PM hot-spot analysis is not required. Documentation of concurrence are provided in this section and in Appendix E.

4.3.3 NO_2 Analysis

The U.S. EPA modified the NO_2 NAAQS to include a 1-hr standard of 100 ppb in 2010. Currently there is no federal project-level nitrogen dioxide (NO_2) analysis requirement. However, NO_2 is among the near-road pollutants of concern and project analysts will be expected to explain how transportation projects affect near-road NO_2.

Regionally, the project is in an NO_2 Attainment – Maintenance (Primary) area and included in the conforming RTP and TIP. For project-level analysis, NO_2 assessment protocol is not available. Neither EMFAC nor CT-EMFAC provides NO_2 emissions estimates. Instead, those models provide NO_x (combination of NO and NO_2) emissions estimates. Near-road NO_2 concentrations will likely be dominated by overall NO_x emissions. As long as ozone is present at relatively low (background)

concentrations, most of the directly emitted NO will convert to NO_2 within a few seconds. Therefore, NO_x emissions overall can serve as a useful analysis surrogate for NO_2. The Caltrans Near-Road Nitrogen Dioxide Assessment report can be used as a reference (Caltrans, 2012).

NO_X emissions were estimated for Existing Conditions along with the No Build and Build Alternatives for the baseline year 2017, interim year 2030, and design year 2040. Table 4-2 shows that implementation of the project would reduce daily NO_X emissions in 2017 and 2030 compared to existing conditions and the No Build Alternative. The marginal increase in NO_X emissions under the Build Alternatives in 2040 compared to the No Build Alternative would be negligible at the SACOG regional emissions level and would not contribute to delaying ground-level ozone attainment.

4.3.4 Mobile Source Air Toxics Analysis

FHWA guidance defines MSATs as in the 2007 U.S. EPA regulations; however, in addition, 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-cancer hazard contributors from the 2011 National Air Toxic 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 FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The project is not categorically excluded by 23 CFR 771.117(c), CAA pursuant to 40 CFR 93.126, and therefore a discussion of MSAT emissions is warranted. FHWA released updated guidance in October 2016 (FHWA, 2016) 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 creating a facility that is likely to substantially increase emissions. The large majority of projects fall into this category.

Projects with high potential MSAT effects include those that:

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

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

For each Build Alternative, the amount of mobile source air toxics (MSAT) emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of the Environmental Protection Agency's (EPA) national control programs that are projected to reduce annual MSAT emissions by over 90 percent from 2010 to 2050 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations. Furthermore, no roadway within project limits will have AADT exceeding 140,000 in the Design Year of 2040.

Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions under Alternative B and C in 2040 relative to the No Build Alternative would likely be most pronounced along the new roadway sections that would be built across the Sacramento River and on adjacent streets, as well as along local roadway segments that would undergo widening with implementation of other unrelated transportation projects in the vicinity. Implementation of the Build Alternatives would also add new roadway segments in proximity—within 50 feet—of existing and future sensitive receptor locations, increasing local VMT and associated MSAT emissions. However, even if these increases do occur relative to the No Build Alternative, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

As shown in Figure 2-1, MSAT emission rates are anticipated to decrease substantially, especially for diesel PM, by the opening year of 2030 and even further by the horizon year of 2040. The area surrounding the project is not heavily industrialized and comprises only approximately three percent heavy trucks. The project would not increase the percentage of trucks traveling on the local roadway network in the vicinity of the project limits, and local truck traffic may in fact decrease in future analysis years 2030 and 2040 due to the planned deindustrialization of Pioneer Bluff in West Sacramento outlined in the 2014 Pioneer Bluff Transition Plan. In sum, under all Build Alternatives in the opening year and design year it is expected there would be negligible increases in MSAT emissions relative to the No Build Alternative due to the dispersion across the SACOG region and to EPA's MSAT reduction programs.

Council on Environmental Quality (CEQ) Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22)

Section 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.

- 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.
- 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:
- A statement that such information is incomplete or unavailable;
    - A statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
    - A summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
    - 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.
- 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 MSAT emissions associated with a proposed set of highway alternatives. The outcome of such 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.

U.S. EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the FCCA and its amendments

and have specific statutory obligations with respect to hazardous air pollutants and MSAT. U.S. EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the 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 C 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, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects) 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 occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-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 U.S. 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 (EPA IRIS database, Diesel Engine Exhaust, Section II.C. https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642.htm#quainhal)."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the U.S. EPA as provided by the FCCA 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 U.S. 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 one 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 one 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 District of Columbia Circuit upheld U.S. 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

Regional operational emissions associated with project implementation were calculated using CT-EMFAC2017. CT-EMFAC2017 is the most recent on-road emissions modeling tool in California that has been approved for use by the U.S. EPA. CT-EMFAC201417 contains a comprehensive emissions inventory of motor vehicles that provides estimated emission rates for air pollutants. The emission rates provided by CT-EMFAC2017 in grams per mile were used in conjunction with traffic data presented in Tables 1-8 through 1-10, above.

Table 4-3 shows emissions in the Baseline Year 2017, Opening Year 2030, and Design Year 2040 for the No Build and Build Alternatives. Alternative B would reduce annual CO_2 emissions by approximately 2,567 metric tons per year in 2030 relative to the No Build Alternative (-0.04%), and would reduce annual emissions by approximately 351 tons per year in 2040 relative to the No Build Alternative (-0.005%). Alternative C would reduce annual CO_2 emissions by approximately 3,131 metric tons per year in 2030 (-0.04%). In 2040, Alternative C would increase annual CO_2 emissions by approximately 3,631metric tons per year relative to the No Build Alternative (+0.05%). The increase in GHG emissions is attributed to improved connectivity across the Sacramento River channel incentivizing targeted development in the vicinity of the project. Distributed across the six-county SACOG region by VMT proportion, the annual CO_2 emissions increase would not exceed 2,000 tons

per year in any county, and no adverse environmental effects would occur. The results of the emission calculations are included in Appendix D.

Table 4-3. Modeled Annual CO_2 Emissions and Vehicle Miles Traveled, by Alternative.

Alternative	CO_2 Emissions (Metric Tons/Year)	Annual Vehicle Miles Traveled[1]
BASELINE (2017)		
Existing Conditions	7,859,764	19,370,910,788
OPEN TO TRAFFIC (2030)		
No Build Alternative	7,270,306	24,276,066,275
Change from Existing Conditions	*-589.458*	*4,905,155,487*
% Change from Existing Conditions	*-7.5%*	*+25.3%*
Build Alternative B	7,267,739	24,271,416,453
Change from No Build Alternative	*-2,567*	*-4,649,822*
% Change from No Build Alternative	*-0.04%*	*-0.02%*
Change from Existing Conditions	*-592,025*	*4,900,505,665*
% Change from Existing Conditions	*-7.5%*	*+25.3%*
Build Alternative C	7,267,175	24,270,515,847
Change from No Build Alternative	*-3,131*	*-5,550,428*
% Change from No Build Alternative	*-0.04%*	*-0.02%*
Change from Existing Conditions	*-592,589*	*4,899,605,059*
% Change from Existing Conditions	*-7.5%*	*+25.3%*
HORIZON/DESIGN-YEAR (2040)		
No Build Alternative	7,215,678	26,134,032,626
Change from Existing Conditions	*-644,086*	*6,763,121,838*
% Change from Existing Conditions	*-8.2%*	*+34.9%*
Build Alternative B	7,215,327	26,136,194,329
Change from No Build Alternative	*-351*	*2,161,703*
% Change from No Build Alternative	*-0.005%*	*+0.01%*
Change from Existing Conditions	*-644,437*	*6,795,283,541*
% Change from Existing Conditions	*-8.2%*	*+34.9%*
Build Alternative C	7,219,309	26,148,915,624
Change from No Build Alternative	*3,631*	*14,882,998*
% Change from No Build Alternative	*+0.05%*	*+0.06%*
Change from Existing Conditions	*-640,455*	*6,778,004,836*
% Change from Existing Conditions	*-8.1%*	*+35.0%*

CO_2 = carbon dioxide

Source: CT-EMFAC2017

[1] Annual VMT values calcualted from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008).

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

4.4 Cumulative/Regional/Indirect Effects

The cumulative impact analysis is conducted based on a summary of projections of future development and impacts contained in an adopted general planning or related planning document, or in a prior environmental document that has been certified. The project is included in the SACOG Year 2020 MTP/SCS. The associated Air Quality Conformity Analysis verifies that the RTP and the 2019 FTIP conform with the latest U.S. EPA transportation conformity regulations and the Conformity SIP. Therefore, there is no potential for the project to interfere with air quality plans that are designed to reduce cumulative air quality impacts in the project area.

In addition, O_3, secondary PM_{10}, and secondary $PM_{2.5}$ are normally regional issues because they are formed by photochemical and chemical reactions over time in the atmosphere. Formation of ozone and secondary PM are a function of VOC and NO_x emissions. As shown in Table 4-2, above, the Build Alternatives would not incrementally increase SACOG mobile source criteria pollutant or ozone-precursor emissions in excess of any regional air quality management district threshold. The cumulative and regional effects resulting from project implementation would not be considered adverse regardless of Build Alternative selected.

5. Minimization Measures

CEQA requires that feasible measures that can eliminate or substantially reduce project impacts be addressed. FHWA requires a project to incorporate measures to mitigate adverse impacts caused by the action and requires the project applicant to be responsible for the implementation of the mitigation measures (23 CFR 771).

5.1 Short-Term (Construction)

Caltrans standard measures are included in the Project Description and in Section 4.2.1 of this Air Quality Report. No other minimization measures have been identified as necessary to reduce construction emissions. The proposed project would also comply with rules and regulations pertaining to the control of fugitive dust and prevention of public nuisance published by the SMAQMD and YSAQMD.

5.2 Long-Term (Operational)

The criteria pollutant analysis in Table 4-2 demonstrates that the proposed project would not meaningfully affect long-term emissions; regional emissions in the opening year of 2030 would decrease due to enhanced traffic flow and reduced congestion, and marginal increases in ozone precursor and criteria pollutant emissions in the horizon year resulting from indirect, induced VMT accommodated by increased capacity and connectivity would not exceed the daily thresholds for any air district in the region. No minimization measures have been identified as necessary to reduce long-term emissions.

6. Conclusions

The purpose of this AQR is to inform the NEPA and CEQA decisions with background information and project-specific analysis related to the project. The findings are as follows:

- **Transportation Conformity** – This project is listed (ID YOL19328) in the SACOG 2019-22 MTIP and the 2020 MTP/SCS. The 2020 MTP/SCS and Amendment No. 18 to the 2019-22 MTIP were determined to conform by the FHWA and the FTA on November 20, 2019.

  Sacramento and Yolo Counties are not subject to Project-Level Transportation Conformity Assessments for CO, but are for PM. The project has undergone Interagency Consultation regarding the POAQC determination. Interagency Consultation participants concurred that the project is not a POAQC on November 19, 2020. Therefore, PM hot-spot analysis is not required.

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

- **Operational Emissions** - The Build Alternative would result in emissions of lesser magnitude in 2017 and 2030 compared to the No Build Alternative and existing conditions. Generally, average statewide vehicle emissions decrease in future years compared to the existing condition primarily due to fleet turnover and improvements in exhaust controls. When compared to the No Build Alternative, the Build Alternatives would result in slight increases in daily pollutant emissions in the design year of 2040. Dispersed throughout the six-county SACOG region, the incremental increase would be substantially below the operational air district thresholds, and would not result in adverse effects. No minimization measures have been identified as necessary to reduce long-term emissions.

- **PM Analysis** - PM emissions were estimated for Existing Conditions along with the No Build and Build Alternative for the opening year 2030 and horizon year 2040. Table 4-2 shows that the project would result in marginal increases in regional mobile source PM emissions in 2040 due to increases in regional daily VMT. The magnitude of the incremental increase dispersed across the six-county SACOG region would not pose potential for increases in ambient PM concentrations or delaying attainment of the NAAQS.

- **NO_2 Analysis** - For project-level analysis, an NO_2 assessment protocol is not available and emissions are best assessed as NO_X. Emissions decrease in future years compared to the existing condition primarily due to fleet turnover and improvements in exhaust controls. When compared to the No Build Alternative, the Build Alternative would result in slight reductions in daily criteria pollutant emissions in 2030 due to improved traffic flow, and slight

increases in daily NO_X emissions in 2040 due to ambient regional growth and induced demand raising VMT throughout the SACOG region.

- **MSAT Analysis** – Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents (FHWA, 2016) recommends a range of options deemed appropriate for addressing and documenting the MSAT issue in NEPA documents. A qualitative analysis was completed that based on the FHWA guidance. The Build Alternatives have not been linked with any special MSAT concerns and have been determined to generate minimal air quality impacts for FCCA criteria pollutants. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts relative to Existing Conditions based on VMT, vehicle mix, and speed.

  In the design year of 2040, implementation of Alternative B would increase daily regional VMT by approximately 0.008 percent relative to the No Build Alternative and implementation of Alternative C would increase daily regional VMT by approximately 0.06 percent relative to the No Build Alternative. As shown in Figure 2-1, MSAT emission rates are projected to decrease substantially by 2040, and the improvement in fleetwide average MSAT emissions would more than offset the minor increases in regional VMT accommodated by the Build Alternatives. Relative to the Existing Conditions, implementation of the Build Alternatives would reduce regional MSAT emissions. Relative to the No Build Alternative, a daily regional VMT increase of 6,229.7 under Alternative B or 42,890.5 under Alternative C distributed throughout the entire SACOG region would result in negligible increases in MSAT emissions at the localized level and would not result in adverse effects.

- **GHG Emissions** - The Build Alternatives would result in less CO_2 emissions in 2030 due to improved traffic flow when compared to the No Build Alternative and existing conditions. In 2040, Build Alternative C would result in a slight increase in emissions when compared to the No Build Alternative due to increased VMT. The No Build Alternative in 2030 and 2040 would also result in less CO_2 emissions than existing conditions, primarily due to improvements in engine exhaust controls and fuel efficiency. No minimization measures have been identified as necessary to reduce long-term emissions.

- **Cumulative/Regional/Indirect Effects** - The project is included in the SACOG 2019-22 MTIP and the 2020 MTP/SCS. The associated Air Quality Conformity Analysis verifies that the 2016–2040 RTP/SCS and the 2019 Transportation Improvement Plan conform with the latest U.S. EPA transportation conformity regulations and the Conformity SIP. Therefore, there is no potential for the project to interfere with air quality plans that are designed to reduce cumulative air quality impacts in the project area.

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8. Appendices

Appendix A RTP and TIP Listings for the Project and FHWA Conformity Determination

Appendix B Summary of Forecast Travel Activities

Appendix C Construction Emissions Calculation

Appendix D Summary Tables for Estimated Regional Emissions of GHG, PM, and Other Pollutants

Appendix E Interagency Consultation Documentation

Appendix A RTP and TIP Listings for the Project and FHWA Conformity Determination

2020 MTP/SCS Project List

ID	Status (Planned, Programmed or Project Development Only)	County	Lead Agency	Budget Category	Title	Description	Total Project Cost (2018 dollars)	Year of Expenditure Cost for planned projects	Completion Timing
SAC24732	Programmed	VAR	City of Citrus Heights	A- Bike & Ped	Auburn Blvd. Complete Streets - Phase 2 (Rusch Park to Whyte Avenue intersection)	Auburn Blvd. from the northern city limits, including Whyte Ave intersection in City of Roseville, to Rusch Park: Construct class II bicycle lanes, landscape buffered sidewalks, transit stop improvements. On Auburn Blvd. near Whyte Ave., construct new gateway traffic signal/intersection. On Whyte Ave at Auburn Blvd., close left turns from Whyte. Ave. (CMAQ funds only for work within Citrus Heights, not work in Roseville.) ($1,512,000 ATP for CON and $13,000 for CON Non-Infrastructure)	$ 15,493,242		2020-2025
SAC25106	Project Development Only	VAR	City of Elk Grove	B- Road & Highway Capacity	Capital SouthEast Connector - B3 - CON	Segment B3: Widen Grant Line Road from 2 to 4 lanes (thoroughfare), from Bradshaw Road to Bond Road. Complete project development efforts, as needed, to identify and implement improvements along the corridor segment in the near-term, as needed. Improvements may include intersection improvements and frontage improvements that benefit travel for automobiles and commercial vehicles. The project listing also allows for other near-term planned project development activities to advance, including environmental clearance, so the corridor segment can eventually become a four lane facility in a manner that is consistent with the Project Design Guidelines for the corridor.	$ 23,600,000		Post-2040
YOL19328	Programmed	VAR	City of West Sacramento	B- Road & Highway Capacity	Broadway Bridge	From West Sacramento to Sacramento, across the Sacramento River, construct the Broadway Bridge, a new southern crossing of the Sacramento River. Project includes: Auto, transit, bicycle and pedestrian facilities. (Local funding is split between the Cities of Sacramento and West Sacramento)	$ 254,500,000		2026-2030
VAR56273	Planned	VAR	Multiple Lead Agencies	C- Maintenance & Rehabilitation	Local Streets and Roads Maintenance	Lump-sum for annual local streets and roads maintenance	$ 2,200,000,000	$ 3,604,956,169	2036-2040
SAC24420	Planned	VAR	Multiple Lead Agencies	B- Road & Highway Capacity	Sacramento River Crossing	New Northern Bridge: from Sacramento to West Sacramento across the Sacramento River. Includes: Auto, transit, bicycle and pedestrian facilities. The Sacramento River Crossings Alternatives Study analyzed a new crossing at either Richards Blvd or C Street, but final alignment options will be studied in subsequent planning efforts.	$ 150,000,000	$ 173,954,013	2026-2030
VAR56272	Planned	VAR	Multiple Lead Agencies	F- Transit O&M (General)	Transit Operating & Maintenance	Lump-sum annual Operating & Maintenance costs for fiscal years 2023-2040; does not account for expansion of service	$ 5,400,000,000	$ 8,848,528,778	2036-2040
YCT18199	Planned	VAR	Multiple Lead Agencies	E- Transit Capital (Major)	West Sacramento/Sacramento Streetcar (Phase 2)	Construction Phase 2 Downtown/Riverfront Streetcar: South to R Street and Broadway corridors	$ 45,000,000	$ 65,173,417	2031-2035
VAR56207	Programmed	VAR	RT	E- Transit Capital (Minor)	Connect Card Implementation	Implementation and operational activities associated with Connect Card. Connect Card is an electronic transit fare collection system for the transit agencies in the Sacramento Region.. Toll Credits for CON	$ 247,575		2020-2025
REG18046	Programmed	VAR	RT	E- Transit Capital (Vehicles)	El Dorado County Transit Authority- Bus Replacement	Replace one 32- foot gasoline 2012 International Bus and three 35 ft Bluebird Diesel buses with four 35-foot Gillig diesel buses.	$ 1,750,202		2020-2025
REG18052	Programmed	VAR	RT	F- Transit O&M (Bus)	Operating Assistance for the UC Davis Medical Center Shuttle Service	Between UC Davis and UC Davis Medical Center with limited stops in between: Operating assistance for three years. Operations would take place weekdays, approximately between 5:30 AM and 8:30 PM.	$ 6,000,000		2020-2025
VAR56208	Programmed	VAR	SACOG	E- Transit Capital (Minor)	Connect Card Implementation	Implementation and operational activities associated with Connect Card. Connect Card is an electronic transit fare collection system for the transit agencies in the Sacramento Region. (See VAR56207.). Toll Credits for CON	$ 198,089		2020-2025
VAR56271	Planned	VAR	SACOG	D- Programs & Planning	Green-Means-Go	Green Means Go is a multi-year pilot program to lower greenhouse gas emissions in the six-county Sacramento region by accelerating infill development, reducing vehicle trips, and electrifying remaining trips.	$ 400,000,000	$ 655,446,576	2036-2040

ID	Lead Agency	Title	Description	Cost	Programmed Status	Exempt Category	Project Index
SAC25049	Southeast Connector JPA	Sub-Project of Group05 - Capital SouthEast Connector - C	In Elk Grove: Grant Line Rd from Bond Rd to Calvine Rd; Widen from 2 to 4 lanes. PE Only. Total Project Cost is $32,600,000.	$2,000,000	Programmed	Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.	544
SAC25050	Southeast Connector JPA	Sub-Project of Group05 - Capital SouthEast Connector - D1	In Sacramento County: Grant Line Road between Calvine Rd and Jackson Rd; Construct 4 lanes (Expressway). PE Only. (Total Project Cost is $45,200,000.)	$0	Deleted	Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.	545
VAR56128	Southeast Connector JPA	Sub-Project of Group05 - Capital Southeast Connector - D2	In Rancho Cordova: Grant Line Road from Jackson Rd to White Rock Rd: Widen from 2 lanes to a 4-lane expressway. Total Project Cost: $46,259,121. PE Only.	$6,259,121	Programmed	Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.	546
YCT18198	**SACOG**	**Sacramento-West Sacramento Downtown/Riverfront Streetcar Project (Phase 1)**	**Construction of the Phase 1 of the Downtown/Riverfront Streetcar. The alignment runs from West Sacramento Civic Center/Riverfront Street to the Midtown entertainment, retail, and residential district of Sacramento. (Project Development programmed separately under VAR56127, for $14,570,000.)**	**$194,000,000**	**Programmed**		**547**
YOL15891	**City of West Sacramento**	**I-80 Enterprise Boulevard**	**In West Sacramento, I-80 at Enterprise Boulevard: construct eastbound on-ramp.**	**$4,800,000**	**Programmed**		**548**
YOL17140	**City of Davis**	**I-80/Richards Interchange**	**In Davis: At the I-80/Richards interchange; reconstruct the north side of Richards Blvd. interchange to remove the loop on- and off-ramps and replace with new ramp in diamond configuration. Includes traffic signal installation.**	**$9,610,000**	**Programmed**		**549**
YOL19328	**City of West Sacramento**	**Broadway Bridge**	**From West Sacramento to Sacramento, across the Sacramento River, construct the Broadway Bridge, a new southern crossing of the Sacramento River. Project includes: Auto, transit, bicycle and pedestrian facilities. (Local funding is split between the Cities of Sacramento and West Sacramento)**	**$254,500,000**	**Programmed**		**550**

U.S. Department of Transportation

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San Francisco, CA 94103
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December 17, 2018

In Reply Refer To:
HDA-CA

Mr. Bruce de Terra
Chief, Division of Transportation Programming
California Department of Transportation, MS 82
1120 N Street
Sacramento, CA 95814

SUBJECT: APPROVAL OF 2019 FSTIP AND PLANNING FINDING

Dear Mr. De Terra:

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have determined that the State of California's 2019-22 Federal Statewide Transportation Improvement Program (FSTIP) and incorporated Federal Transportation Improvement Programs (FTIP) for the following metropolitan planning organization (MPO) planning areas are based on a continuing, cooperative and comprehensive transportation planning process in accordance with 23 U.S.C. 134 and 135, and 49 U.S.C. 5303 and 5304. The approval of the FSTIP includes the following metropolitan FTIPs that have been incorporated by reference:

1. Association of Monterey Bay Governments,
2. Butte County Association of Governments,
3. Fresno Council of Governments,
4. Kern Council of Governments,
5. Kings County Association of Governments,
6. Madera County Transportation Commission,
7. Merced County Association of Governments,
8. Metropolitan Transportation Commission,
9. Sacramento Area Council of Governments,
10. San Diego Association of Governments,
11. San Joaquin Council of Governments,
12. San Luis Obispo Council of Governments,
13. Santa Barbara County Association of Governments,
14. Shasta Regional Transportation Agency,
15. Southern California Association of Governments,
16. Stanislaus Council of Governments,
17. Tahoe Regional Planning Agency, and
18. Tulare County Association of Governments.

The following are recommendations for transportation planning process improvements that remain outstanding from the December 16, 2016 or earlier Statewide Planning Findings that warrant continued attention in the statewide and metropolitan planning processes in the State of California:

I. Core MPO Planning Functions: Progress has been made by MPOs in identifying Core Planning Functions within their Overall Work Programs (OWP). However, we encourage Caltrans to continue working closely with the MPOs in their OWP development processes to ensure that the draft and final OWPs include, at a minimum, the following work elements: Overall Work Program, Public Participation Activities, Metropolitan/Regional Transportation Plan, Federal Transportation Improvement Program; Congestion Management Process (required for Transportation Management Areas (TMA) – MPOs over 200,000 in population), Performance-Based Transportation Planning and Programming (Performance Measures), Air Quality Planning and Conformity (in all non-attainment areas for the National Ambient Air Quality Standards as defined by the 1990 Clean Air Act and subsequent changes to those standards) and the Annual Listing of Obligated Projects.

II. Implementation of Performance-Based Transportation Planning and Programming: Sections 1201 and 1202 of MAP-21 require that the metropolitan and statewide transportation planning processes provide for the establishment and use of a performance-based approach to transportation decision making to support the national goals described in 23 U.S.C. 1509(b) and 49 U.S.C. 5301(c). Each State and each MPO is required to establish performance targets that address the Performance Measures described in 23 U.S.C 150(c) [MAP-21 section 1203].

    USDOT issued the schedules for compliance with Performance-Based Transportation Planning since the December 16, 2016 Statewide Planning Finding. We find that in the State of California, compliance with the schedules for PM-1, PM-2 and PM-3 is proceeding satisfactorily. We applaud the diligent efforts of Caltrans and the MPOs in establishing master agreements for conducting the process, the training workshops and outreach, establishing targets for the Performance Measures, and submitting all required data and reports in compliance with the established schedules.

    FHWA and FTA recognize that the implementation and full integration of Performance-Based Planning and Programming into the planning and programming processes in California will be a complex task likely to consume a number of upcoming FSTIP and Regional Transportation Plan (RTP) cycles. We will continue during this transition period and after full implementation to work closely with the State, MPOs and transit operators in providing technical assistance and best practices.

III. Consultation with Indian Tribal Governments and Federal Land Management Agencies: MPOs are required to develop a documented procedure that outlines the roles, responsibilities, and key decision points for consulting with Indian Tribal governments (ITG) and Federal land management agencies (FLMA) pursuant to 23 C.F.R. 450.316(c). The need for MPOs to develop documented procedures for consulting with Indian Tribal

governments and Federal land management agencies continues to be a Federal emphasis area for the MPOs within California.

Progress has been made since the December 16, 2016 Statewide Planning Finding in this area in California, and FHWA and FTA commend Caltrans and the MPOs in the work that has been done to meet requirements. However, to ensure that progress continues in a positive direction, compliance with the requirement for documented consultation procedures will continue to be evaluated by FHWA and FTA as part of the Quadrennial Planning Certification Reviews that are conducted in the TMA MPOs.

IV. Outstanding Corrective Actions from Quadrennial TMA Planning Certification Reviews: There is one outstanding Corrective Action identified through the MPO/TMA Planning Certification Reviews since the December 16, 2016 Statewide Planning Finding. Specifically, the Planning Certification Review for one TMA MPO cited the need to update and develop an integrated Congestion Management Process (CMP), including: Definition of the CMP network, measures of congestion, collection of data, and the development of a continuous monitoring process to maintain the CMP and to ensure that the output of the CMP is used in the MPO planning and programming processes.

Accordingly, the Federal Highway Administration California Division and the Federal Transit Administration Region IX offices find that California's 2019-22 Statewide Transportation Improvement Program (FSTIP) is based on a transportation planning process that meets the requirements of 23 U.S.C. Sections 134 and 135 and 49 U.S.C. Section 5303-5306.

Sincerely,

Edward Carranza, Jr.
Acting Regional Administrator
Region IX
Federal Transit Administration

For
Vincent P. Mammano
Division Administrator
California Division
Federal Highway Administration

cc: (e-mail)
Ted Matley, FTA Region IX
Darin Allan, FTA Region IX
Katrina O'Connor, EPA
Enos Han, FHWA Nevada Division
Morgan Malley, FHWA CFL
Fardad Falakfarsa, Caltrans
Muhaned Aljabiry, Caltrans

cc: (other)
2019 FSTIP I: Drive Folder
I:\Program Development Unit\Planning and Air Quality (2005-Present)\2019 FSTIP Approval
MPO Statewide FTIPs

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November 20, 2019

In Reply Refer To:
HDA-CA

Mr. Bruce De Terra, Division Chief
Transportation Programming Federal
Resources Office, M.S. 82
California Department of Transportation
1120 N Street
Sacramento, CA 95814

Mr. James Corless, Executive Director
Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, CA 95814

Attention: Muhaned Aljabiry

SUBJECT: Sacramento Area Council of Governments'(SACOG) 2020 Regional Transportation Plan (RTP) and the 2019 Federal Transportation Improvement Program (FTIP) Amendment No. 18 and Associated Conformity Determination

Dear Messrs. De Terra and Corless:

The Federal Highway Administration, (FHWA) and the Federal Transit Administration (FTA) have completed our review of SACOG's 2020 RTP and 2019 FTIP Amendment No. 18 and associated conformity determination, which was submitted by the California Department of Transportation's Transportation Programming Office on November 18, 2019.

We find that the SACOG's FTIP, as amended, was developed through a continuing, cooperative and comprehensive transportation planning process carried out in accordance with the metropolitan planning provisions of 23 U.S.C. 134, and 49 U.S.C. Chapter 53 as amended by Public Law 114-94, the Fixing America's Surface Transportation (FAST) Act.

SACOG approved the 2020 RTP and 2019 FTIP, as amended, and the accompanying conformity analysis on November 18, 2019. The conformity analysis submitted indicates that all air quality conformity requirements have been met.

Pursuant to the February 14, 2018, Memorandum of Agreement (MOA) between the FHWA, California Division, and the FTA, Region 9, we accept the modifications to the 2019 Federal Statewide Transportation Improvement Program (FSTIP) for the SACOG region in accordance

with the Final Rule on Statewide and Metropolitan Transportation Planning published in the May 27, 2016 Federal Register. We find that the 2020 RTP and 2019 FTIP, as amended, conform to the applicable state implementation plan (SIP) in accordance with the provisions of 40 CFR Parts 51 and 93.

As agreed in the MOA, FHWA's single signature constitutes the FHWA and the FTA's joint approval and air quality conformity determination for SACOG's 2020 RTP and 2019 FTIP as amended. Additionally, this approval was made after consultation with the Environmental Protection Agency (EPA), Region 9 Office, pursuant to the Transportation Conformity Rule.

This approval is provided with the understanding that the FTA funding approval on the individual projects contained in the FSTIP are subject to grantees meeting all necessary FTA administrative requirements, and that approval of this programming action does not provide a federal eligibility determination for the Congestion Mitigation and Air Quality Program (CMAQ) projects or any other project funding source included in this amendment.

If you have questions or need additional information concerning our approval, please contact Antonio Johnson of the FHWA California Division Office at (916) 498-5889/or by email at antonio.johnson@dot.gov or Joseph Vaughn at (916) 498-5346/by email at joseph.vaughn@dot.gov.

Sincerely,

Tashia J. Clemons
Director, Planning and Environment
Federal Highway Administration

Appendix B Summary of Forecast Travel Activities

SACOG Region Vehicle Miles Traveled Summary

Daily VMT	Baseline/Existing Year (2017)			Opening Year (2030)			Design Year (2040)		
Speed	No Build	Alternative B	Alternative C	No Build	Alternative B	Alternative C	No Build	Alternative B	Alternative C
5	10,450.3	11,692.6	12,130.5	13,002.1	12,178.4	12,326.3	45,077.0	43,821.2	47,254.3
10	97,538.7	93,462.4	91,278.1	141,625.6	144,686.8	140,693.7	214,995.5	217,506.9	216,596.9
15	250,088.4	251,670.2	260,515.7	355,227.1	355,466.7	337,308.8	506,819.4	489,519.4	502,677.3
20	6,848,827.2	6,826,030.5	6,842,907.8	8,624,257.7	8,588,472.0	8,625,959.8	9,487,486.4	9,461,722.3	9,483,067.6
25	3,101,881.8	3,133,409.2	3,127,794.9	3,717,665.3	3,694,056.9	3,687,212.9	4,194,189.2	4,238,409.4	4,204,868.5
30	2,910,590.6	2,893,159.4	2,862,339.5	3,459,555.9	3,492,570.3	3,499,846.6	4,071,121.7	4,091,043.2	4,067,752.4
35	5,953,539.6	5,967,994.4	5,981,719.7	7,403,271.7	7,438,531.5	7,404,620.0	8,358,948.1	8,403,088.7	8,423,322.1
40	6,521,346.8	6,507,195.5	6,491,476.4	9,584,828.0	9,499,320.9	9,478,373.6	10,535,220.8	10,505,968.3	10,524,717.9
45	6,145,960.7	6,186,830.6	6,166,959.3	7,289,934.3	7,333,080.0	7,394,919.5	8,103,875.9	8,089,208.2	8,121,704.7
50	2,822,044.2	2,776,100.2	2,822,293.5	4,151,236.9	4,181,625.9	4,137,119.8	4,375,207.4	4,351,552.1	4,349,451.2
55	5,704,319.1	5,717,910.8	5,708,978.7	6,662,439.2	6,603,946.3	6,646,127.7	7,279,442.4	7,338,497.7	7,374,516.7
60	10,128,855.7	10,084,854.9	10,122,805.9	13,093,947.9	13,149,596.0	13,115,952.3	12,896,980.2	12,844,114.2	12,801,062.1
65	3,464,857.7	3,502,357.1	3,466,030.6	3,243,686.9	3,233,774.7	3,244,222.5	3,004,115.8	3,006,413.8	2,999,669.2
70	1,863,649.4	1,863,400.7	1,863,631.4	2,219,166.7	2,219,138.6	2,219,166.3	2,240,735.3	2,239,579.4	2,240,444.8
Total	**55,823,951**	**55,816,069**	**55,820,863**	**69,959,846**	**69,946,446**	**69,943,850**	**75,314,216**	**75,320,445**	**75,357,106**
Change from Existing	-	***-7,882***	***-3,088***	***14,135,895***	***14,122,495***	***14,119,899***	***19,490,265***	***19,496,494***	***19,533,155***
Change from No Build	-	-	-	-	***-13,400***	***-15,996***	-	***6,229***	***42,890***

Annual VMT	Baseline/Existing Year (2017)			Opening Year (2030)			Design Year (2040)		
Speed	No Build	Alternative B	Alternative C	No Build	Alternative B	Alternative C	No Build	Alternative B	Alternative C
5	3,626,268.2	4,057,324.9	4,209,268.7	4,511,720.5	4,225,910.4	4,277,216.6	15,641,709.1	15,205,973.4	16,397,227.7
10	33,845,930.1	32,431,457.4	31,673,505.2	49,144,074.1	50,206,315.0	48,820,705.4	74,603,432.4	75,474,910.4	75,159,122.5
15	86,780,691.8	87,329,562.3	90,398,955.3	123,263,792.0	123,346,946.2	117,046,144.1	175,866,345.4	169,863,214.5	174,429,020.2
20	2,376,543,045.8	2,368,632,592.8	2,374,489,018.6	2,992,617,437.8	2,980,199,785.5	2,993,208,049.4	3,292,157,769.8	3,283,217,642.6	3,290,624,471.0
25	1,076,352,982.1	1,087,293,002.9	1,085,344,821.9	1,290,029,850.5	1,281,837,754.3	1,279,462,878.7	1,455,383,669.0	1,470,728,047.1	1,459,089,380.6
30	1,009,974,950.3	1,003,926,300.8	993,231,801.0	1,200,465,898.7	1,211,921,905.7	1,214,446,774.4	1,412,679,235.0	1,419,591,991.4	1,411,510,075.3
35	2,065,878,249.6	2,070,894,074.1	2,075,656,733.9	2,568,935,288.6	2,581,170,420.1	2,569,403,135.8	2,900,554,999.2	2,915,871,790.3	2,922,892,763.9
40	2,262,907,324.9	2,257,996,841.3	2,252,542,318.0	3,325,935,330.5	3,296,264,356.6	3,288,995,629.4	3,655,721,604.7	3,645,570,984.8	3,652,077,096.1
45	2,132,648,367.7	2,146,830,231.1	2,139,934,878.2	2,529,607,205.9	2,544,578,761.2	2,566,037,063.2	2,812,044,950.9	2,806,955,228.4	2,818,231,521.8
50	979,249,353.0	963,306,768.7	979,335,853.9	1,440,479,188.5	1,451,024,198.2	1,435,580,568.6	1,518,196,960.6	1,509,988,578.3	1,509,259,553.3
55	1,979,398,726.8	1,984,115,055.1	1,981,015,610.9	2,311,866,390.1	2,291,569,368.9	2,306,206,300.6	2,525,966,513.8	2,546,458,703.1	2,558,957,303.3
60	3,514,712,939.2	3,499,444,637.3	3,512,613,657.2	4,543,599,906.9	4,562,909,824.4	4,551,235,448.0	4,475,252,112.6	4,456,907,616.3	4,441,968,550.5
65	1,202,305,606.1	1,215,317,915.0	1,202,712,634.4	1,125,559,350.9	1,122,119,817.5	1,125,745,218.2	1,042,428,171.1	1,043,225,601.8	1,040,885,207.5
70	646,686,352.5	646,600,032.8	646,680,082.1	770,050,839.9	770,041,089.5	770,050,714.8	777,535,152.7	777,134,046.9	777,434,330.5
Total	**19,370,910,789**	**19,368,175,797**	**19,369,839,140**	**24,276,066,276**	**24,271,416,454**	**24,270,515,848**	**26,134,032,627**	**26,136,194,330**	**26,148,915,625**
Change from Existing	-	***-2,734,992***	***-1,071,649***	***4,905,155,487***	***4,900,505,665***	***4,899,605,059***	***6,763,121,838***	***6,765,283,541***	***6,778,004,836***
Change from No Build	-	-	-	-	***-4,649,822***	***-5,550,428***	-	***2,161,703***	***14,882,998***

Broadway Bridge PA/ED
Daily Roadway Segment Volumes

ID	Roadway	Segment	Direction	Jurisdiction	Existing Conditions	Existing Plus Bridge		Opening Year			Design Year		
						Alt B	Alt C	No Bridge	Alt B	Alt C	No Bridge	Alt B	Alt C
1	Jefferson Boulevard	North of 15th Street	N/S	West Sacramento	27,900	22,300	22,000	40,500	33,400	33,900	42,900	35,300	35,700
2	15th Street	West of Jefferson Boulevard	E/W	West Sacramento	3,400	4,400	4,100	3,600	4,600	4,400	4,000	4,700	4,600
3	Alameda Boulevard	West of Jefferson Boulevard	E/W	West Sacramento	1,100	1,200	1,300	1,200	1,400	1,400	1,200	1,400	1,400
4	Jefferson Boulevard	South of Alameda Boulevard	N/S	West Sacramento	30,300	31,500	29,300	39,100	40,600	40,900	40,200	41,700	42,000
5	South River Road	South of 15th St (Alameda Boulevard)	N/S	West Sacramento	9,300	10,400	12,900	17,200	19,300	19,200	19,900	22,600	23,000
6	Jefferson Boulevard	South of Locks Drive	N/S	West Sacramento	30,500	31,300	31,600	38,900	40,200	40,300	39,600	41,400	41,600
11	Broadway	Broadway Bridge	E/W	Sacramento	0	18,000	17,200	0	25,700	25,500	0	28,100	28,800
12	Broadway	Between 3rd St and 5th St	E/W	Sacramento	8,000	14,200	13,600	9,100	15,600	15,500	10,400	16,400	16,200
13	Broadway	Between 9th St and 10th St	E/W	Sacramento	13,100	15,800	15,600	13,600	16,600	16,400	14,600	17,300	17,000
14	Broadway	East of Riverside Blvd	E/W	Sacramento	11,600	13,000	13,000	12,800	14,200	14,200	13,500	14,600	14,600
7	3rd Street	North of W Street	N/S	Sacramento	3,200	3,500	3,400	2,000	2,500	2,400	2,300	2,800	2,700
8	5th Street	North of W Street	N/S	Sacramento	2,700	3,400	3,400	11,800	12,100	12,100	13,200	13,600	13,500
9	5th Street	South of Broadway	N/S	Sacramento	7,000	6,700	6,700	7,000	7,100	7,100	7,400	7,400	7,300
10	Riverside Boulevard	South of Broadway	N/S	Sacramento	11,400	11,700	11,600	12,200	12,600	12,600	12,900	13,300	13,300

Appendix C Construction Emissions Calculations

- Alternative B Shoreline Construction Emissions Summary
- Alternative B Shoreline Construction Data Entry
- Alternative B Channel Construction Emissions Summary
- Alternative B Channel Construction Data Entry

- Alternative C Shoreline Construction Emissions Summary
- Alternative C Shoreline Construction Data Entry
- Alternative C Channel Construction Emissions Summary
- Alternative C Channel Construction Data Entry

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Alt B Construction - Shore

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.83	18.89	23.41	41.01	1.01	40.00	9.09	0.77	8.32	0.07	7,275.44	1.04	0.60	7,481.48
Grading/Excavation	4.71	60.80	71.95	43.12	3.12	40.00	10.54	2.22	8.32	0.26	26,986.64	2.82	2.83	27,900.84
Drainage/Utilities/Sub-Grade	0.98	18.51	9.06	40.50	0.50	40.00	8.68	0.36	8.32	0.04	3,833.27	0.75	0.13	3,891.38
Paving	1.28	21.06	26.56	1.10	1.10	0.00	0.68	0.68	0.00	0.11	11,829.43	0.85	1.41	12,271.19
Maximum (pounds/day)	4.71	60.80	71.95	43.12	3.12	40.00	10.54	2.22	8.32	0.26	26,986.64	2.82	2.83	27,900.84
Total (tons/construction project)	0.08	1.17	1.30	0.98	0.06	0.93	0.23	0.04	0.19	0.00	511.39	0.05	0.05	528.52

Notes:

Project Start Year ->	2027
Project Length (months) ->	3
Total Project Area (acres) ->	15
Maximum Area Disturbed/Day (acres) ->	4
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	640	0	960	0	800	40
Grading/Excavation	3,200	0	4,800	0	1,600	40
Drainage/Utilities/Sub-Grade	80	0	120	0	1,600	40
Paving	1,280	320	1,920	480	800	40

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

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

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

Total Emission Estimates by Phase for -> Alt B Construction - Shore

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.08	0.10	0.18	0.00	0.17	0.04	0.00	0.04	0.00	31.75	0.00	0.00	29.62
Grading/Excavation	0.05	0.63	0.75	0.45	0.03	0.41	0.11	0.02	0.09	0.00	279.68	0.03	0.03	262.32
Drainage/Utilities/Sub-Grade	0.01	0.16	0.08	0.34	0.00	0.34	0.07	0.00	0.07	0.00	32.20	0.01	0.00	29.65
Paving	0.02	0.30	0.38	0.02	0.02	0.00	0.01	0.01	0.00	0.00	167.76	0.01	0.02	157.88
Maximum (tons/phase)	0.05	0.63	0.75	0.45	0.03	0.41	0.11	0.02	0.09	0.00	279.68	0.03	0.03	262.32
Total (tons/construction project)	0.08	1.17	1.30	0.98	0.06	0.93	0.23	0.04	0.19	0.00	511.39	0.05	0.05	479.47

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

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

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

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**

Data Entry Worksheet

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

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

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Alt B Construction - Shore	
Construction Start Year	2027	Enter a Year between 2014 and 2040 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	3.00	months
Working Days per Month	24.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	1.00	mile
Total Project Area	15.00	acres
Maximum Area Disturbed/Day	4.00	acres
Water Trucks Used?	1	1. Yes 2. No

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

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

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	20.00		640.00
	Grading/Excavation	20.00		3200.00
	Drainage/Utilities/Sub-Grade	20.00		80.00
	Paving	20.00		1280.00
Asphalt	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00	320.00	

Mitigation Options

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

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.36	0.30	3/1/2027	1/1/2027
Grading/Excavation	0.86	1.20	3/13/2027	1/13/2027
Drainage/Utilities/Sub-Grade	0.70	1.05	4/9/2027	2/9/2027
Paving	1.18	0.45	5/1/2027	3/3/2027
Totals (Months)	3			

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		32	960.00
Miles/round trip: Grading/Excavation		30.00		160	4800.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		4	120.00
Miles/round trip: Paving		30.00		64	1920.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grading/Excavation (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Paving (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.06	0.88	6.93	0.24	0.10	0.03	3,447.92	0.00	0.54	3,609.50
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.03	0.00	0.00	0.00	15.05	0.00	0.00	15.75
Pounds per day - Grading/Excavation	0.32	4.42	34.63	1.19	0.52	0.16	17,239.59	0.01	2.71	18,047.49
Tons per const. Period - Grading/Excavation	0.00	0.05	0.36	0.01	0.01	0.00	178.66	0.00	0.03	187.04
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.11	0.87	0.03	0.01	0.00	430.99	0.00	0.07	451.19
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	3.62	0.00	0.00	3.79
Pounds per day - Paving	0.13	1.77	13.85	0.48	0.21	0.07	6,895.84	0.01	1.08	7,219.00
Tons per const. Period - Paving	0.00	0.03	0.20	0.01	0.00	0.00	97.80	0.00	0.02	102.38
Total tons per construction project	0.01	0.08	0.59	0.02	0.01	0.00	295.13	0.00	0.05	308.96

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

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		16	480.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grading/Excavation (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Paving (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.03	0.44	3.46	0.12	0.05	0.02	1,723.96	0.00	0.27	1,804.75
Tons per const. Period - Paving	0.00	0.01	0.05	0.00	0.00	0.00	24.45	0.00	0.00	25.59
Total tons per construction project	0.00	0.01	0.05	0.00	0.00	0.00	24.45	0.00	0.00	25.59

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

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values		
Miles/ one-way trip		20		
One-way trips/day		2	Calculated Daily Trips	Calculated Daily VMT
No. of employees: Grubbing/Land Clearing	20	7	40	800.00
No. of employees: Grading/Excavation	40	29	80	1,600.00
No. of employees: Drainage/Utilities/Sub-Grade	40	19	80	1,600.00
No. of employees: Paving	20	9	40	800.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Grading/Excavation (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Paving (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Grubbing/Land Clearing (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Grading/Excavation (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Draining/Utilities/Sub-Grade (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Paving (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.09	1.41	0.10	0.08	0.03	0.00	493.19	0.01	0.01	496.55
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	2.15	0.00	0.00	2.17
Pounds per day - Grading/Excavation	0.18	2.81	0.19	0.16	0.07	0.01	986.39	0.02	0.02	993.10
Tons per const. Period - Grading/Excavation	0.00	0.03	0.00	0.00	0.00	0.00	10.22	0.00	0.00	10.29
Pounds per day - Drainage/Utilities/Sub-Grade	0.18	2.81	0.19	0.16	0.07	0.01	986.39	0.02	0.02	993.10
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.02	0.00	0.00	0.00	0.00	8.29	0.00	0.00	8.34
Pounds per day - Paving	0.09	1.41	0.10	0.08	0.03	0.00	493.19	0.01	0.01	496.55
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	6.99	0.00	0.00	7.04
Total tons per construction project	0.00	0.08	0.01	0.00	0.00	0.00	27.65	0.00	0.00	27.84

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

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

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grading/Excavation (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Paving (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.66
Pounds per day - Grading/Excavation	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.49	0.00	0.00	1.56
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	1.26
Pounds per day - Paving	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	2.04	0.00	0.00	2.13
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	5.36	0.00	0.00	5.61

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		4.00	40.00	0.17	8.32	0.04
Fugitive Dust - Grading/Excavation		4.00	40.00	0.41	8.32	0.09
Fugitive Dust - Drainage/Utilities/Subgrade		4.00	40.00	0.34	8.32	0.07

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Graders	0.31	1.59	3.46	0.11	0.10	0.01	640.24	0.21	0.01	647.14
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Other Material Handling Equipm	0.45	7.51	3.31	0.17	0.16	0.01	1,119.35	0.36	0.01	1,131.42
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rubber Tired Dozers	0.65	3.00	6.63	0.29	0.27	0.01	826.96	0.27	0.01	835.87
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	1.67	16.56	16.07	0.68	0.63	0.03	3,190.67	1.03	0.03	3,225.04
Grubbing/Land Clearing	tons per phase	0.01	0.07	0.07	0.00	0.00	0.00	13.92	0.00	0.00	14.07

Grading/Excavation	Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00			Model Default Tier	Other Material Handling Equipm	2.24	37.55	16.54	0.86	0.79	0.06	5,596.77	1.81	0.05	5,657.11
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rollers	0.41	5.54	4.33	0.22	0.20	0.01	762.19	0.25	0.01	770.40
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Rubber Tired Dozers	1.30	6.00	13.26	0.58	0.53	0.02	1,653.92	0.53	0.01	1,671.73
0.00	3		Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	4.21	53.54	36.81	1.76	1.62	0.09	8,616.99	2.79	0.08	8,709.85
Grading/Excavation	tons per phase	0.04	0.55	0.38	0.02	0.02	0.00	89.30	0.03	0.00	90.27

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Excavators	0.33	6.52	2.44	0.12	0.11	0.01	1,000.68	0.32	0.01	1,011.46
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Rough Terrain Forklifts	0.19	4.57	2.57	0.07	0.07	0.01	667.44	0.22	0.01	674.63
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	0.79	15.55	7.68	0.30	0.28	0.02	2,272.22	0.73	0.02	2,296.70
Drainage/Utilities/Sub-Grade	tons per phase	0.01	0.13	0.06	0.00	0.00	0.00	19.09	0.01	0.00	19.29

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Other Material Handling Equipm	0.45	7.51	3.31	0.17	0.16	0.01	1,119.35	0.36	0.01	1,131.42
	1		Model Default Tier	Pavers	0.17	2.90	1.58	0.07	0.07	0.00	454.99	0.15	0.00	459.90
	1		Model Default Tier	Paving Equipment	0.15	2.55	1.26	0.06	0.06	0.00	394.32	0.13	0.00	398.57
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	1.03	17.41	8.83	0.42	0.38	0.03	2,572.78	0.83	0.02	2,600.50
Paving	tons per phase	0.01	0.25	0.13	0.01	0.01	0.00	36.49	0.01	0.00	36.88
Total Emissions all Phases (tons per construction period) =>		0.07	1.00	0.64	0.03	0.03	0.00	158.80	0.05	0.00	160.51

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

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

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Alt B Construction - Channel				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	7.09	62.35	64.91	22.64	2.64	20.00	6.52	2.36	4.16	0.18	17,031.56	4.70	0.19	17,204.69
Drainage/Utilities/Sub-Grade	1.41	15.87	12.69	20.65	0.65	20.00	4.69	0.53	4.16	0.04	3,829.53	0.53	0.07	3,862.64
Paving	1.85	19.20	15.38	0.73	0.73	0.00	0.61	0.61	0.00	0.04	4,248.12	0.57	0.07	4,283.31
Maximum (pounds/day)	10.35	97.42	92.98	44.02	4.02	40.00	11.82	3.50	8.32	0.26	25,109.21	5.80	0.32	25,350.64
Total (tons/construction project)	1.17	11.72	10.32	5.85	0.47	5.38	1.52	0.40	1.12	0.03	2,860.45	0.54	0.04	2,886.43

Notes:

Project Start Year ->	2026
Project Length (months) ->	36
Total Project Area (acres) ->	15
Maximum Area Disturbed/Day (acres) ->	4
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	1,600	40
Drainage/Utilities/Sub-Grade	0	0	0	0	1,600	40
Paving	0	0	0	0	1,600	40

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

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

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

Total Emission Estimates by Phase for -> Alt B Construction - Channel				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.44	3.89	4.05	1.41	0.16	1.25	0.41	0.15	0.26	0.01	1,062.77	0.29	0.01	973.94
Drainage/Utilities/Sub-Grade	0.29	3.28	2.62	4.26	0.13	4.13	0.97	0.11	0.86	0.01	790.87	0.11	0.01	723.68
Paving	0.44	4.55	3.64	0.17	0.17	0.00	0.14	0.14	0.00	0.01	1,006.80	0.14	0.02	920.93
Maximum (tons/phase)	0.44	4.55	4.05	4.26	0.17	4.13	0.97	0.15	0.86	0.01	1062.77	0.29	0.02	973.94
Total (tons/construction project)	1.17	11.72	10.32	5.85	0.47	5.38	1.52	0.40	1.12	0.03	2860.45	0.54	0.04	2,618.55

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

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

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

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**

Data Entry Worksheet

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

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

Input Type

Project Name	Alt B Construction - Channel	
Construction Start Year	2026	Enter a Year between 2014 and 2040 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	36.00	months
Working Days per Month	24.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	1.00	mile
Total Project Area	15.00	acres
Maximum Area Disturbed/Day	4.00	acres
Water Trucks Used?	1	1. Yes 2. No

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

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

Material Hauling Quantity Input

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

Mitigation Options

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

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	3.60		1/1/2026
Grading/Excavation	5.20	14.40	5/3/2026	1/1/2026
Drainage/Utilities/Sub-Grade	17.21	12.60	7/26/2026	6/9/2026
Paving	19.75	5.40	5/1/2026	11/15/2027
Totals (Months)		42	Note: You have entered a non-default starting date. Please provide starting date for all phases, or default values for other phases will be used.	

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

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

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,636.17	0.00	0.26	1,712.84
Paving (grams/mile)	0.03	0.42	3.11	0.11	0.05	0.02	1,638.61	0.00	0.26	1,715.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

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

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,636.17	0.00	0.26	1,712.84
Paving (grams/mile)	0.03	0.42	3.11	0.11	0.05	0.02	1,638.61	0.00	0.26	1,715.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values		
Miles/ one-way trip		20	Calculated Daily Trips	Calculated Daily VMT
One-way trips/day		2		
No. of employees: Grubbing/Land Clearing	0	7	0	0.00
No. of employees: Grading/Excavation	40	29	80	1,600.00
No. of employees: Drainage/Utilities/Sub-Grade	40	19	80	1,600.00
No. of employees: Paving	40	9	80	1,600.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.01	0.72	0.05	0.05	0.02	0.00	285.85	0.00	0.01	287.41
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.69	0.05	0.05	0.02	0.00	279.43	0.00	0.00	280.91
Paving (grams/mile)	0.01	0.70	0.05	0.05	0.02	0.00	280.39	0.00	0.00	281.88
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.87	2.47	0.23	0.00	0.00	0.00	61.59	0.06	0.03	71.10
Draining/Utilities/Sub-Grade (grams/trip)	0.84	2.41	0.22	0.00	0.00	0.00	60.20	0.05	0.03	69.38
Paving (grams/trip)	0.84	2.42	0.22	0.00	0.00	0.00	60.41	0.05	0.03	69.64
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.19	2.98	0.21	0.16	0.07	0.01	1,019.16	0.02	0.02	1,026.34
Tons per const. Period - Grading/Excavation	0.01	0.19	0.01	0.01	0.00	0.00	63.60	0.00	0.00	64.04
Pounds per day - Drainage/Utilities/Sub-Grade	0.18	2.86	0.20	0.16	0.07	0.01	996.28	0.02	0.02	1,003.13
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.04	0.59	0.04	0.03	0.01	0.00	205.75	0.00	0.00	207.17
Pounds per day - Paving	0.18	2.88	0.20	0.16	0.07	0.01	999.70	0.02	0.02	1,006.60
Tons per const. Period - Paving	0.04	0.68	0.05	0.04	0.02	0.00	236.93	0.00	0.01	238.56
Total tons per construction project	0.09	1.46	0.10	0.08	0.03	0.01	506.28	0.01	0.01	509.77

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

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust	0	1		5	0		8.00	0.00
Grading/Excavation - Exhaust		1		5	5		8.00	40.00
Drainage/Utilities/Subgrade		1		5	5		8.00	40.00
Paving		1		5	5		8.00	40.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,636.17	0.00	0.26	1,712.84
Paving (grams/mile)	0.03	0.42	3.11	0.11	0.05	0.02	1,638.61	0.00	0.26	1,715.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.04	0.32	0.01	0.00	0.00	145.72	0.00	0.02	152.55
Tons per const. Period - Grading/Excavation	0.00	0.00	0.02	0.00	0.00	0.00	9.09	0.00	0.00	9.52
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.32	0.01	0.00	0.00	144.29	0.00	0.02	151.05
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.07	0.00	0.00	0.00	29.80	0.00	0.00	31.19
Pounds per day - Paving	0.00	0.04	0.32	0.01	0.00	0.00	144.50	0.00	0.02	151.27
Tons per const. Period - Paving	0.00	0.01	0.08	0.00	0.00	0.00	34.25	0.00	0.01	35.85
Total tons per construction project	0.00	0.02	0.16	0.01	0.00	0.00	73.14	0.00	0.01	76.57

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation	2.00	4.00	20.00	1.25	4.16	0.26
Fugitive Dust - Drainage/Utilities/Subgrade	2.00	4.00	20.00	4.13	4.16	0.86

Off-Road Equipment Emissions

Grubbing/Land Clearing

Override of Default Number of Vehicles	Default Number of Vehicles Program-estimate	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Model Default Tier	Bore/Drill Rigs	0.63	6.11	5.60	0.18	0.17	0.03	2,751.75	0.89	0.02	2,781.45
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Cranes	0.63	3.47	6.34	0.27	0.25	0.01	1,117.65	0.36	0.01	1,129.70
0.00	2		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Generator Sets	0.53	7.32	4.79	0.19	0.19	0.01	1,246.07	0.05	0.01	1,250.01
	2		Model Default Tier	Graders	0.62	3.19	6.91	0.22	0.20	0.01	1,280.48	0.41	0.01	1,294.28
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rollers	0.41	5.54	4.33	0.22	0.20	0.01	762.19	0.25	0.01	770.40
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rubber Tired Loaders	0.69	4.41	5.58	0.19	0.17	0.02	1,816.87	0.59	0.02	1,836.49
	4		Model Default Tier	Scrapers	2.69	21.52	25.48	1.00	0.92	0.06	5,872.59	1.90	0.05	5,935.90
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Welders	0.44	3.30	2.68	0.08	0.08	0.01	414.96	0.04	0.00	416.98

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	6.90	59.33	64.38	2.46	2.29	0.17	15,866.67	4.68	0.14	16,025.80
Grading/Excavation	tons per phase	0.43	3.70	4.02	0.15	0.14	0.01	990.08	0.29	0.01	1,000.01

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
2.00			Model Default Tier	Aerial Lifts	0.07	2.18	1.04	0.02	0.02	0.00	325.24	0.11	0.00	328.75
0.00	1		Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	0.63	3.47	6.34	0.27	0.25	0.01	1,117.65	0.36	0.01	1,129.70
0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Generator Sets	0.53	7.32	4.79	0.19	0.19	0.01	1,246.07	0.05	0.01	1,250.01
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		Equipment Tier		Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade			pounds per day	1.23	12.97	12.17	0.48	0.46	0.03	2,688.96	0.51	0.02	2,708.46
	Drainage/Utilities/Sub-Grade			tons per phase	0.25	2.68	2.51	0.10	0.09	0.01	555.32	0.11	0.00	559.35

Paving	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
2.00			Model Default Tier	Aerial Lifts	0.07	2.18	1.04	0.02	0.02	0.00	325.24	0.11	0.00	328.75
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	0.63	3.47	6.34	0.27	0.25	0.01	1,117.65	0.36	0.01	1,129.70
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Generator Sets	0.53	7.32	4.79	0.19	0.19	0.01	1,246.07	0.05	0.01	1,250.01
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Welders	0.44	3.30	2.68	0.08	0.08	0.01	414.96	0.04	0.00	416.98

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	1.67	16.28	14.85	0.56	0.54	0.03	3,103.92	0.55	0.03	3,125.44
	Paving	tons per phase	0.39	3.86	3.52	0.13	0.13	0.01	735.63	0.13	0.01	740.73
Total Emissions all Phases (tons per construction period) =>			1.08	10.24	10.05	0.39	0.36	0.02	2,281.03	0.53	0.02	2,300.09

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

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

END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Alt C Construction - Shore

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.83	18.89	23.41	41.01	1.01	40.00	9.09	0.77	8.32	0.07	7,275.44	1.04	0.60	7,481.48
Grading/Excavation	4.71	60.80	71.95	43.12	3.12	40.00	10.54	2.22	8.32	0.26	26,986.64	2.82	2.83	27,900.84
Drainage/Utilities/Sub-Grade	0.98	18.51	9.06	40.50	0.50	40.00	8.68	0.36	8.32	0.04	3,833.27	0.75	0.13	3,891.38
Paving	1.28	21.06	26.56	1.10	1.10	0.00	0.68	0.68	0.00	0.11	11,829.43	0.85	1.41	12,271.19
Maximum (pounds/day)	4.71	60.80	71.95	43.12	3.12	40.00	10.54	2.22	8.32	0.26	26,986.64	2.82	2.83	27,900.84
Total (tons/construction project)	0.08	1.17	1.30	0.98	0.06	0.93	0.23	0.04	0.19	0.00	511.39	0.05	0.05	528.52

Notes:

Project Start Year ->	2027
Project Length (months) ->	3
Total Project Area (acres) ->	15
Maximum Area Disturbed/Day (acres) ->	4
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	640	0	960	0	800	40
Grading/Excavation	3,200	0	4,800	0	1,600	40
Drainage/Utilities/Sub-Grade	80	0	120	0	1,600	40
Paving	1,280	320	1,920	480	800	40

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

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

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

Total Emission Estimates by Phase for -> Alt C Construction - Shore

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.08	0.10	0.18	0.00	0.17	0.04	0.00	0.04	0.00	31.75	0.00	0.00	29.62
Grading/Excavation	0.05	0.63	0.75	0.45	0.03	0.41	0.11	0.02	0.09	0.00	279.68	0.03	0.03	262.32
Drainage/Utilities/Sub-Grade	0.01	0.16	0.08	0.34	0.00	0.34	0.07	0.00	0.07	0.00	32.20	0.01	0.00	29.65
Paving	0.02	0.30	0.38	0.02	0.02	0.00	0.01	0.01	0.00	0.00	167.76	0.01	0.02	157.88
Maximum (tons/phase)	0.05	0.63	0.75	0.45	0.03	0.41	0.11	0.02	0.09	0.00	279.68	0.03	0.03	262.32
Total (tons/construction project)	0.08	1.17	1.30	0.98	0.06	0.93	0.23	0.04	0.19	0.00	511.39	0.05	0.05	479.47

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

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

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

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**

Data Entry Worksheet

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

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

Input Type

Project Name	Alt C Construction - Shore	
Construction Start Year	2027	Enter a Year between 2014 and 2040 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	3.00	months
Working Days per Month	24.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	1.00	mile
Total Project Area	15.00	acres
Maximum Area Disturbed/Day	4.00	acres
Water Trucks Used?	1	1. Yes 2. No

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

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

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	20.00		640.00
	Grading/Excavation	20.00		3200.00
	Drainage/Utilities/Sub-Grade	20.00		80.00
	Paving	20.00		1280.00
Asphalt	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00	320.00	

Mitigation Options

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

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.36	0.30	3/1/2027	1/1/2027
Grading/Excavation	0.86	1.20	3/13/2027	1/13/2027
Drainage/Utilities/Sub-Grade	0.70	1.05	4/9/2027	2/9/2027
Paving	1.18	0.45	5/1/2027	3/3/2027
Totals (Months)	3			

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		32	960.00
Miles/round trip: Grading/Excavation		30.00		160	4800.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		4	120.00
Miles/round trip: Paving		30.00		64	1920.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grading/Excavation (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Paving (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.06	0.88	6.93	0.24	0.10	0.03	3,447.92	0.00	0.54	3,609.50
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.03	0.00	0.00	0.00	15.05	0.00	0.00	15.75
Pounds per day - Grading/Excavation	0.32	4.42	34.63	1.19	0.52	0.16	17,239.59	0.01	2.71	18,047.49
Tons per const. Period - Grading/Excavation	0.00	0.05	0.36	0.01	0.01	0.00	178.66	0.00	0.03	187.04
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.11	0.87	0.03	0.01	0.00	430.99	0.00	0.07	451.19
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	3.62	0.00	0.00	3.79
Pounds per day - Paving	0.13	1.77	13.85	0.48	0.21	0.07	6,895.84	0.01	1.08	7,219.00
Tons per const. Period - Paving	0.00	0.03	0.20	0.01	0.00	0.00	97.80	0.00	0.02	102.38
Total tons per construction project	0.01	0.08	0.59	0.02	0.01	0.00	295.13	0.00	0.05	308.96

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

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		16	480.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grading/Excavation (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Paving (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.03	0.44	3.46	0.12	0.05	0.02	1,723.96	0.00	0.27	1,804.75
Tons per const. Period - Paving	0.00	0.01	0.05	0.00	0.00	0.00	24.45	0.00	0.00	25.59
Total tons per construction project	0.00	0.01	0.05	0.00	0.00	0.00	24.45	0.00	0.00	25.59

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

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values		
Miles/ one-way trip		20		
One-way trips/day		2	Calculated Daily Trips	Calculated Daily VMT
No. of employees: Grubbing/Land Clearing	20	7	40	800.00
No. of employees: Grading/Excavation	40	29	80	1,600.00
No. of employees: Drainage/Utilities/Sub-Grade	40	19	80	1,600.00
No. of employees: Paving	20	9	40	800.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Grading/Excavation (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Paving (grams/mile)	0.01	0.68	0.04	0.05	0.02	0.00	276.66	0.00	0.00	278.11
Grubbing/Land Clearing (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Grading/Excavation (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Draining/Utilities/Sub-Grade (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Paving (grams/trip)	0.83	2.39	0.21	0.00	0.00	0.00	59.60	0.05	0.03	68.64
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.09	1.41	0.10	0.08	0.03	0.00	493.19	0.01	0.01	496.55
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	2.15	0.00	0.00	2.17
Pounds per day - Grading/Excavation	0.18	2.81	0.19	0.16	0.07	0.01	986.39	0.02	0.02	993.10
Tons per const. Period - Grading/Excavation	0.00	0.03	0.00	0.00	0.00	0.00	10.22	0.00	0.00	10.29
Pounds per day - Drainage/Utilities/Sub-Grade	0.18	2.81	0.19	0.16	0.07	0.01	986.39	0.02	0.02	993.10
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.02	0.00	0.00	0.00	0.00	8.29	0.00	0.00	8.34
Pounds per day - Paving	0.09	1.41	0.10	0.08	0.03	0.00	493.19	0.01	0.01	496.55
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	6.99	0.00	0.00	7.04
Total tons per construction project	0.00	0.08	0.01	0.00	0.00	0.00	27.65	0.00	0.00	27.84

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

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

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grading/Excavation (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Paving (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,629.11	0.00	0.26	1,705.46
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.66
Pounds per day - Grading/Excavation	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.49	0.00	0.00	1.56
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	1.26
Pounds per day - Paving	0.00	0.04	0.32	0.01	0.00	0.00	143.66	0.00	0.02	150.40
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	2.04	0.00	0.00	2.13
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	5.36	0.00	0.00	5.61

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		4.00	40.00	0.17	8.32	0.04
Fugitive Dust - Grading/Excavation		4.00	40.00	0.41	8.32	0.09
Fugitive Dust - Drainage/Utilities/Subgrade		4.00	40.00	0.34	8.32	0.07

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Graders	0.31	1.59	3.46	0.11	0.10	0.01	640.24	0.21	0.01	647.14
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Other Material Handling Equipm	0.45	7.51	3.31	0.17	0.16	0.01	1,119.35	0.36	0.01	1,131.42
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rubber Tired Dozers	0.65	3.00	6.63	0.29	0.27	0.01	826.96	0.27	0.01	835.87
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	1.67	16.56	16.07	0.68	0.63	0.03	3,190.67	1.03	0.03	3,225.04
Grubbing/Land Clearing	tons per phase	0.01	0.07	0.07	0.00	0.00	0.00	13.92	0.00	0.00	14.07

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00			Model Default Tier	Other Material Handling Equipm	2.24	37.55	16.54	0.86	0.79	0.06	5,596.77	1.81	0.05	5,657.11
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rollers	0.41	5.54	4.33	0.22	0.20	0.01	762.19	0.25	0.01	770.40
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Rubber Tired Dozers	1.30	6.00	13.26	0.58	0.53	0.02	1,653.92	0.53	0.01	1,671.73
0.00	3		Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	4.21	53.54	36.81	1.76	1.62	0.09	8,616.99	2.79	0.08	8,709.85
Grading/Excavation	tons per phase	0.04	0.55	0.38	0.02	0.02	0.00	89.30	0.03	0.00	90.27

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Excavators	0.33	6.52	2.44	0.12	0.11	0.01	1,000.68	0.32	0.01	1,011.46
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Rough Terrain Forklifts	0.19	4.57	2.57	0.07	0.07	0.01	667.44	0.22	0.01	674.63
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	0.79	15.55	7.68	0.30	0.28	0.02	2,272.22	0.73	0.02	2,296.70
Drainage/Utilities/Sub-Grade	tons per phase	0.01	0.13	0.06	0.00	0.00	0.00	19.09	0.01	0.00	19.29

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Other Material Handling Equipm	0.45	7.51	3.31	0.17	0.16	0.01	1,119.35	0.36	0.01	1,131.42
	1		Model Default Tier	Pavers	0.17	2.90	1.58	0.07	0.07	0.00	454.99	0.15	0.00	459.90
	1		Model Default Tier	Paving Equipment	0.15	2.55	1.26	0.06	0.06	0.00	394.32	0.13	0.00	398.57
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	1.03	17.41	8.83	0.42	0.38	0.03	2,572.78	0.83	0.02	2,600.50
Paving	tons per phase	0.01	0.25	0.13	0.01	0.01	0.00	36.49	0.01	0.00	36.88
Total Emissions all Phases (tons per construction period) =>		0.07	1.00	0.64	0.03	0.03	0.00	158.80	0.05	0.00	160.51

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

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

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Alt C Construction - Channel

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	7.09	62.35	64.91	22.64	2.64	20.00	6.52	2.36	4.16	0.18	17,031.56	4.70	0.19	17,204.69
Drainage/Utilities/Sub-Grade	1.41	15.87	12.69	20.65	0.65	20.00	4.69	0.53	4.16	0.04	3,829.53	0.53	0.07	3,862.64
Paving	1.85	19.20	15.38	0.73	0.73	0.00	0.61	0.61	0.00	0.04	4,248.12	0.57	0.07	4,283.31
Maximum (pounds/day)	10.35	97.42	92.98	44.02	4.02	40.00	11.82	3.50	8.32	0.26	25,109.21	5.80	0.32	25,350.64
Total (tons/construction project)	1.17	11.72	10.32	5.85	0.47	5.38	1.52	0.40	1.12	0.03	2,860.45	0.54	0.04	2,886.43

Notes:

Project Start Year ->	2026
Project Length (months) ->	36
Total Project Area (acres) ->	15
Maximum Area Disturbed/Day (acres) ->	4
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	1,600	40
Drainage/Utilities/Sub-Grade	0	0	0	0	1,600	40
Paving	0	0	0	0	1,600	40

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

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

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

Total Emission Estimates by Phase for -> Alt C Construction - Channel

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.44	3.89	4.05	1.41	0.16	1.25	0.41	0.15	0.26	0.01	1,062.77	0.29	0.01	973.94
Drainage/Utilities/Sub-Grade	0.29	3.28	2.62	4.26	0.13	4.13	0.97	0.11	0.86	0.01	790.87	0.11	0.01	723.68
Paving	0.44	4.55	3.64	0.17	0.17	0.00	0.14	0.14	0.00	0.01	1,006.80	0.14	0.02	920.93
Maximum (tons/phase)	0.44	4.55	4.05	4.26	0.17	4.13	0.97	0.15	0.86	0.01	1062.77	0.29	0.02	973.94
Total (tons/construction project)	1.17	11.72	10.32	5.85	0.47	5.38	1.52	0.40	1.12	0.03	2860.45	0.54	0.04	2,618.55

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

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

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

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**

Data Entry Worksheet

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

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

Input Type

Project Name	Alt C Construction - Channel	
Construction Start Year	2026	Enter a Year between 2014 and 2040 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	36.00	months
Working Days per Month	24.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	1.00	mile
Total Project Area	15.00	acres
Maximum Area Disturbed/Day	4.00	acres
Water Trucks Used?	1	1. Yes 2. No

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

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

Material Hauling Quantity Input

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

Mitigation Options

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

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	3.60		1/1/2026
Grading/Excavation	5.20	14.40	5/3/2026	1/1/2026
Drainage/Utilities/Sub-Grade	17.21	12.60	7/26/2026	6/9/2026
Paving	19.75	5.40	5/1/2026	11/15/2027
Totals (Months)		42	Note: You have entered a non-default starting date. Please provide starting date for all phases, or default values for other phases will be used.	

Please note: You have entered a different number of months than the project length shown in cell D16.
Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

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

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,636.17	0.00	0.26	1,712.84
Paving (grams/mile)	0.03	0.42	3.11	0.11	0.05	0.02	1,638.61	0.00	0.26	1,715.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

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

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,636.17	0.00	0.26	1,712.84
Paving (grams/mile)	0.03	0.42	3.11	0.11	0.05	0.02	1,638.61	0.00	0.26	1,715.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values		
Miles/ one-way trip		20	Calculated Daily Trips	Calculated Daily VMT
One-way trips/day		2		
No. of employees: Grubbing/Land Clearing	0	7	0	0.00
No. of employees: Grading/Excavation	40	29	80	1,600.00
No. of employees: Drainage/Utilities/Sub-Grade	40	19	80	1,600.00
No. of employees: Paving	40	9	80	1,600.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.01	0.72	0.05	0.05	0.02	0.00	285.85	0.00	0.01	287.41
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.69	0.05	0.05	0.02	0.00	279.43	0.00	0.00	280.91
Paving (grams/mile)	0.01	0.70	0.05	0.05	0.02	0.00	280.39	0.00	0.00	281.88
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.87	2.47	0.23	0.00	0.00	0.00	61.59	0.06	0.03	71.10
Draining/Utilities/Sub-Grade (grams/trip)	0.84	2.41	0.22	0.00	0.00	0.00	60.20	0.05	0.03	69.38
Paving (grams/trip)	0.84	2.42	0.22	0.00	0.00	0.00	60.41	0.05	0.03	69.64
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.19	2.98	0.21	0.16	0.07	0.01	1,019.16	0.02	0.02	1,026.34
Tons per const. Period - Grading/Excavation	0.01	0.19	0.01	0.01	0.00	0.00	63.60	0.00	0.00	64.04
Pounds per day - Drainage/Utilities/Sub-Grade	0.18	2.86	0.20	0.16	0.07	0.01	996.28	0.02	0.02	1,003.13
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.04	0.59	0.04	0.03	0.01	0.00	205.75	0.00	0.00	207.17
Pounds per day - Paving	0.18	2.88	0.20	0.16	0.07	0.01	999.70	0.02	0.02	1,006.60
Tons per const. Period - Paving	0.04	0.68	0.05	0.04	0.02	0.00	236.93	0.00	0.01	238.56
Total tons per construction project	0.09	1.46	0.10	0.08	0.03	0.01	506.28	0.01	0.01	509.77

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

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust	0	1		5	0		8.00	0.00
Grading/Excavation - Exhaust		1		5	5		8.00	40.00
Drainage/Utilities/Subgrade		1		5	5		8.00	40.00
Paving		1		5	5		8.00	40.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.03	0.41	3.10	0.11	0.05	0.02	1,652.48	0.00	0.26	1,729.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.42	3.12	0.11	0.05	0.02	1,636.17	0.00	0.26	1,712.84
Paving (grams/mile)	0.03	0.42	3.11	0.11	0.05	0.02	1,638.61	0.00	0.26	1,715.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.04	0.32	0.01	0.00	0.00	145.72	0.00	0.02	152.55
Tons per const. Period - Grading/Excavation	0.00	0.00	0.02	0.00	0.00	0.00	9.09	0.00	0.00	9.52
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.32	0.01	0.00	0.00	144.29	0.00	0.02	151.05
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.07	0.00	0.00	0.00	29.80	0.00	0.00	31.19
Pounds per day - Paving	0.00	0.04	0.32	0.01	0.00	0.00	144.50	0.00	0.02	151.27
Tons per const. Period - Paving	0.00	0.01	0.08	0.00	0.00	0.00	34.25	0.00	0.01	35.85
Total tons per construction project	0.00	0.02	0.16	0.01	0.00	0.00	73.14	0.00	0.01	76.57

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation	2.00	4.00	20.00	1.25	4.16	0.26
Fugitive Dust - Drainage/Utilities/Subgrade	2.00	4.00	20.00	4.13	4.16	0.86

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.00			Model Default Tier	Bore/Drill Rigs	0.63	6.11	5.60	0.18	0.17	0.03	2,751.75	0.89	0.02	2,781.45
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Cranes	0.63	3.47	6.34	0.27	0.25	0.01	1,117.65	0.36	0.01	1,129.70
0.00	2		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Generator Sets	0.53	7.32	4.79	0.19	0.19	0.01	1,246.07	0.05	0.01	1,250.01
	2		Model Default Tier	Graders	0.62	3.19	6.91	0.22	0.20	0.01	1,280.48	0.41	0.01	1,294.28
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rollers	0.41	5.54	4.33	0.22	0.20	0.01	762.19	0.25	0.01	770.40
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rubber Tired Loaders	0.69	4.41	5.58	0.19	0.17	0.02	1,816.87	0.59	0.02	1,836.49
	4		Model Default Tier	Scrapers	2.69	21.52	25.48	1.00	0.92	0.06	5,872.59	1.90	0.05	5,935.90
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.26	4.46	2.67	0.11	0.10	0.01	604.11	0.20	0.01	610.61
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Welders	0.44	3.30	2.68	0.08	0.08	0.01	414.96	0.04	0.00	416.98

User-Defined Off-road Equipment — If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	6.90	59.33	64.38	2.46	2.29	0.17	15,866.67	4.68	0.14	16,025.80
Grading/Excavation	tons per phase	0.43	3.70	4.02	0.15	0.14	0.01	990.08	0.29	0.01	1,000.01

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
2.00			Model Default Tier	Aerial Lifts	0.07	2.18	1.04	0.02	0.02	0.00	325.24	0.11	0.00	328.75
0.00	1		Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	0.63	3.47	6.34	0.27	0.25	0.01	1,117.65	0.36	0.01	1,129.70
0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Generator Sets	0.53	7.32	4.79	0.19	0.19	0.01	1,246.07	0.05	0.01	1,250.01
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	1.23	12.97	12.17	0.48	0.46	0.03	2,688.96	0.51	0.02	2,708.46
Drainage/Utilities/Sub-Grade	tons per phase	0.25	2.68	2.51	0.10	0.09	0.01	555.32	0.11	0.00	559.35

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
2.00			Model Default Tier	Aerial Lifts	0.07	2.18	1.04	0.02	0.02	0.00	325.24	0.11	0.00	328.75
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	0.63	3.47	6.34	0.27	0.25	0.01	1,117.65	0.36	0.01	1,129.70
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Generator Sets	0.53	7.32	4.79	0.19	0.19	0.01	1,246.07	0.05	0.01	1,250.01
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Welders	0.44	3.30	2.68	0.08	0.08	0.01	414.96	0.04	0.00	416.98

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	1.67	16.28	14.85	0.56	0.54	0.03	3,103.92	0.55	0.03	3,125.44
	Paving	tons per phase	0.39	3.86	3.52	0.13	0.13	0.01	735.63	0.13	0.01	740.73
Total Emissions all Phases (tons per construction period) =>			1.08	10.24	10.05	0.39	0.36	0.02	2,281.03	0.53	0.02	2,300.09

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

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

END OF DATA ENTRY SHEET

Appendix D Summary Tables for Estimated Regional Emissions of GHG, PM, and Other Pollutants

Emissions Summary Table

Daily Mobile Source Emissions Estimates (pounds per day)

Year	Alternative	Daily VMT	ROG	CO	PM10	PM2.5	Nox	CO2 (tons/day)	MTCO2/year
2017	**E Total**	55,823,950.4	7,539.8	183,553.6	22,652.7	5,678.3	58,148.9	24,968.0	7,859,764
2017	**E+B Total**	55,816,068.6	7,537.7	183,522.5	22,649.4	5,677.4	58,139.5	24,962.9	7,858,147
2017	**E+C Total**	55,820,862.1	7,539.9	183,545.6	22,651.5	5,678.1	58,146.3	24,967.7	7,859,668
2030	**NB Total**	69,959,845.2	2,710.9	88,877.3	27,475.9	6,277.9	22,419.5	23,095.5	7,270,306
2030	**B Total**	69,946,445.1	2,709.2	88,839.7	27,470.6	6,276.7	22,405.5	23,087.3	7,267,739
2030	**C Total**	69,943,849.7	2,708.6	88,832.2	27,469.6	6,276.4	22,402.7	23,085.5	7,267,175
2040	**NB Total**	75,314,215.1	2,289.5	83,091.4	29,700.5	6,700.7	19,269.3	22,921.9	7,215,678
2040	**B Total**	75,320,444.8	2,288.9	83,100.4	29,702.9	6,701.1	19,270.1	22,920.8	7,215,327
2040	**C Total**	75,357,105.5	2,290.9	83,150.9	29,717.3	6,704.4	19,282.3	22,933.5	7,219,309

Year	Comparison	Daily VMT	ROG	CO (lbs/day)	PM10 (lb/day)	PM2.5 (lb/day)	Nox (lbs/day)	CO2 (tons/day)	MTCO2/year
2017	BΔE	-7,881.8	*-2.1*	*-31.1*	*-3.3*	*-0.9*	*-9.4*	*-5.1*	*-1,617*
2017	CΔE	-3,088.3	*0.2*	*-8.0*	*-1.2*	*-0.3*	*-2.5*	*-0.3*	*-96*
2030	BΔNB	-13,400.1	*-1.7*	*-37.5*	*-5.3*	*-1.3*	*-14.0*	*-8.2*	*-2,567*
2030	CΔNB	-15,995.5	*-2.4*	*-45.0*	*-6.4*	*-1.5*	*-16.8*	*-9.9*	*-3,131*
2040	BΔNB	6,229.69	*-0.5*	*9.1*	*2.4*	*0.5*	*0.8*	*-1.1*	*-351*
2040	CΔNB	42,890.48	*1.4*	*59.5*	*16.8*	*3.7*	*13.0*	*11.5*	*3,631*
2030	BΔE	14,122,494.7	-4,830.6	-94,713.9	4,817.9	598.3	-35,743.4	-1,880.7	-592,025
2030	CΔE	14,119,899.3	-4,831.2	-94,721.4	4,816.9	598.1	-35,746.2	-1,882.5	-592,589
2040	BΔE	19,496,494.4	-5,250.9	-100,453.2	7,050.1	1,022.8	-38,878.8	-2,047.2	-644,437
2040	CΔE	19,533,155.1	-5,248.9	-100,402.7	7,064.6	1,026.1	-38,866.5	-2,034.5	-640,455

Mobile Source Emissions - Regional Vehicle Miles Traveled

				Daily Mobile Source Emissions Estimates (pounds per day)						
Year	Alternative	Speed	Daily VMT	ROG	CO	PM10	PM2.5	Nox	CO2 (tons/day)	MTCO2/year
2017	E	5	10,450.3	8.9	73.9	4.7	1.5	22.3	11.0	3,460
2017	E	10	97,538.7	56.5	588.6	42.6	12.7	176.8	84.1	26,461
2017	E	15	250,088.4	92.9	1,300.0	105.6	29.3	360.9	174.6	54,963
2017	E	20	6,848,827.2	1,697.5	31,333.7	2,826.4	741.0	8,462.5	3,988.9	1,255,666
2017	E	25	3,101,881.8	580.0	12,755.5	1,265.7	322.1	3,516.2	1,553.7	489,096
2017	E	30	2,910,590.6	436.3	10,898.9	1,179.8	294.8	3,090.2	1,297.4	408,419
2017	E	35	5,953,539.6	747.1	20,513.8	2,403.1	593.4	6,012.6	2,461.7	774,931
2017	E	40	6,521,346.8	717.0	20,893.0	2,626.7	644.8	6,368.8	2,596.2	817,262
2017	E	45	6,145,960.7	621.6	18,515.0	2,474.9	607.1	5,905.2	2,434.8	766,469
2017	E	50	2,822,044.2	276.3	8,098.7	1,138.1	280.4	2,715.0	1,143.5	359,961
2017	E	55	5,704,319.1	569.7	15,845.8	2,307.8	573.8	5,591.3	2,396.0	754,237
2017	E	60	10,128,855.7	1,083.2	27,795.9	4,110.0	1,030.4	10,258.9	4,418.3	1,390,849
2017	E	65	3,464,857.7	413.7	9,647.2	1,408.8	355.2	3,666.6	1,561.5	491,555
2017	E	70	1,863,649.4	239.1	5,293.7	758.6	191.8	2,001.6	846.4	266,441
2017	**E Total**		55,823,950.4	7,539.8	183,553.6	22,652.7	5,678.3	58,148.9	24,968.0	7,859,764
2017	E+B	5	11,692.6	9.9	82.7	5.3	1.7	25.0	12.3	3,871
2017	E+B	10	93,462.4	54.1	564.0	40.8	12.2	169.4	80.5	25,355
2017	E+B	15	251,670.2	93.5	1,308.2	106.2	29.5	363.2	175.7	55,311
2017	E+B	20	6,826,030.5	1,691.8	31,229.4	2,817.0	738.6	8,434.3	3,975.6	1,251,487
2017	E+B	25	3,133,409.2	585.9	12,885.1	1,278.6	325.3	3,551.9	1,569.5	494,067
2017	E+B	30	2,893,159.4	433.6	10,833.7	1,172.7	293.0	3,071.7	1,289.6	405,973
2017	E+B	35	5,967,994.4	748.9	20,563.6	2,408.9	594.8	6,027.2	2,467.7	776,813
2017	E+B	40	6,507,195.5	715.5	20,847.6	2,621.0	643.4	6,355.0	2,590.5	815,488
2017	E+B	45	6,186,830.6	625.7	18,638.2	2,491.3	611.1	5,944.5	2,451.0	771,566
2017	E+B	50	2,776,100.2	271.8	7,966.9	1,119.5	275.8	2,670.8	1,124.9	354,101
2017	E+B	55	5,717,910.8	571.1	15,883.5	2,313.3	575.2	5,604.6	2,401.7	756,034
2017	E+B	60	10,084,854.9	1,078.5	27,675.2	4,092.1	1,026.0	10,214.4	4,399.1	1,384,807
2017	E+B	65	3,502,357.1	418.2	9,751.6	1,424.1	359.0	3,706.3	1,578.4	496,875
2017	E+B	70	1,863,400.7	239.1	5,293.0	758.5	191.8	2,001.3	846.3	266,405
2017	**E+B Total**		55,816,068.6	7,537.7	183,522.5	22,649.4	5,677.4	58,139.5	24,962.9	7,858,147
2017	E+C	5	12,130.5	10.3	85.8	5.5	1.8	25.9	12.8	4,016
2017	E+C	10	91,278.1	52.8	550.8	39.8	11.9	165.5	78.7	24,762
2017	E+C	15	260,515.7	96.8	1,354.2	110.0	30.5	375.9	181.9	57,255
2017	E+C	20	6,842,907.8	1,696.0	31,306.6	2,824.0	740.4	8,455.2	3,985.4	1,254,581
2017	E+C	25	3,127,794.9	584.9	12,862.0	1,276.3	324.8	3,545.5	1,566.7	493,181
2017	E+C	30	2,862,339.5	429.0	10,718.2	1,160.2	289.9	3,039.0	1,275.9	401,649
2017	E+C	35	5,981,719.7	750.6	20,610.9	2,414.5	596.2	6,041.0	2,473.4	778,599
2017	E+C	40	6,491,476.4	713.7	20,797.3	2,614.7	641.8	6,339.6	2,584.3	813,518
2017	E+C	45	6,166,959.3	623.7	18,578.3	2,483.3	609.2	5,925.4	2,443.1	769,088

Mobile Source Emissions - Regional Vehicle Miles Traveled

				Daily Mobile Source Emissions Estimates (pounds per day)						
Year	**Alternative**	**Speed**	**Daily VMT**	**ROG**	**CO**	**PM10**	**PM2.5**	**Nox**	**CO2 (tons/day)**	**MTCO2/year**
2017	E+C	50	2,822,293.5	276.3	8,099.4	1,138.2	280.4	2,715.2	1,143.6	359,993
2017	E+C	55	5,708,978.7	570.2	15,858.7	2,309.7	574.3	5,595.9	2,397.9	754,853
2017	E+C	60	10,122,805.9	1,082.6	27,779.3	4,107.5	1,029.8	10,252.8	4,415.7	1,390,018
2017	E+C	65	3,466,030.6	413.8	9,650.4	1,409.3	355.3	3,667.8	1,562.0	491,721
2017	E+C	70	1,863,631.4	239.1	5,293.6	758.6	191.8	2,001.6	846.4	266,438
2017	**E+C Total**		55,820,862.1	7,539.9	183,545.6	22,651.5	5,678.1	58,146.3	24,967.7	7,859,668
2017	NB	5	13,002.1	3.1	36.1	5.3	1.3	16.0	10.2	3,221
2017	NB	10	141,625.6	22.5	335.0	56.7	13.7	136.0	91.0	28,650
2017	NB	15	355,227.1	36.9	717.0	140.9	33.1	250.8	184.6	58,100
2017	NB	20	8,624,257.7	613.5	15,295.0	3,401.6	787.2	4,977.3	3,746.5	1,179,372
2030	NB	25	3,717,665.3	198.3	5,954.0	1,461.6	334.9	1,771.6	1,388.0	436,948
2030	NB	30	3,459,555.9	146.9	5,064.4	1,357.5	309.2	1,346.0	1,145.4	360,570
2030	NB	35	7,403,271.7	263.1	9,989.1	2,901.9	659.0	2,370.9	2,262.3	712,153
2030	NB	40	9,584,828.0	299.6	12,016.6	3,755.5	851.8	2,584.9	2,808.1	883,971
2030	NB	45	7,289,934.3	210.8	8,565.0	2,856.6	648.1	1,729.1	2,119.8	667,296
2030	NB	50	4,151,236.9	116.8	4,615.4	1,627.5	369.9	924.3	1,233.4	388,275
2030	NB	55	6,662,439.2	192.1	7,093.4	2,614.5	596.0	1,506.1	2,055.3	646,991
2030	NB	60	13,093,947.9	407.4	13,560.6	5,145.5	1,178.1	3,237.3	4,214.5	1,326,688
2030	NB	65	3,243,686.9	114.5	3,336.5	1,277.0	294.0	927.9	1,087.0	342,186
2030	NB	70	2,219,166.7	85.3	2,299.1	874.1	201.6	641.2	749.4	235,892
2030	**NB Total**		69,959,845.2	2,710.9	88,877.3	27,475.9	6,277.9	22,419.5	23,095.5	7,270,306
2030	B	5	12,178.4	2.9	33.8	4.9	1.2	15.0	9.6	3,017
2030	B	10	144,686.8	23.0	342.2	57.9	14.0	138.9	93.0	29,269
2030	B	15	355,466.7	36.9	717.5	141.0	33.2	251.0	184.7	58,139
2030	B	20	8,588,472.0	611.0	15,231.5	3,387.5	783.9	4,956.7	3,730.9	1,174,478
2030	B	25	3,694,056.9	197.1	5,916.2	1,452.3	332.8	1,760.4	1,379.2	434,174
2030	B	30	3,492,570.3	148.3	5,112.8	1,370.4	312.2	1,358.9	1,156.3	364,011
2030	B	35	7,438,531.5	264.4	10,036.6	2,915.7	662.1	2,382.2	2,273.1	715,545
2030	B	40	9,499,320.9	296.9	11,909.4	3,722.0	844.2	2,561.8	2,783.0	876,085
2030	B	45	7,333,080.0	212.0	8,615.7	2,873.5	652.0	1,739.3	2,132.3	671,246
2030	B	50	4,181,625.9	117.7	4,649.2	1,639.5	372.6	931.1	1,242.5	391,118
2030	B	55	6,603,946.3	190.4	7,031.1	2,591.6	590.8	1,492.9	2,037.2	641,310
2030	B	60	13,149,596.0	409.1	13,618.2	5,167.3	1,183.1	3,251.1	4,232.4	1,332,326
2030	B	65	3,233,774.7	114.2	3,326.3	1,273.1	293.1	925.1	1,083.7	341,140
2030	B	70	2,219,138.6	85.3	2,299.0	874.1	201.6	641.2	749.3	235,889
2030	**B Total**		69,946,445.1	2,709.2	88,839.7	27,470.6	6,276.7	22,405.5	23,087.3	7,267,739
2030	C	5	12,326.3	3.0	34.2	5.0	1.3	15.2	9.7	3,053
2030	C	10	140,693.7	22.4	332.8	56.3	13.6	135.1	90.4	28,461
2030	C	15	337,308.8	35.0	680.9	133.8	31.5	238.1	175.3	55,169

Mobile Source Emissions - Regional Vehicle Miles Traveled

				Daily Mobile Source Emissions Estimates (pounds per day)						
Year	**Alternative**	**Speed**	**Daily VMT**	**ROG**	**CO**	**PM10**	**PM2.5**	**Nox**	**CO2 (tons/day)**	**MTCO2/year**
2030	C	20	8,625,959.8	613.6	15,298.0	3,402.3	787.3	4,978.3	3,747.2	1,179,605
2030	C	25	3,687,212.9	196.7	5,905.2	1,449.6	332.2	1,757.1	1,376.7	433,369
2030	C	30	3,499,846.6	148.6	5,123.4	1,373.3	312.8	1,361.7	1,158.8	364,769
2030	C	35	7,404,620.0	263.2	9,990.9	2,902.4	659.1	2,371.3	2,262.7	712,283
2030	C	40	9,478,373.6	296.3	11,883.2	3,713.7	842.3	2,556.2	2,776.9	874,153
2030	C	45	7,394,919.5	213.8	8,688.3	2,897.7	657.5	1,754.0	2,150.3	676,906
2030	C	50	4,137,119.8	116.4	4,599.7	1,622.0	368.7	921.2	1,229.2	386,955
2030	C	55	6,646,127.7	191.6	7,076.0	2,608.1	594.6	1,502.4	2,050.3	645,407
2030	C	60	13,115,952.3	408.1	13,583.4	5,154.1	1,180.0	3,242.8	4,221.6	1,328,917
2030	C	65	3,244,222.5	114.6	3,337.1	1,277.2	294.1	928.1	1,087.2	342,243
2030	C	70	2,219,166.3	85.3	2,299.1	874.1	201.6	641.2	749.4	235,892
2030	**C Total**		69,943,849.7	2,708.6	88,832.2	27,469.6	6,276.4	22,402.7	23,085.5	7,267,175
2040	NB	5	45,077.0	8.6	108.3	18.1	4.3	54.0	32.6	10,275
2040	NB	10	214,995.5	27.2	439.8	85.6	19.9	197.2	127.1	40,017
2040	NB	15	506,819.4	41.3	880.4	200.8	45.9	333.8	242.3	76,283
2040	NB	20	9,487,486.4	524.7	14,453.7	3,747.4	849.4	5,020.7	3,795.1	1,194,688
2040	NB	25	4,194,189.2	173.3	5,775.7	1,653.6	372.7	1,777.4	1,442.3	454,026
2040	NB	30	4,071,121.7	133.7	5,130.6	1,603.4	360.2	1,345.9	1,241.1	390,701
2040	NB	35	8,358,948.1	229.5	9,718.6	3,290.7	738.3	2,144.1	2,350.0	739,776
2040	NB	40	10,535,220.8	254.2	11,388.3	4,147.3	930.4	2,120.1	2,837.3	893,151
2040	NB	45	8,103,875.9	180.8	8,211.2	3,191.2	716.7	1,334.5	2,164.7	681,436
2040	NB	50	4,375,207.4	95.0	4,193.9	1,724.0	388.0	642.0	1,193.5	375,710
2040	NB	55	7,279,442.4	162.0	6,675.4	2,871.0	648.1	1,073.1	2,061.4	648,924
2040	NB	60	12,896,980.2	310.1	11,482.5	5,092.8	1,154.2	2,150.2	3,812.7	1,200,224
2040	NB	65	3,004,115.8	82.1	2,648.0	1,188.1	270.6	614.8	925.8	291,449
2040	NB	70	2,240,735.3	66.9	1,985.0	886.5	202.1	461.6	695.8	219,024
2040	**NB Total**		75,314,215.1	2,289.5	83,091.4	29,700.5	6,700.7	19,269.3	22,921.9	7,215,678
2040	B	5	43,821.2	8.4	105.3	17.6	4.2	52.5	31.7	9,989
2040	B	10	217,506.9	27.5	444.9	86.6	20.1	199.5	128.6	40,485
2040	B	15	489,519.4	39.9	850.3	193.9	44.4	322.4	234.1	73,679
2040	B	20	9,461,722.3	523.3	14,414.5	3,737.2	847.1	5,007.0	3,784.8	1,191,443
2040	B	25	4,238,409.4	175.1	5,836.6	1,671.0	376.6	1,796.1	1,457.5	458,813
2040	B	30	4,091,043.2	134.4	5,155.7	1,611.3	362.0	1,352.5	1,247.2	392,613
2040	B	35	8,403,088.7	230.7	9,769.9	3,308.0	742.2	2,155.5	2,362.4	743,683
2040	B	40	10,505,968.3	253.5	11,356.6	4,135.8	927.8	2,114.2	2,829.4	890,671
2040	B	45	8,089,208.2	180.4	8,196.3	3,185.4	715.4	1,332.1	2,160.8	680,203
2040	B	50	4,351,552.1	94.5	4,171.2	1,714.7	385.9	638.5	1,187.1	373,679
2040	B	55	7,338,497.7	163.3	6,729.5	2,894.3	653.3	1,081.8	2,078.2	654,189
2040	B	60	12,844,114.2	308.8	11,435.4	5,072.0	1,149.4	2,141.4	3,797.1	1,195,304

Mobile Source Emissions - Regional Vehicle Miles Traveled

Daily Mobile Source Emissions Estimates (pounds per day)

Year	Alternative	Speed	Daily VMT	ROG	CO	PM10	PM2.5	Nox	CO2 (tons/day)	MTCO2/year
2040	B	65	3,006,413.8	82.2	2,650.0	1,189.1	270.8	615.3	926.5	291,672
2040	B	70	2,239,579.4	66.8	1,984.0	886.0	201.9	461.3	695.4	218,911
2040	**B Total**		75,320,444.8	2,288.9	83,100.4	29,702.9	6,701.1	19,270.1	22,920.8	7,215,327
2040	C	5	47,254.3	9.1	113.6	19.0	4.5	56.6	34.2	10,771
2040	C	10	216,596.9	27.4	443.1	86.2	20.0	198.6	128.1	40,316
2040	C	15	502,677.3	41.0	873.2	199.2	45.6	331.1	240.3	75,659
2040	C	20	9,483,067.6	524.5	14,447.0	3,745.7	849.0	5,018.3	3,793.4	1,194,131
2040	C	25	4,204,868.5	173.8	5,790.4	1,657.8	373.6	1,781.9	1,446.0	455,182
2040	C	30	4,067,752.4	133.6	5,126.3	1,602.1	359.9	1,344.8	1,240.1	390,378
2040	C	35	8,423,322.1	231.3	9,793.4	3,316.0	744.0	2,160.7	2,368.1	745,474
2040	C	40	10,524,717.9	253.9	11,376.9	4,143.1	929.5	2,118.0	2,834.4	892,261
2040	C	45	8,121,704.7	181.2	8,229.2	3,198.2	718.3	1,337.4	2,169.5	682,935
2040	C	50	4,349,451.2	94.4	4,169.2	1,713.8	385.7	638.2	1,186.5	373,498
2040	C	55	7,374,516.7	164.1	6,762.6	2,908.5	656.5	1,087.1	2,088.4	657,400
2040	C	60	12,801,062.1	307.8	11,397.1	5,055.0	1,145.6	2,134.2	3,784.4	1,191,298
2040	C	65	2,999,669.2	82.0	2,644.1	1,186.4	270.2	613.9	924.5	291,018
2040	C	70	2,240,444.8	66.9	1,984.8	886.3	202.0	461.5	695.7	218,995
2040	**C Total**		75,357,105.5	2,290.9	83,150.9	29,717.3	6,704.4	19,282.3	22,933.5	7,219,309

CT-EMFAC 2017 Emission Rates - SACOG Region

Year	Speed	PM2.5 (g/mi)	PM10 (g/mi)	Nox (g/mi)	CO (g/mi)	HC (g/mi)	TOG (g/mi)	ROG (g/mi)	CO2 (g/mi)
2017	5	0.065733299	0.204869261	0.96914107	3.209471378	0.444966445	0.512676497	0.385962088	954.0412599
2017	10	0.059211827	0.197912161	0.822272433	2.737015326	0.300122847	0.348171194	0.262603994	781.7772562
2017	15	0.05310673	0.191449642	0.654525246	2.357807737	0.197221769	0.226098971	0.168492945	633.351285
2017	20	0.049078662	0.18719072	0.56046454	2.075202535	0.135584784	0.153188683	0.112423209	528.3569524
2017	25	0.047097615	0.185090476	0.514172772	1.865249536	0.1029635	0.116110477	0.08481937	454.3993523
2017	30	0.045936186	0.183857718	0.481579788	1.698509832	0.082704261	0.093265047	0.067986786	404.3843085
2017	35	0.045210635	0.183087771	0.45808895	1.562916875	0.069425392	0.078212563	0.056917361	375.1088239
2017	40	0.044847883	0.182700925	0.442981507	1.453209987	0.06095811	0.068569043	0.049872431	361.1546031
2017	45	0.044806574	0.182653865	0.435824338	1.366470276	0.056074818	0.062984058	0.045872446	359.3968727
2017	50	0.045067377	0.182924914	0.436385367	1.301723235	0.054133523	0.06074969	0.044407434	367.5879034
2017	55	0.045627637	0.183511176	0.444605941	1.260011368	0.054909281	0.061613716	0.04530488	381.0425659
2017	60	0.046144919	0.184054641	0.459417025	1.2447606	0.058430697	0.065551427	0.048509143	395.7210361
2017	65	0.046498888	0.184431042	0.479999522	1.262931235	0.064971535	0.072773446	0.054158073	408.8423758
2017	70	0.046687209	0.184631538	0.487169048	1.288423771	0.069654487	0.077938633	0.058205169	412.0080475
2030	5	0.046154868	0.184048323	0.558017302	1.257670456	0.137570148	0.153592274	0.109463003	713.7555015
2030	10	0.043777234	0.181472584	0.435520475	1.072927337	0.092177864	0.103026788	0.072115886	582.9609148
2030	15	0.042302683	0.179879472	0.320232708	0.915577443	0.062763932	0.069427365	0.047063134	471.3424735
2030	20	0.041401753	0.178907901	0.261782712	0.804438945	0.045159227	0.049406411	0.032267998	394.0928932
2030	25	0.040861859	0.178324228	0.216155013	0.72644946	0.035004621	0.038142689	0.024198966	338.7108402
2030	30	0.040545015	0.177981287	0.176483418	0.664011992	0.028597145	0.031092576	0.019264667	300.3571291
2030	35	0.040374059	0.177795399	0.145260673	0.612021869	0.024409526	0.026489546	0.016120049	277.2165245
2030	40	0.040308675	0.177723124	0.122326669	0.568675117	0.021717672	0.023536186	0.014178379	265.7803737
2030	45	0.040327973	0.177740843	0.107588105	0.532927383	0.020116004	0.021786844	0.013114752	263.7937079
2030	50	0.040420119	0.177835754	0.10099709	0.504313954	0.019393948	0.021011692	0.012764936	269.5450984
2030	55	0.040580152	0.178003707	0.102539885	0.482932792	0.019479223	0.021129377	0.013077354	279.8555969
2030	60	0.040809861	0.178245625	0.112145841	0.46975742	0.020443901	0.022223776	0.014112559	291.9897124
2030	65	0.04111487	0.1785688	0.129758742	0.466573585	0.022452426	0.024469502	0.016015862	304.0131615
2030	70	0.041196951	0.178657108	0.131057892	0.469924943	0.02390294	0.026111098	0.01743972	306.331241
2040	5	0.043306581	0.182082295	0.543173308	1.09016385	0.112012072	0.12535124	0.087022582	656.8740554
2040	10	0.041960663	0.18062242	0.415945292	0.927872792	0.075890223	0.084926982	0.057311109	536.3946766
2040	15	0.041120856	0.179714039	0.298734985	0.787916742	0.052137612	0.057583628	0.036992973	433.7503016
2040	20	0.040609796	0.179161567	0.24003532	0.69102623	0.03794023	0.041337907	0.025086367	362.8880487
2040	25	0.040304404	0.178831132	0.192220303	0.62463113	0.029802758	0.032298931	0.018744439	311.9620447
2040	30	0.040135694	0.178647602	0.149960802	0.571634968	0.024643641	0.026625018	0.014900493	276.5666166
2040	35	0.04006143	0.178565695	0.116350388	0.527371117	0.02123063	0.022879907	0.012453751	255.0457955
2040	40	0.040058673	0.178560456	0.091281222	0.49031905	0.018996519	0.020435716	0.010944044	244.3153295
2040	45	0.040114708	0.17861793	0.074694183	0.45959759	0.01762209	0.018942032	0.01011832	242.3268648
2040	50	0.040223288	0.178731009	0.066557598	0.434794991	0.016941581	0.018215951	0.00984827	247.4703824
2040	55	0.040381311	0.178896423	0.066863785	0.415952349	0.016895509	0.01819347	0.010094023	256.9007048
2040	60	0.040591939	0.179117342	0.075623596	0.403842697	0.017546042	0.018943906	0.010906001	268.1907566
2040	65	0.040858011	0.17939865	0.092828177	0.399825622	0.019014335	0.020599309	0.012398714	279.5858291
2040	70	0.040901215	0.179445093	0.093438765	0.401827923	0.020074087	0.021816562	0.013538157	281.6886898

Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles

Year	PM Exhaust	PM Exhaust	NOx Exhaust	CO Exhaust	TOG Exhaust	TOG Exhaust	CO2 Exhaust
2030	1.0142	1.0142	1.0047	1.0156	1.0037	1.0037	1.0702
2040	1.027	1.027	1.0109	1.0281	1.009	1.009	1.1168

CT-EMFAC2017 SACOG Region Output Factors (PM includes brake wear, tire wear, road dust as approximately 95% of total per-mile emission rate)

year	Speed	PM2.5	PM10	NOx	CO	TOG	ROG	CO2
2030	5	0.04614275	0.18392753	0.55560182	1.23978042	0.1530684	0.10908964	670.233865
2030	10	0.04376574	0.18135348	0.43363525	1.05766523	0.10267538	0.07186991	547.414551
2030	15	0.04229157	0.17976141	0.31884652	0.90255359	0.06919056	0.04690261	442.602106
2030	20	0.04139088	0.17879048	0.26064954	0.79299601	0.04923789	0.03215794	370.062861
2030	25	0.04085113	0.17820719	0.21521935	0.71611591	0.03801259	0.02411643	318.05776
2030	30	0.04053437	0.17786447	0.17571948	0.6545666	0.03098652	0.01919896	282.042687
2030	35	0.04036346	0.17767871	0.14463189	0.60331602	0.02639919	0.01606507	260.313094
2030	40	0.04029809	0.17760648	0.12179716	0.56058586	0.02345591	0.01413002	249.574269
2030	45	0.04031738	0.17762419	0.10712239	0.52534663	0.02171253	0.01307002	247.708741
2030	50	0.0404095	0.17771904	0.10055991	0.49714022	0.02094002	0.0127214	253.109437
2030	55	0.04056949	0.17788688	0.10209602	0.4760632	0.02105731	0.01303275	262.791247
2030	60	0.04079914	0.17812864	0.1116604	0.46307524	0.02214797	0.01406442	274.185478
2030	65	0.04110407	0.1784516	0.12919706	0.4599367	0.02438604	0.01596123	285.475791
2030	70	0.04118613	0.17853985	0.13049058	0.46324038	0.02602204	0.01738024	287.652524
2040	5	0.04328496	0.1818552	0.53775143	1.06254563	0.12431631	0.0863041	592.825219
2040	10	0.04193971	0.18039715	0.41179339	0.90436606	0.0842258	0.05683793	484.093243
2040	15	0.04110033	0.1794899	0.29575305	0.76795565	0.0571082	0.03668755	391.457259
2040	20	0.04058952	0.17893812	0.23763932	0.67351977	0.04099661	0.02487925	327.504466
2040	25	0.04028428	0.17860809	0.19030159	0.60880672	0.03203226	0.01858968	281.544028
2040	30	0.04011566	0.17842479	0.14846392	0.55715316	0.02640519	0.01477747	249.599849
2040	35	0.04004143	0.17834299	0.11518899	0.51401069	0.022691	0.01235093	230.177426
2040	40	0.04003867	0.17833776	0.09037007	0.4778973	0.02026699	0.01085369	220.49324
2040	45	0.04009468	0.17839516	0.0739486	0.44795414	0.01878564	0.01003478	218.698661
2040	50	0.04020321	0.1785081	0.06589323	0.42377989	0.01806556	0.00976696	223.340658
2040	55	0.04036115	0.1786733	0.06619636	0.40541461	0.01804326	0.01001068	231.851472
2040	60	0.04057167	0.17889395	0.07486873	0.39361174	0.0187875	0.01081596	242.040681
2040	65	0.04083761	0.1791749	0.09190158	0.38969644	0.02042924	0.01229635	252.324672
2040	70	0.04088079	0.17922129	0.09250607	0.39164801	0.02163644	0.01342638	254.222492

Adjusted per-mile emission rates

Year	Speed	PM2.5	PM10	NOx	CO	TOG	ROG	CO2
2030	5	0.04615487	0.18404832	0.5580173	1.25767046	0.15359227	0.109463	713.755502
2030	10	0.04377723	0.18147258	0.43552047	1.07292734	0.10302679	0.07211589	582.960915
2030	15	0.04230268	0.17987947	0.32023271	0.91557744	0.06942737	0.04706313	471.342474
2030	20	0.04140175	0.1789079	0.26178271	0.80443895	0.04940641	0.032268	394.092893
2030	25	0.04086186	0.17832423	0.21615501	0.72644946	0.03814269	0.02419897	338.71084
2030	30	0.04054502	0.17798129	0.17648342	0.66401199	0.03109258	0.01926467	300.357129
2030	35	0.04037406	0.1777954	0.14526067	0.61202187	0.02648955	0.01612005	277.216525
2030	40	0.04030868	0.17772312	0.12232667	0.56867512	0.02353619	0.01417838	265.780374
2030	45	0.04032797	0.17774084	0.10758811	0.53292738	0.02178684	0.01311475	263.793708
2030	50	0.04042012	0.17783575	0.10099709	0.50431395	0.02101169	0.01276494	269.545098
2030	55	0.04058015	0.17800371	0.10253989	0.48293279	0.02112938	0.01307735	279.855597
2030	60	0.04080986	0.17824562	0.11214584	0.46975742	0.02222378	0.01411256	291.989712
2030	65	0.04111487	0.1785688	0.12975874	0.46657358	0.0244695	0.01601586	304.013162
2030	70	0.04119695	0.17865711	0.13105789	0.46992494	0.0261111	0.01743972	306.331241
2040	5	0.04330658	0.1820823	0.54317331	1.09016385	0.12535124	0.08702258	656.874055
2040	10	0.04196066	0.18062242	0.41594529	0.92787279	0.08492698	0.05731111	536.394677
2040	15	0.04112086	0.17971404	0.29873498	0.78791674	0.05758363	0.03699297	433.750302
2040	20	0.0406098	0.17916157	0.24003532	0.69102623	0.04133791	0.02508637	362.888049
2040	25	0.0403044	0.17883113	0.1922203	0.62463113	0.03229893	0.01874444	311.962045
2040	30	0.04013569	0.1786476	0.1499608	0.57163497	0.02662502	0.01490049	276.566617
2040	35	0.04006143	0.17856569	0.11635039	0.52737112	0.02287991	0.01245375	255.045796
2040	40	0.04005867	0.17856046	0.09128122	0.49031905	0.02043572	0.01094404	244.31533
2040	45	0.04011471	0.17861793	0.07469418	0.45959759	0.01894203	0.01011832	242.326865
2040	50	0.04022329	0.17873101	0.0665576	0.43479499	0.01821595	0.00984827	247.470382
2040	55	0.04038131	0.17889642	0.06686378	0.41595235	0.01819347	0.01009402	256.900705
2040	60	0.04059194	0.17911734	0.0756236	0.4038427	0.01894391	0.010906	268.190757
2040	65	0.04085801	0.17939865	0.09282818	0.39982562	0.02059931	0.01239871	279.585829
2040	70	0.04090121	0.17944509	0.09343876	0.40182792	0.02181656	0.01353816	281.68869

SACOG Region Vehicle Miles Traveled Distribution

Year	County	Daily VMT	Proportion SACOG VMT
2017	El Dorado (MC) Total	4,085,784	6.5%
	Placer (MC) Total	2,719,766	15.2%
	Placer (SV) Total	6,860,744	
	Sacramento (SV) Total	37,153,060	58.8%
	Sutter (SV) Total	3,618,574	8.8%
	Yolo (SV) Total	6,796,223	10.8%
	Yuba (SV) Total	1,936,842	included with Sutter
2030	El Dorado (MC) Total	4,493,261	6.1%
	Placer (MC) Total	3,249,497	15.7%
	Placer (SV) Total	8,355,539	
	Sacramento (SV) Total	43,068,139	58.3%
	Sutter (SV) Total	4,118,166	8.5%
	Yolo (SV) Total	8,373,316	11.3%
	Yuba (SV) Total	2,180,040	included with Sutter
2040	El Dorado (MC) Total	4,871,959	5.9%
	Placer (MC) Total	3,649,339	15.9%
	Placer (SV) Total	9,404,458	
	Sacramento (SV) Total	47,620,436	58.1%
	Sutter (SV) Total	4,496,168	8.4%
	Yolo (SV) Total	9,538,195	11.6%
	Yuba (SV) Total	2,352,179	included with Sutter

CT-EMFAC2017 SACOG Regional Emission Rate Calculation - 2017

Region	Speed	PM2.5	PM10	NOx	CO	ROG	CO2
SACOG	5	0.065733	0.204869	0.969141	3.209471	0.385962	954.0413
SACOG	10	0.059212	0.197912	0.822272	2.737015	0.262604	781.7773
SACOG	15	0.053107	0.19145	0.654525	2.357808	0.168493	633.3513
SACOG	20	0.049079	0.187191	0.560465	2.075203	0.112423	528.357
SACOG	25	0.047098	0.18509	0.514173	1.86525	0.084819	454.3994
SACOG	30	0.045936	0.183858	0.48158	1.69851	0.067987	404.3843
SACOG	35	0.045211	0.183088	0.458089	1.562917	0.056917	375.1088
SACOG	40	0.044848	0.182701	0.442982	1.45321	0.049872	361.1546
SACOG	45	0.044807	0.182654	0.435824	1.36647	0.045872	359.3969
SACOG	50	0.045067	0.182925	0.436385	1.301723	0.044407	367.5879
SACOG	55	0.045628	0.183511	0.444606	1.260011	0.045305	381.0426
SACOG	60	0.046145	0.184055	0.459417	1.244761	0.048509	395.721
SACOG	65	0.046499	0.184431	0.48	1.262931	0.054158	408.8424
SACOG	70	0.046687	0.184632	0.487169	1.288424	0.058205	412.008

County	Daily VMT	SACOG %
El Dorado (MC) Total	4085784	6.5%
Placer (MC) Total	2719766	15.2%
Placer (SV) Total	6860744	
Sacramento (SV) Total	37153060	58.8%
Sutter (SV) Total	3618574	8.8%
Yolo (SV) Total	6796223	10.8%
Yuba (SV) Total	1936842	

County	Speed	PM2.5	PM10	NOx	CO	ROG	CO2
Sacrament	5	0.063342	0.199381	0.929999	3.194019	0.372301	945.3246
Sacrament	10	0.05716	0.192777	0.785421	2.736851	0.2524	774.2061
Sacrament	15	0.051422	0.186697	0.619995	2.369559	0.162072	628.6727
Sacrament	20	0.047647	0.182702	0.526715	2.093192	0.108355	524.2699
Sacrament	25	0.045793	0.180734	0.480838	1.885049	0.081697	450.7136
Sacrament	30	0.04471	0.179583	0.448332	1.718391	0.065396	401.1057
Sacrament	35	0.044038	0.178869	0.424594	1.581967	0.054689	371.9205
Sacrament	40	0.043708	0.178516	0.408932	1.470732	0.047878	358.211
Sacrament	45	0.04368	0.178483	0.400927	1.381822	0.044007	356.702
Sacrament	50	0.043936	0.178749	0.400355	1.31419	0.042577	364.859
Sacrament	55	0.044473	0.179311	0.407162	1.268666	0.043417	378.2079
Sacrament	60	0.044959	0.179822	0.420214	1.24827	0.046472	392.8057
Sacrament	65	0.045279	0.180163	0.438693	1.259294	0.05188	405.6958
Sacrament	70	0.045448	0.180343	0.445137	1.280028	0.05576	408.8911
Yolo	5	0.0755	0.233401	1.278443	3.075776	0.419646	1009.218
Yolo	10	0.068227	0.225667	1.070377	2.609879	0.290363	829.3547
Yolo	15	0.060669	0.217692	0.832352	2.22539	0.181623	670.6403
Yolo	20	0.055614	0.212362	0.700341	1.94574	0.117382	560.8279
Yolo	25	0.053224	0.209837	0.630425	1.745315	0.088323	483.5118
Yolo	30	0.05186	0.208394	0.578733	1.58786	0.070837	430.2387
Yolo	35	0.051034	0.207519	0.540132	1.460102	0.059129	398.0874
Yolo	40	0.050674	0.207137	0.513832	1.357075	0.051538	381.683
Yolo	45	0.050743	0.207205	0.499362	1.276032	0.047121	378.0438
Yolo	50	0.051223	0.207705	0.496459	1.216054	0.045377	385.0802
Yolo	55	0.052112	0.208635	0.505034	1.17811	0.046126	398.3898
Yolo	60	0.05287	0.20943	0.523966	1.16515	0.049226	413.9854

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Yolo	65	0.053304	0.209889	0.551958	1.183285	0.054601	429.2144
Yolo	70	0.053479	0.210076	0.558428	1.207547	0.058431	432.2442
ElDorado	5	0.063483	0.193406	0.786266	3.350789	0.386825	925.7257
ElDorado	10	0.056643	0.186115	0.695944	2.830923	0.261457	757.6286
ElDorado	15	0.050941	0.180073	0.595001	2.424592	0.172075	610.0417
ElDorado	20	0.047214	0.176129	0.538538	2.123878	0.117979	508.4117
ElDorado	25	0.045253	0.174049	0.514593	1.902795	0.089491	436.7124
ElDorado	30	0.044054	0.172777	0.500742	1.729817	0.072031	388.6233
ElDorado	35	0.043272	0.171948	0.493204	1.591599	0.060709	361.8722
ElDorado	40	0.042818	0.171466	0.491246	1.482001	0.053623	349.4272
ElDorado	45	0.04264	0.171276	0.494429	1.3978	0.049709	348.5645
ElDorado	50	0.042714	0.171352	0.502518	1.338186	0.048428	357.8862
ElDorado	55	0.043036	0.171689	0.515464	1.304872	0.049614	371.7555
ElDorado	60	0.043428	0.172101	0.532602	1.302878	0.053322	385.7992
ElDorado	65	0.043829	0.172527	0.553574	1.341845	0.059906	397.7524
ElDorado	70	0.044106	0.172821	0.564016	1.381922	0.064625	400.9303
Placer	5	0.066477	0.210481	0.950123	2.699416	0.345656	960.6275
Placer	10	0.06013	0.203719	0.805436	2.290784	0.237432	787.6249
Placer	15	0.054059	0.197299	0.638133	1.956572	0.150352	636.8197
Placer	20	0.050041	0.193055	0.545453	1.711503	0.0987	531.4358
Placer	25	0.048079	0.190978	0.499726	1.534495	0.07438	457.1959
Placer	30	0.046937	0.189767	0.467343	1.395334	0.059664	406.8068
Placer	35	0.046231	0.189019	0.443911	1.282631	0.04992	377.3672
Placer	40	0.045892	0.188657	0.428782	1.191903	0.043681	363.1117
Placer	45	0.045881	0.188642	0.421567	1.120719	0.040119	361.0522
Placer	50	0.046179	0.188952	0.422053	1.068339	0.0388	369.1825
Placer	55	0.046785	0.189586	0.430167	1.035782	0.039578	382.6907
Placer	60	0.047336	0.190164	0.444946	1.026077	0.042379	397.4833
Placer	65	0.047706	0.190557	0.465506	1.045332	0.047253	410.9365
Placer	70	0.047897	0.19076	0.47178	1.069447	0.050733	414.0903
YubaSutter	5	0.07015	0.205422	1.019822	4.252044	0.504991	954.3014
YubaSutter	10	0.062211	0.196963	0.88715	3.594123	0.34114	781.8831
YubaSutter	15	0.055073	0.18941	0.739956	3.08404	0.224022	630.1847
YubaSutter	20	0.05037	0.184439	0.657068	2.704686	0.153144	525.326
YubaSutter	25	0.047992	0.181919	0.619494	2.422343	0.115982	451.6195
YubaSutter	30	0.046548	0.180388	0.595538	2.200726	0.093205	402.0959
YubaSutter	35	0.045595	0.179378	0.580351	2.023562	0.078393	374.1605
YubaSutter	40	0.045036	0.178786	0.573011	1.883093	0.069092	360.977
YubaSutter	45	0.044819	0.178554	0.572965	1.775205	0.063921	359.7197
YubaSutter	50	0.044917	0.178655	0.579934	1.698815	0.062176	368.8242
YubaSutter	55	0.045327	0.179084	0.593883	1.656024	0.063633	382.7664
YubaSutter	60	0.045793	0.179574	0.613761	1.653067	0.068288	397.1324
YubaSutter	65	0.046214	0.180021	0.639099	1.701911	0.076532	409.5084
YubaSutter	70	0.046478	0.180302	0.651114	1.752382	0.082446	412.6535

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Region	Speed	PM2.5	PM10	NOx	CO	HC	TOG	ROG	CO2
SACOG	5	0.046143	0.183928	0.555602	1.23978	0.13757	0.153068	0.10909	670.2339
SACOG	10	0.043766	0.181353	0.433635	1.057665	0.092178	0.102675	0.07187	547.4146
SACOG	15	0.042292	0.179761	0.318847	0.902554	0.062764	0.069191	0.046903	442.6021
SACOG	20	0.041391	0.17879	0.26065	0.792996	0.045159	0.049238	0.032158	370.0629
SACOG	25	0.040851	0.178207	0.215219	0.716116	0.035005	0.038013	0.024116	318.0578
SACOG	30	0.040534	0.177864	0.175719	0.654567	0.028597	0.030987	0.019199	282.0427
SACOG	35	0.040363	0.177679	0.144632	0.603316	0.02441	0.026399	0.016065	260.3131
SACOG	40	0.040298	0.177606	0.121797	0.560586	0.021718	0.023456	0.01413	249.5743
SACOG	45	0.040317	0.177624	0.107122	0.525347	0.020116	0.021713	0.01307	247.7087
SACOG	50	0.04041	0.177719	0.10056	0.49714	0.019394	0.02094	0.012721	253.1094
SACOG	55	0.040569	0.177887	0.102096	0.476063	0.019479	0.021057	0.013033	262.7912
SACOG	60	0.040799	0.178129	0.11166	0.463075	0.020444	0.022148	0.014064	274.1855
SACOG	65	0.041104	0.178452	0.129197	0.459937	0.022452	0.024386	0.015961	285.4758
SACOG	70	0.041186	0.17854	0.130491	0.46324	0.023903	0.026022	0.01738	287.6525

County	Daily VMT (EMFAC)	SACOG %
El Dorado (MC) Total	4493261	6.1%
Placer (MC) Total	3249497	15.7%
Placer (SV) Total	8355539	
Sacramento (SV) Total	43068139	58.3%
Sutter (SV) Total	4118166	8.5%
Yolo (SV) Total	8373316	11.3%
Yuba (SV) Total	2180040	

County	Speed	PM2.5	PM10	NOx	CO	HC	TOG	ROG	CO2
Sacramento	5	0.044987	0.178427	0.50101	1.256006	0.141969	0.156869	0.107753	656.6163
Sacramento	10	0.042623	0.175865	0.391566	1.075302	0.095822	0.105897	0.070889	536.1293
Sacramento	15	0.041163	0.174287	0.28795	0.921868	0.065867	0.072047	0.046353	434.1779
Sacramento	20	0.040273	0.173327	0.23509	0.812543	0.047864	0.051794	0.031845	362.8628
Sacramento	25	0.039741	0.172751	0.194343	0.734859	0.037367	0.040262	0.023879	311.7747
Sacramento	30	0.039427	0.172411	0.159045	0.672431	0.030687	0.032983	0.018999	276.5743
Sacramento	35	0.039254	0.172223	0.131263	0.620367	0.026282	0.028191	0.01589	255.4319
Sacramento	40	0.039182	0.172144	0.11084	0.576867	0.023413	0.025078	0.01397	245.155
Sacramento	45	0.039191	0.172151	0.097682	0.540875	0.021663	0.02319	0.012916	243.5807
Sacramento	50	0.039269	0.172231	0.091741	0.511901	0.020813	0.02229	0.012565	249.0261
Sacramento	55	0.039411	0.17238	0.093001	0.490004	0.020785	0.022291	0.012866	258.5473
Sacramento	60	0.039618	0.172598	0.101368	0.476121	0.021656	0.023281	0.013877	269.596
Sacramento	65	0.039895	0.172892	0.116776	0.471924	0.023582	0.025424	0.015741	280.3058
Sacramento	70	0.039974	0.172977	0.117924	0.474403	0.024955	0.026972	0.01713	282.4869
Yolo	5	0.052149	0.218808	0.978416	1.257639	0.135606	0.151176	0.104794	753.1503
Yolo	10	0.04994	0.216417	0.750193	1.058697	0.091695	0.102156	0.068895	616.3126
Yolo	15	0.048552	0.214919	0.539648	0.894082	0.063573	0.069925	0.04476	496.0907
Yolo	20	0.047708	0.21401	0.435006	0.783737	0.046858	0.05091	0.030721	416.4376
Yolo	25	0.04721	0.213472	0.348887	0.708193	0.037162	0.040163	0.023087	358.9142
Yolo	30	0.04694	0.213179	0.272505	0.647904	0.030972	0.033358	0.0184	317.7178
Yolo	35	0.04683	0.213057	0.211908	0.597728	0.026866	0.02885	0.015399	291.6062
Yolo	40	0.046843	0.213068	0.166962	0.555983	0.024171	0.025902	0.013543	277.4881
Yolo	45	0.04696	0.213187	0.137597	0.521703	0.022514	0.024105	0.012532	273.3908
Yolo	50	0.047169	0.213404	0.123779	0.494464	0.021702	0.023249	0.012214	277.8226
Yolo	55	0.047466	0.213715	0.125508	0.474361	0.021668	0.023258	0.012542	288.0285

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Yolo	60	0.047855	0.214123	0.142796	0.462261	0.022467	0.0242	0.013574	301.5744
Yolo	65	0.048342	0.214637	0.175631	0.459845	0.024259	0.026245	0.015448	316.7835
Yolo	70	0.048416	0.214716	0.176764	0.463724	0.025568	0.027775	0.016906	318.7843
ElDorado	5	0.043054	0.161904	0.26158	1.224941	0.132203	0.149018	0.115768	627.2669
ElDorado	10	0.040434	0.159073	0.217839	1.050952	0.086829	0.098337	0.076686	511.4906
ElDorado	15	0.038817	0.15733	0.174702	0.898266	0.057451	0.064556	0.050163	414.0124
ElDorado	20	0.037819	0.156255	0.151604	0.786615	0.039866	0.044366	0.034313	345.0092
ElDorado	25	0.037208	0.155598	0.136118	0.708616	0.029953	0.033276	0.025733	295.7863
ElDorado	30	0.03683	0.155191	0.12379	0.646603	0.023853	0.026504	0.020518	262.5534
ElDorado	35	0.036597	0.15494	0.114668	0.595193	0.019983	0.022205	0.017206	243.5053
ElDorado	40	0.036464	0.154796	0.108557	0.552498	0.017604	0.019558	0.015167	234.8472
ElDorado	45	0.036407	0.154734	0.10534	0.517455	0.016304	0.018107	0.014052	234.4214
ElDorado	50	0.036413	0.154739	0.104956	0.48964	0.015877	0.017624	0.013686	240.6964
ElDorado	55	0.036477	0.154806	0.107383	0.469254	0.016257	0.018036	0.014014	250.3316
ElDorado	60	0.036601	0.154938	0.112569	0.457436	0.017516	0.019427	0.015104	260.5481
ElDorado	65	0.036793	0.155143	0.120469	0.456328	0.019847	0.022004	0.017116	269.5179
ElDorado	70	0.036897	0.155254	0.122487	0.461074	0.021536	0.023873	0.018575	271.8597
Placer	5	0.048431	0.197254	0.662723	1.151624	0.122382	0.138313	0.106551	697.9273
Placer	10	0.046162	0.194798	0.51339	0.975475	0.080537	0.091362	0.070329	570.3349
Placer	15	0.044745	0.193268	0.373971	0.823202	0.053233	0.05977	0.045488	459.9003
Placer	20	0.043877	0.192333	0.303912	0.71783	0.037073	0.041155	0.030896	384.8048
Placer	25	0.043356	0.191771	0.247999	0.645875	0.02804	0.031042	0.023118	330.8818
Placer	30	0.043056	0.191447	0.198993	0.588589	0.022467	0.024853	0.018396	293.1855
Placer	35	0.042905	0.191282	0.160279	0.540898	0.018905	0.020892	0.015386	270.2102
Placer	40	0.042863	0.191234	0.131705	0.501179	0.016691	0.018428	0.013527	258.5272
Placer	45	0.042909	0.19128	0.113187	0.468509	0.01546	0.017056	0.012511	256.0867
Placer	50	0.043033	0.191408	0.104681	0.442499	0.015025	0.016571	0.012181	261.3912
Placer	55	0.043229	0.191614	0.106176	0.423276	0.015328	0.016906	0.012487	271.4024
Placer	60	0.043501	0.1919	0.117645	0.411753	0.016433	0.018138	0.013491	283.53
Placer	65	0.043855	0.192273	0.139036	0.40965	0.018507	0.020445	0.015331	296.0307
Placer	70	0.043936	0.192361	0.140277	0.413757	0.020049	0.02218	0.016726	298.2128
YubaSutter	5	0.044048	0.166325	0.379168	1.278108	0.141916	0.159673	0.123854	632.7434
YubaSutter	10	0.041333	0.163391	0.307453	1.091923	0.093166	0.105277	0.081936	516.3825
YubaSutter	15	0.039644	0.161571	0.237835	0.931013	0.061821	0.069346	0.05379	417.6197
YubaSutter	20	0.038604	0.160451	0.201707	0.814693	0.043081	0.047905	0.036996	348.3542
YubaSutter	25	0.037972	0.159771	0.1763	0.733257	0.032419	0.035995	0.027795	298.9642
YubaSutter	30	0.037587	0.159355	0.155232	0.668516	0.025829	0.028681	0.022167	265.3797
YubaSutter	35	0.037357	0.159108	0.139154	0.614954	0.02164	0.024028	0.018585	245.8425
YubaSutter	40	0.037238	0.158978	0.127868	0.570605	0.01906	0.021157	0.016376	236.6932
YubaSutter	45	0.037203	0.158939	0.121259	0.534364	0.017648	0.019581	0.015168	235.8352
YubaSutter	50	0.037239	0.158976	0.119266	0.505794	0.017181	0.019055	0.014773	241.7724
YubaSutter	55	0.037342	0.159084	0.121874	0.48512	0.017588	0.0195	0.015131	251.2821
YubaSutter	60	0.037512	0.159264	0.128972	0.473538	0.018945	0.021002	0.016313	261.6672
YubaSutter	65	0.037756	0.159523	0.140499	0.47332	0.021455	0.023778	0.018487	271.1423
YubaSutter	70	0.037856	0.15963	0.142581	0.478989	0.023285	0.025808	0.020075	273.3957

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Region	Speed	PM2.5	PM10	NOx	CO	HC	TOG	ROG	CO2
SACOG	5	0.043285	0.181855	0.537751	1.062546	0.112012	0.124316	0.086304	592.8252
SACOG	10	0.04194	0.180397	0.411793	0.904366	0.07589	0.084226	0.056838	484.0932
SACOG	15	0.0411	0.17949	0.295753	0.767956	0.052138	0.057108	0.036688	391.4573
SACOG	20	0.04059	0.178938	0.237639	0.67352	0.03794	0.040997	0.024879	327.5045
SACOG	25	0.040284	0.178608	0.190302	0.608807	0.029803	0.032032	0.01859	281.544
SACOG	30	0.040116	0.178425	0.148464	0.557153	0.024644	0.026405	0.014777	249.5998
SACOG	35	0.040041	0.178343	0.115189	0.514011	0.021231	0.022691	0.012351	230.1774
SACOG	40	0.040039	0.178338	0.09037	0.477897	0.018997	0.020267	0.010854	220.4932
SACOG	45	0.040095	0.178395	0.073949	0.447954	0.017622	0.018786	0.010035	218.6987
SACOG	50	0.040203	0.178508	0.065893	0.42378	0.016942	0.018066	0.009767	223.3407
SACOG	55	0.040361	0.178673	0.066196	0.405415	0.016896	0.018043	0.010011	231.8515
SACOG	60	0.040572	0.178894	0.074869	0.393612	0.017546	0.018788	0.010816	242.0407
SACOG	65	0.040838	0.179175	0.091902	0.389696	0.019014	0.020429	0.012296	252.3247
SACOG	70	0.040881	0.179221	0.092506	0.391648	0.020074	0.021636	0.013426	254.2225

County	Daily VMT (EMFAC)	SACOG %
El Dorado (MC) Total	4871959	5.9%
Placer (MC) Total	3649339	15.9%
Placer (SV) Total	9404458	
Sacramento (SV) Total	47620436	58.1%
Sutter (SV) Total	4496168	8.4%
Yolo (SV) Total	9538195	11.6%
Yuba (SV) Total	2352179	

County	Speed	PM2.5	PM10	NOx	CO	HC	TOG	ROG	CO2
Sacramento	5	0.042181	0.176377	0.4763	1.09388	0.118851	0.130999	0.086851	579.2368
Sacramento	10	0.040835	0.174918	0.365496	0.933604	0.081357	0.089585	0.057185	472.8738
Sacramento	15	0.040001	0.174016	0.263245	0.795632	0.056601	0.061517	0.03699	382.863
Sacramento	20	0.039494	0.173468	0.2118	0.699445	0.041711	0.044736	0.025129	320.193
Sacramento	25	0.03919	0.173139	0.170077	0.633062	0.033065	0.03527	0.018782	275.1873
Sacramento	30	0.039019	0.172953	0.133291	0.580054	0.027525	0.029265	0.014931	244.0692
Sacramento	35	0.038939	0.172865	0.104053	0.535812	0.023818	0.02526	0.012481	225.2842
Sacramento	40	0.038927	0.17285	0.082253	0.498781	0.021352	0.022606	0.010969	216.065
Sacramento	45	0.03897	0.172894	0.067829	0.468052	0.019791	0.020939	0.010141	214.5432
Sacramento	50	0.039062	0.17299	0.060746	0.443189	0.018958	0.020066	0.009867	219.2437
Sacramento	55	0.0392	0.173134	0.060994	0.424209	0.018786	0.019917	0.010108	227.6015
Sacramento	60	0.039387	0.17333	0.068578	0.411893	0.019345	0.020567	0.010913	237.4265
Sacramento	65	0.039625	0.173582	0.083487	0.40755	0.020749	0.022141	0.012398	247.1163
Sacramento	70	0.039668	0.173628	0.084065	0.409081	0.02174	0.023274	0.013524	249.0076
Yolo	5	0.049904	0.218136	1.0056	1.115866	0.115366	0.128209	0.085141	677.0805
Yolo	10	0.048618	0.216743	0.763345	0.936861	0.079107	0.087721	0.055922	554.1417
Yolo	15	0.047779	0.215839	0.54123	0.788671	0.055649	0.060755	0.035938	446.131
Yolo	20	0.047271	0.215292	0.431529	0.691443	0.041733	0.044911	0.024436	374.7689
Yolo	25	0.04698	0.214977	0.340714	0.626006	0.033685	0.036021	0.018318	323.1503
Yolo	30	0.046843	0.214827	0.25972	0.573795	0.028496	0.030346	0.014585	286.0714
Yolo	35	0.046821	0.214801	0.19508	0.530172	0.024993	0.026524	0.012193	262.3597
Yolo	40	0.046893	0.214874	0.146709	0.493718	0.022636	0.023966	0.010712	249.4146
Yolo	45	0.047048	0.215035	0.114568	0.463615	0.021125	0.022344	0.009906	245.5205
Yolo	50	0.04728	0.215276	0.098642	0.43948	0.020305	0.021489	0.009656	249.2924
Yolo	55	0.047585	0.215596	0.098938	0.421352	0.020118	0.021339	0.009925	258.3392

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Yolo	60	0.047967	0.215996	0.115479	0.409892	0.020609	0.021946	0.010759	270.6086
Yolo	65	0.04843	0.216482	0.148265	0.406377	0.021899	0.023439	0.012267	284.635
Yolo	70	0.04847	0.216525	0.1488	0.408859	0.022845	0.024576	0.013479	286.3749
ElDorado	5	0.038998	0.156091	0.18613	0.960827	0.093978	0.105563	0.082986	545.3805
ElDorado	10	0.037576	0.154548	0.148405	0.828119	0.061606	0.069535	0.05483	444.296
ElDorado	15	0.036715	0.153617	0.11316	0.708385	0.040422	0.045177	0.035463	360.3944
ElDorado	20	0.036188	0.153047	0.094451	0.620973	0.027801	0.030696	0.023953	300.298
ElDorado	25	0.035862	0.152695	0.080076	0.560405	0.020799	0.0229	0.017851	257.3274
ElDorado	30	0.035663	0.15248	0.067896	0.511938	0.016525	0.018186	0.01418	228.3061
ElDorado	35	0.035544	0.152351	0.05842	0.471329	0.013822	0.015204	0.011857	211.5216
ElDorado	40	0.035482	0.152283	0.05153	0.437188	0.012165	0.013372	0.010429	203.9656
ElDorado	45	0.035461	0.15226	0.047156	0.408724	0.011262	0.012369	0.009648	203.6667
ElDorado	50	0.035475	0.152274	0.045262	0.385586	0.010966	0.012033	0.009387	209.1034
ElDorado	55	0.03552	0.152322	0.045833	0.367859	0.011233	0.012313	0.009606	217.5083
ElDorado	60	0.035601	0.152408	0.048887	0.35629	0.012117	0.013273	0.010358	226.5244
ElDorado	65	0.035722	0.152536	0.054421	0.352278	0.013754	0.015058	0.011756	234.4638
ElDorado	70	0.035771	0.15259	0.05521	0.354014	0.014945	0.016361	0.012775	236.5483
Placer	5	0.045945	0.196134	0.671548	0.997466	0.100608	0.113771	0.088074	624.4253
Placer	10	0.044636	0.194716	0.512089	0.842031	0.066338	0.075278	0.058078	510.1802
Placer	15	0.043805	0.193818	0.365406	0.706291	0.043697	0.048975	0.037192	411.4326
Placer	20	0.043297	0.19327	0.292412	0.614116	0.030366	0.033574	0.025014	344.4374
Placer	25	0.042996	0.192945	0.232617	0.552423	0.023014	0.02535	0.018647	296.224
Placer	30	0.042836	0.192772	0.179583	0.50339	0.018493	0.020341	0.01481	262.3851
Placer	35	0.042777	0.192706	0.137339	0.46244	0.015597	0.017129	0.012365	241.5661
Placer	40	0.042795	0.192723	0.105779	0.428215	0.013792	0.015124	0.010857	230.8832
Placer	45	0.042879	0.192809	0.08485	0.399942	0.012781	0.014	0.010032	228.5243
Placer	50	0.043022	0.192958	0.074523	0.377284	0.012414	0.013592	0.009766	233.1032
Placer	55	0.043222	0.193167	0.074793	0.360324	0.012645	0.013847	0.010015	242.0032
Placer	60	0.043481	0.193438	0.085682	0.349793	0.013528	0.014829	0.010835	253.0079
Placer	65	0.043803	0.193778	0.107182	0.347046	0.015196	0.016679	0.012334	264.5734
Placer	70	0.043845	0.193823	0.107784	0.350118	0.016454	0.018097	0.013496	266.5
YubaSutter	5	0.039722	0.160529	0.308564	0.96681	0.094353	0.105868	0.083108	543.4838
YubaSutter	10	0.038285	0.158971	0.240294	0.828861	0.061766	0.069599	0.054765	443.134
YubaSutter	15	0.037407	0.158022	0.177037	0.706574	0.040634	0.045363	0.035538	359.0925
YubaSutter	20	0.036872	0.157443	0.144732	0.618897	0.028088	0.031019	0.024162	299.5949
YubaSutter	25	0.036545	0.157091	0.119201	0.558099	0.021057	0.023197	0.018047	257.0436
YubaSutter	30	0.036354	0.156883	0.097015	0.509378	0.016742	0.018437	0.014341	228.0392
YubaSutter	35	0.03625	0.15677	0.079519	0.468569	0.014008	0.015417	0.011991	210.9441
YubaSutter	40	0.03621	0.156726	0.066605	0.434308	0.012329	0.013559	0.010545	202.9581
YubaSutter	45	0.03622	0.156735	0.058209	0.405816	0.011414	0.012543	0.009756	202.2025
YubaSutter	50	0.036273	0.156789	0.054301	0.382749	0.011117	0.012206	0.009498	207.2039
YubaSutter	55	0.036365	0.156886	0.05487	0.365195	0.011392	0.012499	0.009733	215.3662
YubaSutter	60	0.0365	0.157028	0.059923	0.353892	0.012292	0.013483	0.01051	224.4703
YubaSutter	65	0.036682	0.157221	0.069449	0.350235	0.013955	0.015304	0.011943	232.8996
YubaSutter	70	0.036729	0.157272	0.070208	0.35239	0.01518	0.016655	0.013005	234.8744

Appendix E Interagency Consultation Documentation

MTIP ID#*:* YOL19328

Project Description *(clearly describe project):*

The City of West Sacramento, in cooperation with the City of Sacramento and the California Department of Transportation (Caltrans), proposes to construct a new bridge over the Sacramento River south of the Pioneer Bridge (U.S. 50) to provide local interconnectivity across the river and between neighborhoods. The project would be located over the Sacramento River between the cities of West Sacramento and Sacramento, approximately 1,000 feet south of the existing US 50 (see Figure 1 appended to this form). The total length of the project is approximately one mile from Jefferson Boulevard in West Sacramento to 5th Street and Broadway intersection in Sacramento. Two alignments are under consideration for the proposed bridge: Alternative B and Alternative C (see Figure 2).

Alternative B would realign 15th Street to connect to Jefferson Boulevard in West Sacramento and connect to Broadway at 5th Street in Sacramento. Under Alternative B, roadway modifications would include a redesigned intersection connection for the bridge at 15th Street and new turn pockets on South River Road to facilitate traffic turning movements at the bridge connection in West Sacramento.

In West Sacramento, Alternative B would require the following modifications to the approved mobility network.

- Constructing a northbound right-turn pocket on South River Road at 15th Street.
- Constructing a southbound right-turn pocket on South River Road at 15th Street.

In Sacramento, Alternative B requires the following modifications to the existing (or planned opening day) conditions.

- Reconstructing 350 feet of Marina View Drive to provide for a new connection to Broadway.
- Modifying property access along Broadway west of Interstate-5.

Alternative C would connect to South River Road at a new intersection between 15th Street and Circle Street on the West Sacramento side and would connect to Broadway on the Sacramento side. Alternative C (a modified Alignment C from the *Broadway Bridge Feasibility Study*) would connect as a "T" intersection to South River Road in West Sacramento and connect to Broadway at 5th Street in Sacramento.

In West Sacramento, modifications to the approved mobility network would be necessary for Alternative C. These modifications include the following.

- Creating a new "T" intersection matching the new more eastern alignment of South River Road between 15th Street and Circle Street.
- Constructing a northbound right-turn pocket on the existing alignment of South River Road at Broadway.
- Constructing a southbound left-turn pocket on the existing alignment of South River Road at Broadway.

In Sacramento, Alternative C requires the following modifications to existing conditions.

- Reconstructing 350 feet of Marina View Drive to provide for a new connection to Broadway.
- Modifying property access along Broadway west of Interstate-5.

Type of Project: New regionally significant street (new bridge)	**County:** Sacramento County and Yolo County
Narrative Location/Route & Post Miles: Jefferson Boulevard, West Sacramento to Broadway/5th Street Intersection, Sacramento (see Figure 1 and 2) **Federal Project No.** TGR2DGL 5447(043)	
Lead Agency: City of West Sacramento	
Contact Person: Jason McCoy (City of West Sacramento)	**Email:** mccoyj@cityofwestsacramento.org
Phone#: (916) 617-4832	
Hot Spot Pollutant of Concern *(check one or both)* **PM2.5** ☒ **PM10** ☐	
Is this a 23 USC 326 or a 23 USC 327 federal process under MAP-21 (formerly 6004 and 6005)? **23 USC 326** ☐ **23 USC 327** ☒	
Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)* **Categorical Exclusion (NEPA)** ☐ **EA or Draft EIS** ☒ **FONSI or Final EIS** ☐	
Scheduled Date of Federal Action: 5/2021	

Current Programming Dates

	PE/Environmental	ENG	ROW	CON	OPEN
Start	2018	2021	2023	2026	2030
End	2021	2023	2026	2029	-

Project Purpose and Need

The intended purpose of the project is to:

- Increase the number of river crossings that meet current design standards and encourage travel by walking, bicycling, low energy vehicles, and public transit.
- Increase the number of persons that can safely, efficiently, and reliably cross the river.
- Increase options for emergency response teams to cross the river.
- Increase options for evacuations.
- Improve the connectivity to, and accessibility of, business, recreational areas, and new or redevelopment opportunity sites located in the urban core of Sacramento and West Sacramento without affecting the use of Miller Regional Park or the Sacramento Marina and without precluding, or negatively restricting, redevelopment options in the Pioneer Bluff or West Broadway areas of the cities.
- Reduce trip length distances across the river between major origins and destination.
- Reduce the growth in transportation-related energy use, air pollution emissions, and greenhouse gas (GHG) emissions.
- Reduce the growth in vehicle traffic on local neighborhood streets, especially cut-through traffic.
- Alleviate growth of local trips on the State Highway System.
- Provide a project design that does not preclude the future addition of light-rail, streetcar, or other mass transit mode, as a separate stand-alone project.

The project is needed for the following reasons:

- Limited connectivity across the river creates longer trip lengths, which discourage walking and bicycling.
- Longer trip lengths create dependence on automobile use that generates negative public health effects and adverse environmental effects such as emissions of air pollutants and GHGs.
- Limited connectivity across the river creates concentrated vehicle traffic flows on existing bridges and their connecting approach roadways, resulting in undesirable travel delays for vehicular traffic, including public bus, transit during weekday peak periods and special events.
- Limited connectivity across the river reduces options for emergency response teams, thereby increasing response times and limiting alternatives for evacuations.
- Limited connectivity across the river is a barrier to economic activity, social exchanges, recreational opportunity, and access to jobs within the urban core of Sacramento and West Sacramento.
- Limited connectivity to the riverfront reduces the potential to achieve planned urban development and redevelopment of opportunity sites identified in the adopted plans of Sacramento and West Sacramento.
- Limited connectivity reduces opportunity to use the riverfront for enjoyment and recreation.
- Peak AM/PM congestion is caused by local intercity commuters using the State Highway System as a result of having few local river crossing options.

Surrounding Land Use/Traffic Generators:

The land use patterns surrounding the project limits in West Sacramento and Sacramento comprise a mix of residential, commercial, mixed-use, public open space, and light industrial developments. The light industrial uses in West Sacramento are predominantly located along the Sacramento River east of Jefferson Blvd, south of Pioneer Bridge and north of the Sacramento River Deep Water Ship Channel. In Sacramento, the Chevron Terminal natural gas processing facility is located directly south of Pioneer Bridge on both the northern and southern sides of Broadway, and other small distribution centers and light industrial uses are situated south of Broadway along 5th Street.

Transportation analyses prepared for the project determined that the existing proportion of traffic in the project area is composed of only approximately 3 percent heavy trucks. The City of West Sacramento is prioritizing the deindustrialization of the western bank of the Sacramento River in the project area, as laid out in the Pioneer Bluff Transition Plan (December 2014), which is the first phase of the Pioneer Bluff and Stone Lock Reuse Master Plan. Additionally, the West Broadway Specific Plan will guide the redevelopment of the eastern bank of the Sacramento River, and the Mill at Broadway development project is converting the largely industrial area in Sacramento east of I-5, west of 5th Street, and south of Broadway into an urban mixed-use community. The deindustrialization of Pioneer Bluff in West Sacramento and implementation of the Mill and other developments under the West Broadway Specific Plan in Sacramento would likely decrease the fraction of traffic in the project area that is heavy diesel-fueled trucks in future years.

Figure 1 (attached) depicts the locations of sensitive land uses within approximately 500 feet of the project limits in West Sacramento and Sacramento. The locations of sensitive receptors generally include existing and planned residential and public park spaces. **Table 1** on the ensuing page provides an overview of the existing and future sensitive receptor locations and the approximate distance to the project limits.

Table 1. Existing and Planned Sensitive Receptors within 500 Feet of Project Limits

Receptor	Description	Distance Between Receptor and Project (ft)
City of West Sacramento		
3rd Street Residences	Between North B Street and Tower Bridge Gateway	25-500
River Walk Park	Public park adjacent to Sacramento River	50-500
5th & Tower/Mill Residences	Southwest and northeast corners of intersection	50-500
Mill St/Central St Residences	Northeast corner of intersection	50-500
3rd/Tower Bridge GW Res.	Future residences on northeast intersection corner	50-500
Riverfront St Residences	Between Bridge St and Mill St	50-500
Virginia Ave Residences	From 11th St Corner to Alameda Blvd Corner	25-500
Vermont Ave Residences	Corner of Vermont Ave and Jefferson Blvd	75
City of Sacramento		
Miller Park	Public Park adjacent to Sacramento River	50-500
The Mill at Broadway	Residences north of Smith School Park along 3rd St	50-500
O'Neil Park	Public Park on Broadway at 6th St	400

Opening Year: Build and No-Build LOS – **AM 2-Hr, % and # trucks, truck AM 2-Hr of proposed facility**: **Open to Traffic 2030**

The following tables present project area roadway segment traffic data for Build Alternative B (**Table 2**), Build Alternative C (**Table 3**), and the No Build Alternative (**Table 4**) in the proposed project opening year of 2030. Implementation of the Build Alternatives would not increase the percentage of trucks within the project study area and AADT would not exceed 50,000 vehicles on any roadway segment. Under Build Alternative B, the change in truck AADT would range from a decrease of 213 on Jefferson Blvd north of 15th Street to an increase of 195 on Riverside Blvd south of Broadway. Under Build Alternative C, the change in truck AADT would range from a decrease of 198 on Jefferson Blvd north of 15th Street to an increase of 192 on Riverside Blvd south of Broadway.

Table 2. Build Alternative B Opening Year Roadway Segment Traffic Data

Roadway	Segment	Jurisdiction	LOS	AADT	AM Peak 2-Hour Volume	Truck AADT	AM Peak 2-Hour Truck Vol	AM Peak 2-Hour Truck %
Jefferson Blvd	N of 15th Street	W. Sacramento	F	33,400	5,420	1002	163	3%
15th St	W. of Jefferson	W. Sacramento	C	4,600	980	138	30	3%
Alameda Blvd	W of Jefferson	W. Sacramento	C	1,400	320	42	10	3%
Jefferson Blvd	S. of Alameda	W. Sacramento	F	40,600	6,700	1218	201	3%
S. River Rd	S of 15th/Alameda	W. Sacramento	F	19,300	3,260	579	98	3%
Jefferson Blvd	S. of Locks Dr	W. Sacramento	F	40,200	7,000	1206	210	3%
3rd St	N. of W St	Sacramento	A	2,500	540	75	17	3%
5th St	N. of W St	Sacramento	D	12,100	1,920	363	58	3%
5th St	S. of Broadway	Sacramento	D	7,100	1,360	213	41	3%
Riverside Blvd	S. of Broadway	Sacramento	E	12,600	2,120	378	64	3%
Broadway Blvd	W. of 5th St	Sacramento	-	15,600	2,520	468	76	3%
Broadway Blvd	E. of Riverside	Sacramento	-	14,200	2,060	426	62	3%
Broadway Bridge	Jefferson to 5th	W. Sac/Sac	-	25,700	4,040	771	122	3%

Table 3. Build Alternative C Opening Year Roadway Segment Traffic Data

Roadway	Segment	Jurisdiction	LOS	AADT	AM Peak 2-Hour Volume	Truck AADT	AM Peak 2-Hour Truck Vol	AM Peak 2-Hour Truck %
Jefferson Blvd	N of 15th Street	W. Sacramento	F	33,900	5,480	1017	165	3%
15th St	W. of Jefferson	W. Sacramento	C	4,400	960	132	29	3%
Alameda Blvd	W of Jefferson	W. Sacramento	C	1,400	280	42	9	3%
Jefferson Blvd	S. of Alameda	W. Sacramento	F	40,900	6,600	1227	198	3%
S. River Rd	S of 15th/Alameda	W. Sacramento	F	19,200	3,820	576	115	3%
Jefferson Blvd	S. of Locks Dr	W. Sacramento	F	40,300	6,960	1209	209	3%
3rd St	N. of W St	Sacramento	A	2,400	520	72	16	3%
5th St	N. of W St	Sacramento	D	12,100	1,920	363	58	3%
5th St	S. of Broadway	Sacramento	D	7,100	1,300	213	39	3%
Riverside Blvd	S. of Broadway	Sacramento	E	12,600	2,120	378	64	3%
Broadway Blvd	W. of 5th St	Sacramento	-	15,500	2,480	465	75	3%
Broadway Blvd	E. of Riverside	Sacramento	-	14,200	2,000	426	60	3%
Broadway Bridge	Jefferson to 5th	W. Sac/Sac	-	25,500	4,100	765	123	3%

Table 4. No Build Opening Year Roadway Segment Traffic Data

Roadway	Segment	Jurisdiction	LOS	AADT	AM Peak 2-Hour Volume	Truck AADT	AM Peak 2-Hour Truck Vol	AM Peak 2-Hour Truck %
Jefferson Blvd	N of 15th Street	W. Sacramento	F	40,500	6,340	1,215	191	3%
15th St	W. of Jefferson	W. Sacramento	C	3,600	780	108	24	3%
Alameda Blvd	W of Jefferson	W. Sacramento	C	1,200	320	36	10	3%
Jefferson Blvd	S. of Alameda	W. Sacramento	F	39,100	6,340	1,173	191	3%
S. River Rd	S of 15th/Alameda	W. Sacramento	F	17,200	2,840	516	86	3%
Jefferson Blvd	S. of Locks Dr	W. Sacramento	F	38,900	6,800	1,167	204	3%
3rd St	N. of W St	Sacramento	A	2,000	500	60	15	3%
5th St	N. of W St	Sacramento	D	11,800	1,940	354	59	3%
5th St	S. of Broadway	Sacramento	D	7,000	1,300	210	39	3%
Riverside Blvd	S. of Broadway	Sacramento	E	12,200	2,120	366	64	3%
Broadway Blvd	W. of 5th St	Sacramento	-	9,100	1,520	273	46	3%
Broadway Blvd	E. of Riverside	Sacramento	-	12,800	1,880	384	57	3%

Implementation of the proposed project would not increase the proportion of traffic in the project area that is diesel-fueled trucks. The proposed project is a new bridge between West Sacramento and Sacramento that would provide enhanced local connectivity and predominantly serve local trips. The areas of West Sacramento and Sacramento in the vicinity of the project are not characterized by large industrial developments that would generate substantial diesel truck traffic. Furthermore, West Sacramento is in the process of implementing the Pioneer Bluff Transition Plan, and the Pioneer Bluff De-Industrialization Implementation is ongoing with an expected 7-10 year completion horizon, which would potentially result in a decrease in local truck traffic in the opening year of 2030. Regional freight traffic is primarily routed along U.S. 50 and other state highway system roadways in the area.

MTP Horizon Year/Design Year: Build and No-Build LOS, AADT, AM **2-Hr, Truck AADT, and % and # trucks for AM 2-Hr of proposed facility: Horizon Year 2040**

The following tables present project area roadway segment traffic data for Build Alternative B (**Table 5**), Build Alternative C (**Table 6**), and the No Build Alternative (**Table 7**) in the proposed project horizon year of 2040. Implementation of the Build Alternatives would not increase the percentage of trucks within the project study area and AADT would not exceed 50,000 vehicles on any roadway segment. Under Build Alternative B, the change in truck AADT would range from a decrease of 228 on Jefferson Blvd north of 15th Street to an increase of 180 on Riverside Blvd south of Broadway. Under Build Alternative C, the change in truck AADT would range from a decrease of 216 on Jefferson Blvd north of 15th Street to an increase of 174 on Riverside Blvd south of Broadway.

Table 5. Build Alternative B Horizon Year Roadway Segment Traffic Data

Roadway	Segment	Jurisdiction	LOS	AADT	AM Peak 2-Hour Volume	Truck AADT	AM Peak 2-Hour Truck Vol	AM Peak 2-Hour Truck %
Jefferson Blvd	N of 15th Street	W. Sacramento	F	35,300	5,880	1,059	177	3%
15th St	W. of Jefferson	W. Sacramento	C	4,700	1,030	141	31	3%
Alameda Blvd	W of Jefferson	W. Sacramento	C	1,400	560	42	17	3%
Jefferson Blvd	S. of Alameda	W. Sacramento	F	41,700	6,720	1,251	202	3%
S. River Rd	S of 15th/Alameda	W. Sacramento	C	22,600	4,620	678	139	3%
Jefferson Blvd	S. of Locks Dr	W. Sacramento	F	41,400	6,960	1,242	209	3%
3rd St	N. of W St	Sacramento	A	2,800	720	84	22	3%
5th St	N. of W St	Sacramento	E	13,600	2,260	408	68	3%
5th St	S. of Broadway	Sacramento	D	7,400	1,560	222	47	3%
Riverside Blvd	S. of Broadway	Sacramento	E	13,300	2,120	399	64	3%
Broadway Blvd	W. of 5th St	Sacramento	-	16,400	2,700	492	81	3%
Broadway Blvd	E. of Riverside	Sacramento	-	14,600	2,360	438	71	3%
Broadway Bridge	Jefferson to 5th	W. Sac/Sac	-	28,100	4,340	843	131	3%

Table 6. Build Alternative C Horizon Year Roadway Segment Traffic Data

Roadway	Segment	Jurisdiction	LOS	AADT	AM Peak 2-Hour Volume	Truck AADT	AM Peak 2-Hour Truck Vol	AM Peak 2-Hour Truck %
Jefferson Blvd	N of 15th Street	W. Sacramento	F	35,700	5,920	1,071	178	3%
15th St	W. of Jefferson	W. Sacramento	C	4,600	980	138	30	3%
Alameda Blvd	W of Jefferson	W. Sacramento	C	1,400	560	42	17	3%
Jefferson Blvd	S. of Alameda	W. Sacramento	F	42,000	6,540	1,260	197	3%
S. River Rd	S of 15th/Alameda	W. Sacramento	C	23,000	5,240	690	158	3%
Jefferson Blvd	S. of Locks Dr	W. Sacramento	F	41,600	7,000	1,248	210	3%
3rd St	N. of W St	Sacramento	A	2,700	660	81	20	3%
5th St	N. of W St	Sacramento	E	13,500	2,100	405	63	3%
5th St	S. of Broadway	Sacramento	D	7,300	1,420	219	43	3%
Riverside Blvd	S. of Broadway	Sacramento	E	13,300	2,120	399	64	3%
Broadway Blvd	W. of 5th St	Sacramento	-	16,200	2,700	486	81	3%
Broadway Blvd	E. of Riverside	Sacramento	-	14,600	2,180	438	66	3%
Broadway Bridge	Jefferson to 5th St	W. Sac/Sac	-	28,800	4,420	864	133	3%

Table 7. No Build Horizon Year Roadway Segment Traffic Data

Roadway	Segment	Jurisdiction	LOS	AADT	AM Peak 2-Hour Volume	Truck AADT	AM Peak 2-Hour Truck Vol	AM Peak 2-Hour Truck %
Jefferson Blvd	N of 15th Street	W. Sacramento	F	42,900	6,720	1,287	202	3%
15th St	W. of Jefferson	W. Sacramento	C	4,000	880	120	27	3%
Alameda Blvd	W of Jefferson	W. Sacramento	C	1,200	580	36	18	3%
Jefferson Blvd	S. of Alameda	W. Sacramento	F	40,200	6,420	1,206	193	3%
S. River Rd	S of 15th/Alameda	W. Sacramento	B	19,900	4,140	597	125	3%
Jefferson Blvd	S. of Locks Dr	W. Sacramento	F	39,600	6,720	1,188	202	3%
3rd St	N. of W St	Sacramento	A	2,300	580	69	18	3%
5th St	N. of W St	Sacramento	D	13,200	2,260	396	68	3%
5th St	S. of Broadway	Sacramento	D	7,400	1,440	222	44	3%
Riverside Blvd	S. of Broadway	Sacramento	E	12,900	2,120	387	64	3%
Broadway Blvd	W. of 5th St	Sacramento	-	10,400	2,300	312	69	3%
Broadway Blvd	E. of Riverside	Sacramento	-	13,500	1,960	405	59	3%

Implementation of the proposed project would not increase the proportion of traffic in the project area that is diesel-fueled trucks. The proposed project would provide enhanced local connectivity and predominantly serve local trips. The areas of West Sacramento and Sacramento in the vicinity of the project are not characterized by large industrial developments that would generate substantial diesel truck traffic. Furthermore, West Sacramento is in the process of implementing the Pioneer Bluff Transition Plan, and the Pioneer Bluff De-Industrialization Implementation is ongoing with an expected 7-10 year completion horizon, which would potentially result in a decrease in local truck traffic by the horizon year of 2040. Regional freight traffic is primarily routed along U.S. 50 and other state highway system roadways in the area. Therefore, the proposed project would fulfill the designated purposes and needs outlined above.

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities):*
The proposed project would provide enhanced local connectivity across the Sacramento River, reducing AADT and peak hour traffic along Jefferson Blvd north of 15th Street in West Sacramento. AADT and peak hour volumes would increase along South River Road south of 15th Street, 15th Street west of Jefferson Blvd, and Jefferson Blvd south of Alameda Blvd due to increased connectivity across the Sacramento River and the shift of some traffic from freeway facilities to local roadways, consistent with the project purpose. In Sacramento, AADT and peak hour volumes would increase along Broadway and to a lesser degree along 3rd Street and 5th Street. However, the roadway segments and intersections within the project study area would not accommodate high traffic volumes even in the horizon year of 2040. Traffic from the bridge is expected to gradually disperse onto the well-connected street grid that serves the area. Maximum AADT in the project study area would not exceed 43,000 vehicles under either Build Alternative B or Build Alternative C on any roadway segment analyzed.

Comments/Explanations/Details *(attach additional sheets as necessary):*
The proposed project is not a Project of Air Quality Concern (POAQC) because the project does not meet the following criteria (underlined text indicates answers to 40 CFR 93.123(b)(1) criteria for Projects of Air Quality Concern (POAQC)):

1. New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.
   The proposed project is not located on the State highway system and would not add a significant number of diesel vehicles to the project area. The proposed project would provide enhanced connectivity across the Sacramento River and would not significantly increase diesel vehicle travel in the vicinity of the project or on the broader regional transportation network. The land use patterns in the vicinity of the project do not generate substantial diesel truck traffic, and future planned developments in the area are non-industrial commercial and residential designations.

2. 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.
   Implementation of the proposed project would not introduce a significant number of diesel vehicles to intersections within or near the project area. Existing heavy truck percentage is low (3 percent) in the project area, and ongoing deindustrialization of Pioneer Bluff in West Sacramento may reduce heavy truck traffic fractions in the Opening Year and Horizon Year.

3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
   The proposed project does not comprise a new bus or rail terminal or transfer point component. Therefore, the proposed project would not introduce a significant number of diesel vehicles congregating at a single location through one of these facilities.

4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
   The proposed project would not expand a bus or rail terminal or transfer point, nor would it significantly increase the number of diesel vehicles congregating at one of these facilities within the project area.

5. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$- or PM_{10}-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.
   The proposed project is not within or affecting sites of violation or possible violation for $PM_{2.5}$ or PM_{10} identified in the State Implementation Plan in Yolo or Sacramento Counties. Sacramento County was designated attainment (maintenance) of the federal PM_{10} standard in September 2013. Yolo and Sacramento Counties are both designated nonattainment (moderate) of the federal $PM_{2.5}$ standard, but no sites of violation are identified in the vicinity of the project area. The proposed project would not exacerbate air quality violations related to PM_{10} or $PM_{2.5}$.

References

City of Sacramento, *West Broadway Specific Plan – Public Review Draft*, December 2019.

City of West Sacramento, *Pioneer Bluff Transition Plan*, December 2014.

Fehr & Peers, *Broadway Bridge PA/ED Transportation Report*, April 2020. Draft.

Sacramento Area Council of Governments, *2020 Metropolitan Transportation Plan/Sustainable Communities Strategy*, Adopted November 2019.

Figure 1. Project Limits and Nearby Sensitive Receptors

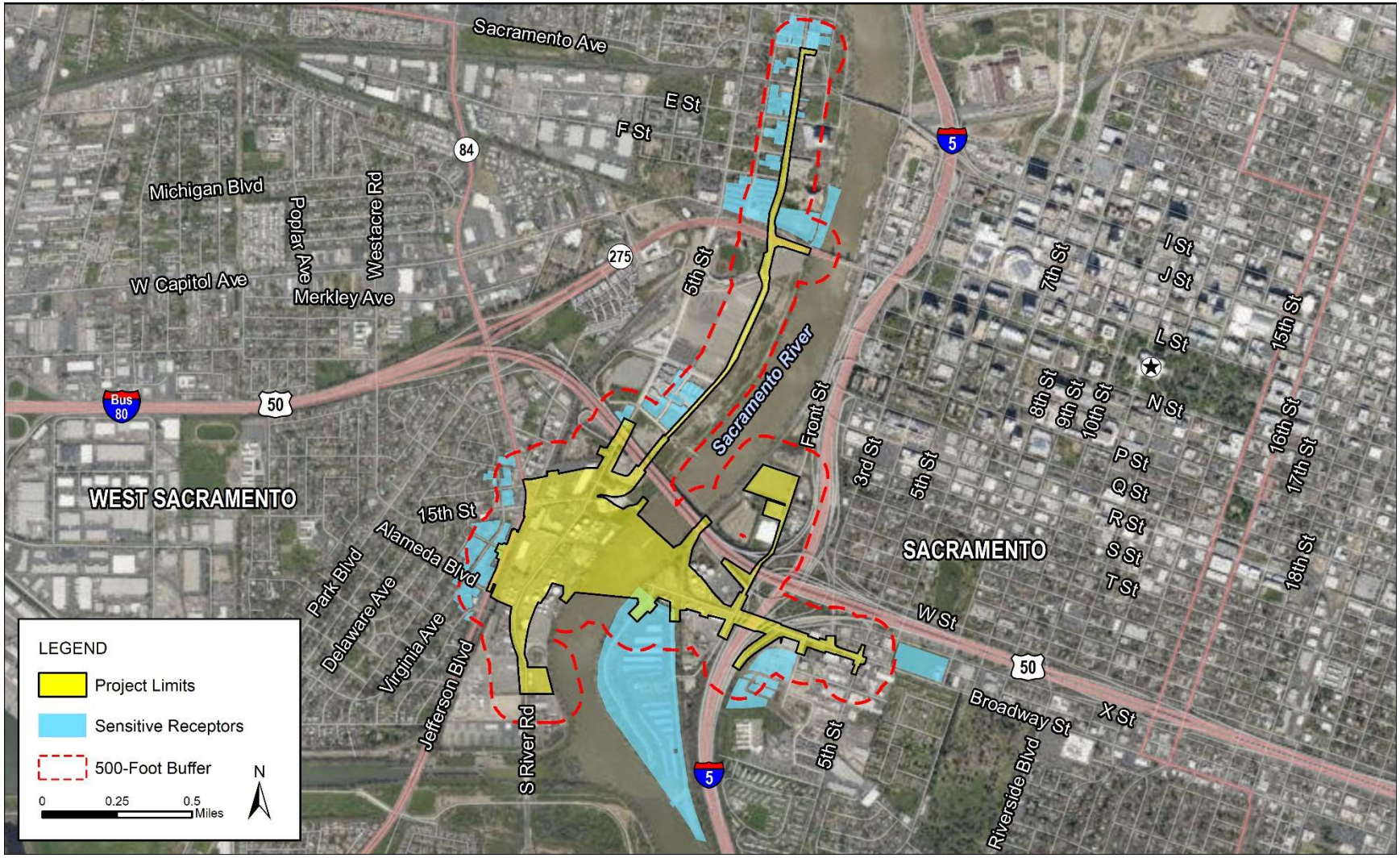

Figure 2. Project Alternatives

Anders Sutherland

From: Shengyi Gao <SGao@sacog.org>
Sent: Thursday, November 19, 2020 4:54 PM
To: Anders Sutherland
Subject: FW: POAQC: the City of West Sacramento Broadway Bridge Project (YOL19328), due 12/2

From: Shengyi Gao
Sent: Thursday, November 19, 2020 4:52 PM
To: 'Vaughn, Joseph (FHWA)' <Joseph.Vaughn@dot.gov>; Alexander Fong <alexander.fong@dot.ca.gov>; Johnson, Antonio (FHWA) <antonio.johnson@dot.gov>; Dave Johnston <dave.johnston@edcgov.us>; David Yang <DYang@airquality.org>; Douglas Coleman <douglas.coleman@dot.ca.gov>; Heather Phillips <Heather.Phillips@arb.ca.gov>; Janice Lam Snyder <JLam@airquality.org>; Jerry Barton <jbarton@edctc.org>; John Ungvarsky <Ungvarsky.John@epa.gov>; Jose Luis Caceres <JCaceres@sacog.org>; Karina O'Connor <oconnor.karina@epa.gov>; Kathleen Hanley <khanley@pctpa.net>; Lucas Sanchez <lucas.sanchez@dot.ca.gov>; Mark Loutzenhiser <mloutzenhiser@airquality.org>; Matt Jones <mjones@ysaqmd.org>; Paul Philley <pphilley@airquality.org>; Renee DeVere-Oki <RDeVere-Oki@sacog.org>; Rodney Tavitas <rodney.tavitas@dot.ca.gov>; Shalanda Christian <shalanda_christian@dot.ca.gov>; Sondra Spaethe <sspaethe@fraqmd.org>; Wright Molly <mwright@airquality.org>; Youngil Cho <Youngil.Cho@dot.ca.gov>; Yu-Shuo Chang <YChang@placer.ca.gov>
Cc: McCoy, Jason <mccoyj@cityofwestsacramento.org>
Subject: RE: POAQC: the City of West Sacramento Broadway Bridge Project (YOL19328), due 12/2

Hi all,

The Project Level Conformity Group has determined that the City of West Sacramento Broadway Bridge Project (YOL19328) is NOT a Project of Air Quality Concern (POAQC).

EPA concurred on 11/17/2020 and FHWA/Caltrans concurred on 11/19/2020.

Thanks to you all!

Shengyi Gao
Sacramento Area Council of Governments
916.340.6239

From: Vaughn, Joseph (FHWA) <Joseph.Vaughn@dot.gov>
Sent: Thursday, November 19, 2020 1:09 PM
To: Shengyi Gao <SGao@sacog.org>; Alexander Fong <alexander.fong@dot.ca.gov>; Johnson, Antonio (FHWA) <antonio.johnson@dot.gov>; Dave Johnston <dave.johnston@edcgov.us>; David Yang <DYang@airquality.org>; Douglas

Coleman <douglas.coleman@dot.ca.gov>; Heather Phillips <Heather.Phillips@arb.ca.gov>; Janice Lam Snyder <JLam@airquality.org>; Jerry Barton <jbarton@edctc.org>; John Ungvarsky <Ungvarsky.John@epa.gov>; Jose Luis Caceres <JCaceres@sacog.org>; Karina O'Connor <oconnor.karina@epa.gov>; Kathleen Hanley <khanley@pctpa.net>; Lucas Sanchez <lucas.sanchez@dot.ca.gov>; Mark Loutzenhiser <mloutzenhiser@airquality.org>; Matt Jones <mjones@ysaqmd.org>; Paul Philley <pphilley@airquality.org>; Renee DeVere-Oki <RDeVere-Oki@sacog.org>; Rodney Tavitas <rodney.tavitas@dot.ca.gov>; Shalanda Christian <shalanda_christian@dot.ca.gov>; Sondra Spaethe <sspaethe@fraqmd.org>; Wright Molly <mwright@airquality.org>; Youngil Cho <Youngil.Cho@dot.ca.gov>; Yu-Shuo Chang <YChang@placer.ca.gov>
Cc: McCoy, Jason <mccoyj@cityofwestsacramento.org>
Subject: RE: POAQC: the City of West Sacramento Broadway Bridge Project (YOL19328), due 12/2

FHWA concurs that this is not a project of air quality concern. Thanks

Joseph Vaughn
Environmental Specialist
FHWA, CA Division
(916) 498-5346

From: Shengyi Gao [mailto:SGao@sacog.org]
Sent: Monday, November 16, 2020 8:27 AM
To: Alexander Fong <alexander.fong@dot.ca.gov>; Johnson, Antonio (FHWA) <antonio.johnson@dot.gov>; Dave Johnston <dave.johnston@edcgov.us>; David Yang <DYang@airquality.org>; Douglas Coleman <douglas.coleman@dot.ca.gov>; Heather Phillips <Heather.Phillips@arb.ca.gov>; Janice Lam Snyder <JLam@airquality.org>; Jerry Barton <jbarton@edctc.org>; John Ungvarsky <Ungvarsky.John@epa.gov>; Jose Luis Caceres <JCaceres@sacog.org>; Vaughn, Joseph (FHWA) <Joseph.Vaughn@dot.gov>; Karina O'Connor <oconnor.karina@epa.gov>; Kathleen Hanley <khanley@pctpa.net>; Lucas Sanchez <lucas.sanchez@dot.ca.gov>; Mark Loutzenhiser <mloutzenhiser@airquality.org>; Matt Jones <mjones@ysaqmd.org>; Paul Philley <pphilley@airquality.org>; Renee DeVere-Oki <RDeVere-Oki@sacog.org>; Rodney Tavitas <rodney.tavitas@dot.ca.gov>; Shalanda Christian <shalanda_christian@dot.ca.gov>; Sondra Spaethe <sspaethe@fraqmd.org>; Wright Molly <mwright@airquality.org>; Youngil Cho <Youngil.Cho@dot.ca.gov>; Yu-Shuo Chang <YChang@placer.ca.gov>
Cc: mccoyj cityofwestsacramento.org <mccoyj@cityofwestsacramento.org>
Subject: POAQC: the City of West Sacramento Broadway Bridge Project (YOL19328), due 12/2

Project Level Conformity Group,

Attached for interagency review is the City of West Sacramento Broadway Bridge Project (YOL19328) **.** As part of project level conformity under NEPA, it requires a determination of whether it is a project of air quality concern.

Please confirm that you concur that this is NOT a Project of Air Quality Concern (POAQC). **Please email questions and comments by 5 p.m., Wed, Dec. 3, 2020.**

This project falls under the 23 USC 327 (formerly 6005) federal process. As such, it requires written concurrence by EPA (Karina O'Conner) and FHWA (Joseph Vaughn). Please remember to use "reply all," to make comments to the group. Otherwise, you may also contact the sponsor directly:

Jason McCoy

City of West Sacramento

Tel: (916)617-4832

Email: mccoyj@cityofwestsacramento.org