

AIR QUALITY REPORT

Barton Bridge Removal and Road Construction Project



City of Colton and City of Grand Terrace
San Bernardino County, California

Federal Aid Project No. BRLS 5065(024)

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CITIES OF COLTON AND GRAND TERRACE

SAN BERNARDINO COUNTY, CALIFORNIA

and

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 8

FEDERAL PROJECT ID NUMBER BRLS 5065(024)

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December 2020

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Acronyms and Abbreviations

Term	Definition
°F	degrees Fahrenheit
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ACM	asbestos-containing materials
ADA	Americans with Disabilities Act
ADL	Aerially Deposited Lead
ADT	Annual Daily Traffic
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
CAAA	Clean Air Act Amendments
Caltrans	California Department of Transportation
CARB	California Air Resources Board
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
CO ₂ e	carbon dioxide equivalent
cy	cubic yard
EMFAC	California Emission Factor Model
EO	(California) Executive Order
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program

Acronyms and Abbreviations

Term	Definition
GHG	greenhouse gas
Guidance	U.S. EPA's Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM _{2.5} and PM ₁₀ Nonattainment and Maintenance Areas
GWP	global warming potential
HBP	Federal Highway Bridge Program
H ₂ S	hydrogen sulfide
I-215	Interstate 215
LOS	level of service
MOVES	Motor Vehicle Emission Simulator
MSAT	mobile source air toxics
MMTCO _{2e}	million metric tons carbon dioxide equivalent
MTCO _{2e}	metric tons carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
N ₂ O	nitrous oxide
O ₃	ozone
Pb	lead
PM	particulate matter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter less than 10 microns in diameter
POAQC	Project of Air Quality Concern
ppm	parts per million
Project	Barton Road Bridge Removal and Road Construction Project
ROG	reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments

Term	Definition
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO ₂	sulfur dioxide
TAC	toxic air contaminant
TCWG	SCAG Transportation Conformity Working Group
UPRR	Union Pacific Railroad
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
VMT	vehicle miles traveled
VOC	volatile organic compounds

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1. Proposed Project Description

1.1 Introduction

The Cities of Grand Terrace and Colton, in coordination with the California Department of Transportation (Caltrans) District 8, propose to replace the existing two lane bridge on Barton Road over the Union Pacific Railroad tracks (UPRR) between the two cities (proposed Project). The proposed Project will fill the area over the abandoned railroad tracks with on-site earth and build a new two-lane asphalt road at-grade level as shown in Figures 1-1 and 1-2. The new at-grade asphalt road will include pedestrian sidewalks and Class II bicycle lanes in each direction. The purpose of the proposed Project is to reduce congestion and improve pedestrian and bicyclist safety on Barton Road between Terrace Avenue and Grand Terrace Avenue. There will be minor seismic activity contribution during bridge removal. The City of Colton will be the implementing lead agency for design and construction.

The proposed Project will include paving a 1,100-foot long section of Barton Road, between Terrace and Grand Terrace Avenues. East of the Project, westbound Barton Road provides two lanes that are reduced to one lane approximately 400 feet from the end of the Project boundary. The roadway will accommodate a 6-foot wide sidewalk on the north and south sides of Barton Road, an 8-foot wide striped Class II bicycle lane on each side of the roadway, and two 14-foot wide travel lanes. These lane configurations transition to join existing improvements west of Grand Terrace Avenue.

The City of Colton is the lead agency under the California Environmental Quality Act (CEQA). Because the Project would use federal funds, **Caltrans District 8 is the lead agency under the National Environmental Policy Act (NEPA)**, as assigned by the Federal Highway Administration (FHWA) through NEPA delegation.

1.2 Location and Background

Within the Project limits, Barton Road is bordered by a single-family residence, commercial businesses, a distribution warehouse, a construction storage yard, and a business park. The Project will remove the 25-foot wide Barton Road Bridge, originally built in 1936, as it has been determined to be structurally unsound and does not provide adequate pedestrian or bicycle access. The removal of the Barton Road Bridge (State Bridge No. 54C0379) will allow needed Class II bicycle lanes meeting the requirements of both the Cities of Grand Terrace and Colton.

The Cities, in association with Caltrans, propose to widen the area of the newly built roadway on either side of the Barton Road Bridge. The existing pedestrian path on the bridge has been closed to pedestrians due to safety concerns. The UPRR tracks no longer exist underneath the bridge and, since the bridge is being removed, the areas underneath the bridge will be filled in with earth to

1. Proposed Project Description

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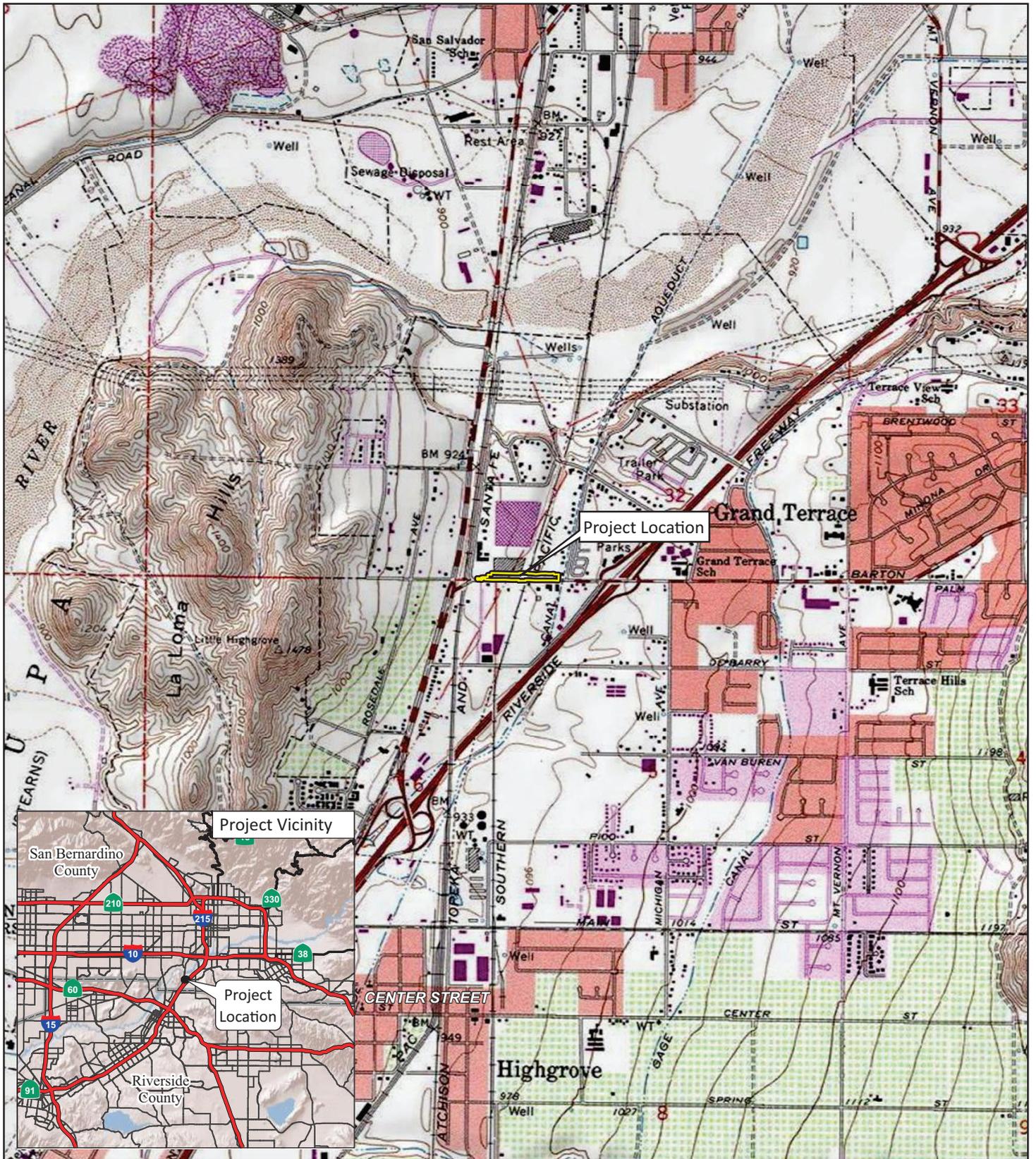
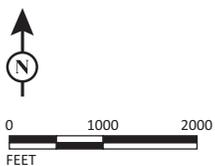


FIGURE 1-1

LEGEND

 Project Location



SOURCE: USGS 7.5' Quad - San Bernardino South (1980), CA

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Barton Road Bridge Removal
and Road Construction Project

Project Location

BRLS 5056 (024)

1. Proposed Project Description

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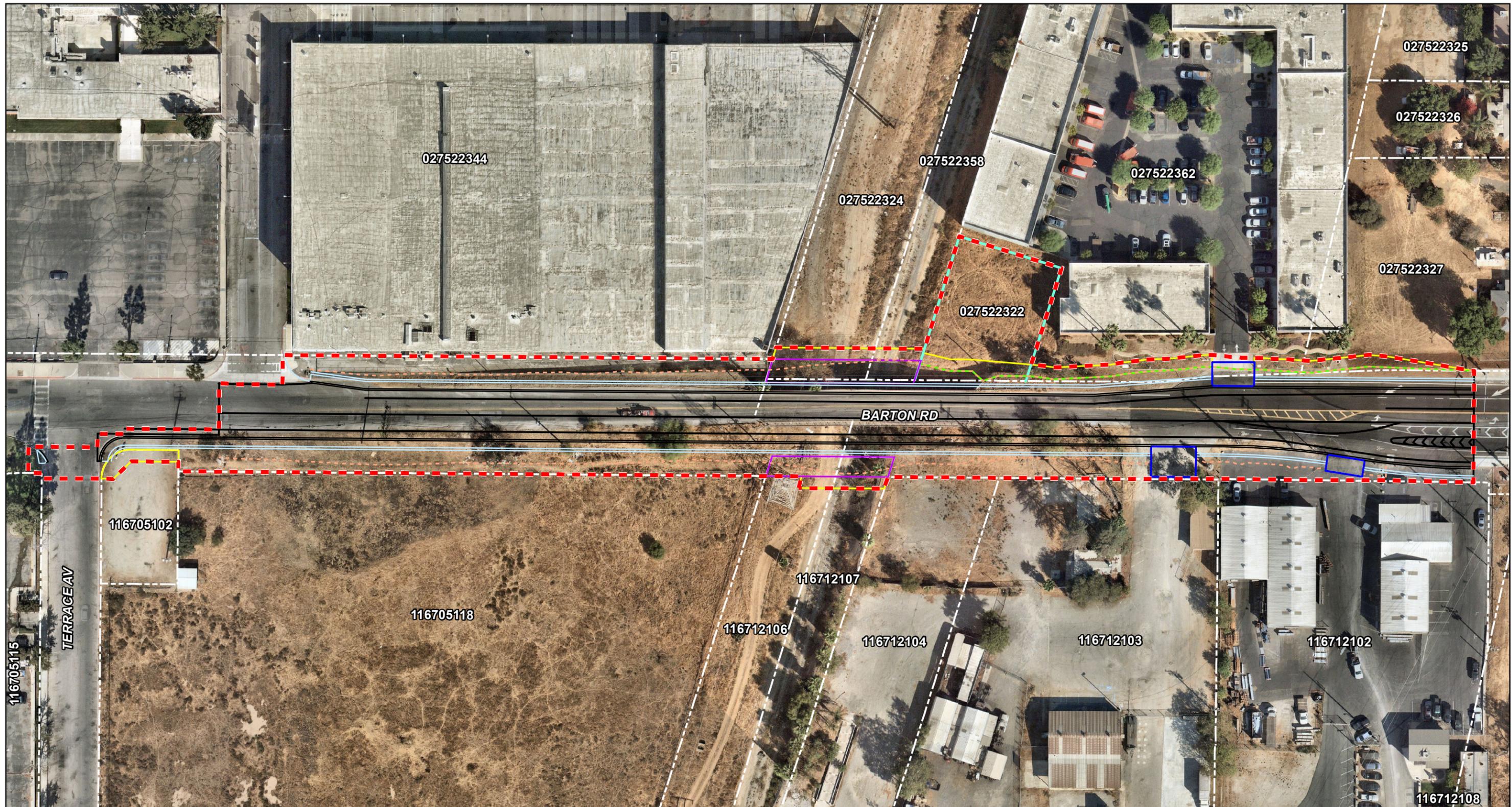
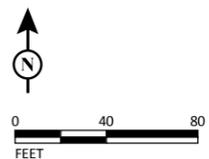


FIGURE 1-2

LEGEND

- | | | | | | | | | | | |
|----------------|---|--------------|-------------|----------|--------------|----------|--------------|--------------------------|-------------------------|---------------------------------|
| Project Limits | Existing Right-of-Way/Parcel Boundaries | New Pavement | Curb/Gutter | Driveway | Toe of Slope | Sidewalk | Staging Area | Right-of-Way Acquisition | Slope/Drainage Easement | Temporary Construction Easement |
|----------------|---|--------------|-------------|----------|--------------|----------|--------------|--------------------------|-------------------------|---------------------------------|



Barton Road Bridge Removal
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make the new at-grade level roadway. The newly widened roadway will include an 8-foot wide bicycle path and 6-foot wide pedestrian sidewalk on both sides. The proposed Project is listed in the financially constrained list of projects in the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) under the Federal Highway Bridge Program (HBP) ID# 1056 (see Appendix A). The 2016 RTP was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, with ongoing amendments as needed, with Amendment No. 2 adopted on July 6, 2017.

The proposed Project is listed in the 2016 financially constrained RTP/SCS Amendment No. 2, which was found to conform by SCAG on July 6, 2017, and by the Federal Transit Administration (FTA)/FHWA on August 1, 2017. On September 6, 2018, SCAG's Regional Council adopted the 2016 RTP/SCS Amendment No. 3 but conformity determination approval from the FHWA is pending. The proposed Project is listed in the 2017 Federal Transportation Improvement Program (FTIP) 17-00 under ID No. SDBSL08. The 2017 FTIP Consistency Amendment 17-18 was approved by SCAG on February 23, 2018, and by FTA/FHWA on March 26, 2018. The design concept and scope of the proposed Project is consistent with the project description in the 2016 RTP and 2017 FTIP and the "open to traffic" assumptions of the SCAG's regional emissions analysis.

Under the HBP, the project description for the Barton Road Bridge Removal and Road Construction Project is as follows:

- BRIDGE NO. 54C0379, BARTON RD, OVER UP RR, 0.25 MI W ROUTE 215. REPLACE 2-LANE BRIDGE WITH NEW 2-LANE ASPHALT ROADWAY, MINOR SEISMIC CONTRIBUTION. THE CITY OF COLTON WILL BE THE IMPLEMENTING AGENCY FOR DESIGN AND CONSTRUCTION.

1.3 Purpose and Need

The proposed Project will dismantle and remove the Barton Road Bridge (State Bridge No. 54C0379), which has been determined to be structurally unsuitable. The road replacement comes as a viable alternative to replacing the bridge over the now-abandoned UPRR tracks. The goal is to provide a new at-grade level road with Class II bicycle paths and pedestrian sidewalks. The newly constructed roadway will be suitable for heavy duty trucks, passenger vehicles, commercial delivery vehicles, Class II bicycle lanes, and pedestrian sidewalks. The removal of the Barton Road Bridge will allow for needed Class II bicycle lanes meeting the requirements of the Cities of Grand Terrace and Colton.

1.3.1 Purpose

The purpose of the project is to provide safe connectivity between La Cadena Drive and the Barton Road/Interstate 215 (I-215) interchange and to facilitate efficient access between the Cities of Colton and Grand Terrace.

1.3.2 Need

Barton Road Bridge was originally built in 1936 as a two-lane bridge over the Union Pacific Railroad (UPRR) railroad tracks (one lane in each direction). The bridge is structurally unsound and the 25-foot wide bridge deck does not provide adequate pedestrian or bicycle access. The sidewalk that exists on the bridge has been shut down for safety reasons. A review of the existing bridge's As Built plans shows the design philosophy of the bridge does not account for seismic loading, which is critical for public safety in California. The Bridge Inspection Report shows a low sufficiency rating of 58.8 due to low load rating and a roadway geometry that does not meet the current standards of the American Association of State Highway and Transportation Officials (AASHTO). The railroad tracks below the bridge have been abandoned and removed. There is no longer the need to span the railroad tracks with a bridge.

1.4 Baseline and Forecast Conditions for No Build and Build Alternatives

The proposed alternatives include the No Build and Build Alternative for opening year 2023 and horizon year 2045. The Project alternatives are described below. Previously referenced Figure 1-2 shows the features of the Build Alternative.

1.4.1 Existing Roadways and Traffic Conditions

The Barton Road Bridge Removal and Road Construction Project is located in the City of Colton at the southern city limit with the neighboring City of Grand Terrace. The City of Colton is proposing to remove an existing 175-foot long by 25-foot wide bridge. The two-lane bridge on Barton Road is approximately 0.25 mile east of La Cadena Drive and 0.25 mile west of the Interstate 215 (I-215) interchange (KOA 2020). The pedestrian pathway on the Barton Road Bridge has been closed to foot and bicycle traffic as it has been deemed unsafe for pedestrian use. The Barton Road Bridge has a posted speed limit of 35 miles per hour on the west side of the bridge. The Baseline (year) used for the analysis is 2019 because those are the most recent traffic data available. Table 1-1 lists the existing (2019) traffic data for the Barton Road between S. La Cadena Drive and Grand Terrace Road.

Table 1-1. Summary of Existing Traffic Conditions

Scenario/ Analysis Year	Location	ADT		% Truck	VMT (miles)	LOS	Average Speed During Peak Travel (mph)	Average Speed During Off-Peak Travel (mph)
		Total	Truck					
Existing/Baseline Year 2019	Barton Road between S. La Cadena Drive & Grand Terrace Road	8,776	1,303	14.8	4,668	B	35	35

Source: Traffic Study Report (KOA 2020).

ADT = average daily traffic

LOS = level of service

mph = miles per hour

VMT = vehicle miles traveled

1.4.2 No Build Alternative

The No Build Alternative assumes that no bridge removal or improvements are made to Barton Road. The No Build Alternative would maintain the existing conditions and provides a baseline for comparison of the impacts under the Build Alternative. Under the No Build Alternative, roadway performance would continue to deteriorate with the forecast increase in traffic.

Under NEPA, the No Build (No Action) Alternative consists of those transportation projects that are already planned for construction by or before opening year 2023. Consequently, the No Build alternative represents future travel conditions in the Barton Road study area without the Project and is the baseline against which the Build Alternative will be assessed to meet NEPA requirements.

Table 1-2 lists the No Build traffic data for the Opening Year 2023 and Horizon Year 2045 for Barton Road between S. La Cadena Drive and Grand Terrace Road.

Table 1-2. Summary of Future No Build Traffic Conditions

Scenario/ Analysis Year	Location	ADT		% Truck	VMT (miles)	LOS	Average Speed During Peak Travel (mph)	Average Speed During Off- Peak Travel (mph)
		Total	Truck					
No Build Year 2023	Barton Road between S. La Cadena Drive & Grand Terrace Road	14,986	1,354	9.0	4,720	F	25	35
No Build Year 2045	Barton Road between S. La Cadena Drive & Grand Terrace Road	21,401	1,933	9.0	4,964	F	25	35

Source: Traffic Study Report (KOA 2020).
 ADT = average daily traffic
 LOS = level of service
 mph = miles per hour
 VMT = vehicle miles traveled

1.4.3 Project Build Alternative

The Cities of Colton and Grand Terrace, in cooperation with Caltrans, propose to replace the existing two-lane Barton Road Bridge (which is approximately 175 feet long by 25 feet wide) on Barton Road over an abandoned UPRR single-track railway in Colton and Grand Terrace with a two-lane, at-grade asphalt roadway. Barton Road runs through both Colton and Grand Terrace. Improvements to Barton Road will begin at the east side of the Terrace Avenue intersection in Colton and extend to approximately 100 feet west of the intersection of Grand Terrace Avenue in Grand Terrace. The curb-to-curb roadway width of 44 feet widens to approximately 70 feet west of Grand Terrace Avenue to tie into the improvements being made to the Barton Road/I-215 interchange. The total length of the roadway improvements is approximately 1,100 feet. The roadway will accommodate a 6-foot wide sidewalk on the north and south sides of Barton Road, an 8-foot wide striped Class II bicycle lane on each side of the roadway, and two 14-foot wide travel lanes. Lane configurations transition to join existing improvements west of Grand Terrace Avenue.

Improvements include the following:

- Demolition and removal of the existing bridge, abutments, and retaining walls on Barton Road.
- Removal and reconstruction of the drainage outlet west of Grand Terrace Avenue.
- Construction of a drainage culvert across Barton Road in the vicinity of the abandoned tracks.
- Relocation of the Riverside Highland Water Company line, the City of Colton waterline, fiber optic cables, and a gas line in the existing bridge and roadway and relocation of overhead telephone lines along the north side of Barton Road.

- Removal of approximately 5,500 cubic yards (cy) of soil, and fill of approximately 4,300 cy to bring the bridge area to grade.
- Construction of an asphalt roadway and removal of the vertical crest curve, thereby improving stopping sight distance consistent with the Cities' standards for Barton Road's roadway classification.
- Construction of curb ramps to Americans with Disabilities Act (ADA) standards at the intersection of Barton Road and Terrace Avenue.
- Construction of 6-foot wide sidewalks and 8-foot wide Class II bike lanes on the north and south sides of Barton Road within the project limits.
- Construction of driveway approaches joining existing driveways in compliance with Grand Terrace and Colton City standards.
- Removal of a retaining wall along the north side of the Barton Road right-of-way in front of Lineage Logistics.
- Identification and provision of a construction staging area in the vicinity of the improvements.
- Closure of Barton Road between Terrace Avenue and Grand Terrace Avenue during construction and provision of a detour for traffic.

The Project will require approximately 0.20 acre of temporary construction easements and slope easements. The majority of improvements, with the exception of driveway grading to match the lowered street elevation, will be contained to within the Cities' existing right-of-way. Approximately 3,800 square feet will be acquired to increase the right-of-way at the location of the existing bridge to 50 feet in each direction. A sliver of permanent right-of-way (approximately 50 square feet) will be acquired in front of Assessor's Parcel Number (APN) 027-522-316. Previously referenced Figure 1-1 provides the regional and project location map. Previously referenced Figure 1-2 shows the project features.

The *Traffic Study Report* prepared by KOA Corporation (2020) provided the existing traffic volume data, which serve as a baseline by which the future traffic volume projections are determined. Table 1-3 summarizes the average annual daily traffic (ADT) volumes, truck percentage, levels of service, and average speeds along Barton Road at existing year (2019).

Table 1-3. Summary of Build Alternative Traffic Conditions

Scenario/ Analysis Year	Location	ADT		% Truck	VMT (miles)	LOS	Average Speed During Peak Travel (mph)	Average Speed During Off- Peak Travel (mph)
		Total	Truck					
Build Alternative 2023	Barton Road between S. La Cadena Drive & Grand Terrace Road	14,986	1,350	9.0	4,720	D	30	35
Build Alternative 2045	Barton Road between S. La Cadena Drive & Grand Terrace Road	21,401	1,770	9.0	4,964	F	25	35

Source: Traffic Study Report (KOA 2020).

ADT = average daily traffic

LOS = level of service

mph = miles per hour

VMT = vehicle miles traveled

1.4.4 Comparison of Existing/Baseline and Build Alternatives

CEQA requires that the proposed Project emissions be compared to existing/baseline conditions. The Project would not affect regional traffic demand or distribution, and traffic volumes along the Project roadways are expected to remain the same between Build and No Build Alternatives for both the Opening Year (2023) and the Horizon Year (2045).

The *Traffic Study Report* prepared for the proposed Project concluded that the proposed Project would improve traffic flow along Barton Road at opening year (2023) and Horizon Year (2045). While volumes are expected to increase from the existing year to future years, this is attributed to regional population growth and other factors external to the operation of the proposed Project.

NEPA requires that the proposed Project emissions be compared to no-build conditions for the Opening and Horizon Years. The proposed Project would improve operations on Barton Road, it would not affect regional traffic demand or distribution, and traffic volumes along the Project roadways are expected to remain the same between Build and No Build Alternatives for both the Opening Year (2023) and the Horizon Year (2045). The *Traffic Study Report* concluded that the proposed Project would improve traffic flow along Barton Road at Opening Year (2023) and Horizon Year (2045).

Table 1-4 summarizes design features and operational impacts on traffic conditions near the Project Area.

Table 1-4. Summary of Long-Term Operational Impacts on Traffic Conditions of Existing, No Build, and Build Alternatives

Scenario/ Analysis Year	ADT	Volume-to-Capacity Ratio/LOS	Design Features and Operational Impacts on Traffic Conditions
Existing Baseline Conditions 2019	7,292	0.41/B	The existing structure has two narrow lanes with no median. It is designated as unsuitable and is high priority for replacement. The bridge currently operates with an LOS of B with a volume-to-capacity ratio of 0.41.
No-Build Year 2023	14,986	>0.80/D	The baseline condition of the bridge would be expected to worsen with the No Build Alternative under operations with projected growth. The bridge LOS would rate a D with a volume-to-capacity ratio of greater than 0.80.
Project Opening Year 2023	14,986	0.83/D	Design features and traffic operations would be most efficient with the Project on opening day. The road's LOS would be a D with the best volume-to-capacity ratio of 0.83 on opening day, allowing improved LOS on nearby intersections.
No Build Year 2045	21,401	>1.00/F	The baseline condition of the bridge would be expected to further worsen with projected growth. The No Build Alternative would not meet future traffic demands. The bridge LOS would drop to an F with a volume-to-capacity ratio of greater than 1.00.
Project Horizon Year 2045	21,401	1.19/F	Traffic operations would be most efficient with the Project for future traffic demands. Although the road's LOS would be F, this alternative would provide the best volume-to-capacity ratio with 1.19, when compared to the other alternatives.

Source: Traffic Study Report (KOA February 2020)

ADT = Average Daily Traffic

LOS = Level of Service

1.5 Construction Activities and Schedule

During implementation of the Barton Road Bridge Removal and Road Construction, traffic will be detoured around the proposed Project area. The Barton Road Bridge will be closed to through traffic for the duration of the 14-month proposed Project. From the east, traffic will be diverted through S. La Crosse Avenue, west on De Berry Street, and north on S. Terrace Road before reconnection to Barton Road west of the proposed Project area. From the west, cars will be directed south on S. Terrace Avenue, east on De Berry Street, and north on La Crosse Avenue before reconnection with Barton Road.

During construction, pedestrians and bicycles would be detoured around the proposed Project site from both directions through the same routes as vehicles diverted. The public transportation bus system is run by OmniTrans, the primary transit agency in the San Bernardino Valley (OmniTrans 2020). The bus line does not use the existing route over Barton Road in the proposed Project area. Therefore, there will not be disruptions to public transit for the duration of the Project.

1. Proposed Project Description

Construction of the proposed Project would require the closure of Barton Road, which would result in removing several driveways to operational businesses. These businesses will have access to Barton Road, east of the bridge removal, without impacts from continued operation.

The construction equipment and staging for the contractor will be located north of Barton Road, east of the former track alignment. The location will serve as base of operations for daily activity on the Project site. The removal of the bridge will generate a large number of truck trips for haul away of material and asphalt. The site map provided in Figure 1-2, shows the proposed Project construction boundaries and staging areas.

Construction equipment would enter the Project site from the west side of the proposed Project area on Barton Road, arriving from the designated detour around the Project site from I-215 or from S. La Cadena Drive. The other possible approach is the east side of the proposed Project site on Barton Road, onto the east side of the Barton Road Bridge for the process of removal or grading.

Construction is planned to last approximately 14 months. The proposed Project would be operational in 2023 and the full buildout year is 2045. 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 particulate matter (PM) hot-spot analyses to meet conformity requirements.

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: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (particulate matter less than 10 microns in diameter [PM₁₀] and particulate matter less than 2.5 microns in diameter [PM_{2.5}]), and in some areas (although not in California), sulfur dioxide (SO₂). The United States Environmental Protection Agency (U.S. EPA) has also identified nine priority mobile source air toxics (MSAT): 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. In California, sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

2.1.1 Criteria Pollutants

The Federal Clean Air Act (FCAA) requires the U.S. EPA to set 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 California.

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 (<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 (<https://www.epa.gov/national-air-toxics-assessment>). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter

2. Regulatory Setting

Table 2-1. State and Federal Criteria Air Pollutant Standards and Status for San Bernardino County – South Coast Air Basin

Pollutant	Averaging Time	State Standard^A	Federal Standard^B	State Project Attainment Status	Federal Project Area Attainment Status
O₃^C	1 hour	0.09 ppm ^D	N/A	Nonattainment	N/A
O₃	8 hours	0.070 ppm	0.070 ppm (4 th highest in 3 years)	Nonattainment	Extreme Nonattainment
CO^E	1 hour	20 ppm	35 ppm	Attainment	Attainment/Maintenance
CO	8 hours	9.0 ppm	9 ppm	Attainment	Attainment/Maintenance
CO	8 hours (Lake Tahoe)	6 ppm	N/A	N/A	N/A
PM₁₀^F	24 hours	50 µg/m ³ ^G	150 µg/m ³ (expected number of days above standard < or equal to 1)	Nonattainment	Attainment/Maintenance
PM₁₀	Annual	20 µg/m ³	N/A	Nonattainment	N/A
PM_{2.5}^H	24 hours	N/A	35 µg/m ³	N/A	Moderate Nonattainment
PM_{2.5}	Annual	12 µg/m ³	12.0 µg/m ³	Nonattainment	Moderate Nonattainment
NO₂	1 hour	0.18 ppm	0.100 ppm ^I	Attainment	Attainment/Maintenance
NO₂	Annual	0.030 ppm	0.053 ppm	Attainment	Attainment/Maintenance
SO₂^J	1 hour	0.25 ppm	0.075 ppm (99 th percentile over 3 years)	Attainment/Unclassified	Attainment/Maintenance
SO₂	3 hours	N/A	0.5 ppm ^K	N/A	Attainment/Maintenance
SO₂	24 hours	0.04 ppm	0.14 ppm (for certain areas)	Attainment/Unclassified	Attainment/Maintenance
SO₂	Annual	N/A	0.030 ppm (for certain areas)	N/A	Attainment/Maintenance
Pb^L	Monthly	1.5 µg/m ³	N/A	Attainment/Unclassified	N/A
Pb	Calendar Quarter	N/A	1.5 µg/m ³ (for certain areas)	N/A	Attainment/Maintenance
Pb	Rolling 3-month average	N/A	0.15 µg/m ³	N/A	Attainment/Maintenance
Sulfates	24 hours	25 µg/m ³	N/A	Attainment/Unclassified	N/A
H₂S	1 hour	0.03 ppm	N/A	Attainment/Unclassified	N/A
Visibility Reducing Particles (VRP)^M	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70 %	N/A	Attainment/Unclassified	N/A
Vinyl Chloride^N	24 hours	0.01 ppm	N/A	Attainment/Unclassified	N/A

Adapted from the California ARB Air Quality Standards chart (May 4, 2016)

- A California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, 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.
- B Federal 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 µg/m³ is equal to or less than one. For PM_{2.5}, 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.
- C On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. Transportation conformity applies in newly designated nonattainment areas for the 2015 national 8-hour ozone primary and secondary standards on and after August 4, 2019 (see Transportation Conformity Guidance for 2015 Ozone NAAQS Nonattainment Areas).
- D ppm = parts per million
- E Transportation conformity requirements for CO no longer apply after June 1, 2018 for the following California Carbon Monoxide Maintenance Areas (see U.S. EPA CO Maintenance Letter).
- F On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- G µg/m³ = micrograms per cubic meter
- H The 65 µg/m³ PM_{2.5} (24-hr) NAAQS was not revoked when the 35 µg/m³ NAAQS was promulgated in 2006. The 15 µg/m³ annual PM_{2.5} standard was not revoked when the 12 µg/m³ standard was promulgated in 2012. Therefore, for areas designated nonattainment or nonattainment/maintenance for the 1997 and or 2006 PM_{2.5} NAAQS, conformity requirements still apply until the NAAQS are fully revoked.
- I Final 1-hour NO₂ NAAQS published in the Federal Register on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause re-designation to nonattainment in some areas after 2016.
- J On June 2, 2010, a new 1-hour SO₂ 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 SO₂ 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.
- K Secondary standard, the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.
- L Lead NAAQS are not considered in Transportation Conformity analysis.
- M 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.
- N The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM₁₀ and, in larger proportion, PM_{2.5}. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and PM_{2.5} as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

2. Regulatory Setting

Table 2-2. Air Pollutant Effects and Sources

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O ₃)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Respirable Particulate Matter (PM ₁₀)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic 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.
Nitrogen Dioxide (NO ₂)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of storm water. 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.
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 ₂ S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other “Class I” areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

Source: Caltrans Standard Environmental Reference (Accessed September 2020).

Caltrans = California Department Of Transportation

NOx = Nitrogen Oxide

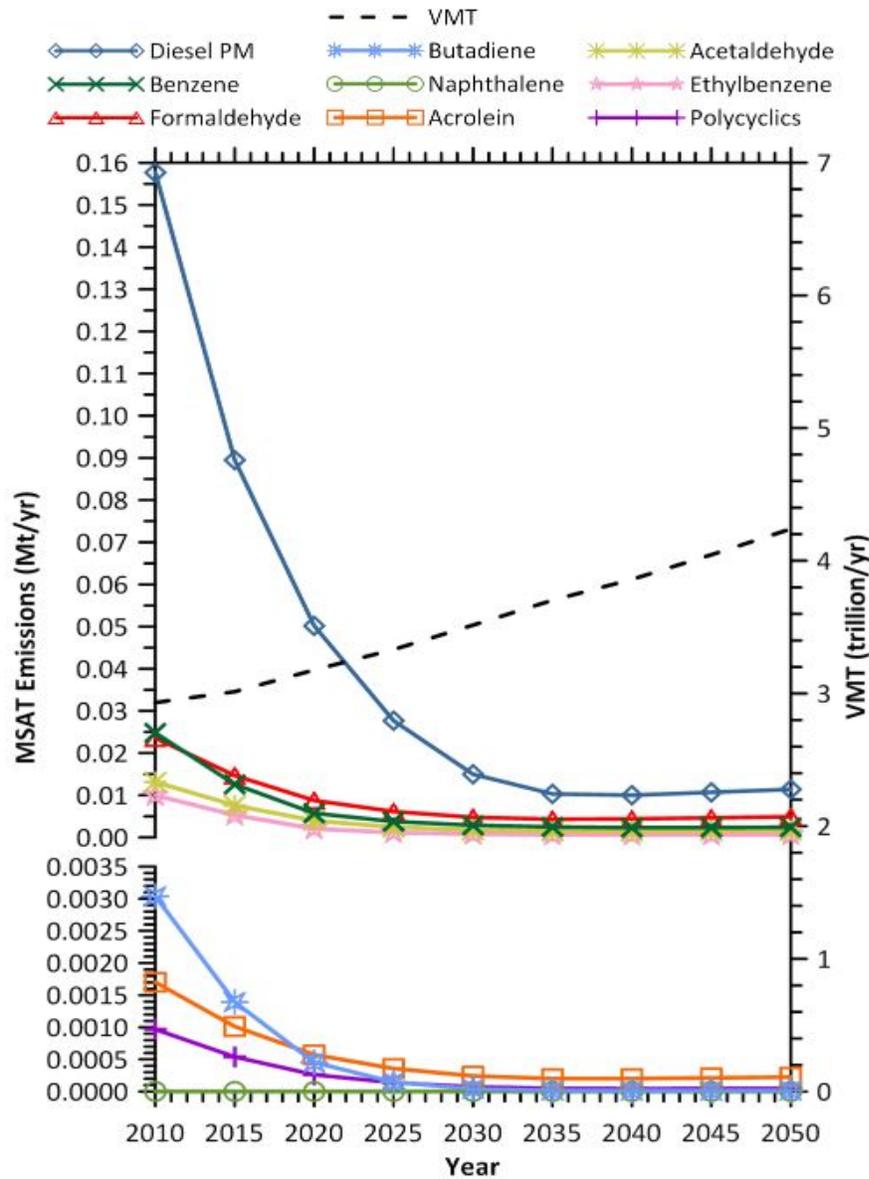
SOx = Sulfur Oxides

ROG = Reactive Organic Gases

VOC = Volatile Organic Compounds

(diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While the 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 MOVES 2014a 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.



Source: Federal Highway Administration. Website: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/

Figure 2-1. Projected National MSAT Trends, 2010–2050

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 (CO₂), methane (CH₄), nitrous oxide (N₂O), 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-19th century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO₂, CH₄, N₂O, and fluorinated gases.

GHGs differ in how much heat each traps in the atmosphere (global warming potential, or GWP). CO₂ is the most important GHG, so amounts of other gases are expressed relative to CO₂, using a metric called "carbon dioxide equivalent" (CO₂e). The global warming potential of CO₂ is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO₂. For example, the 2007 International Panel on Climate Change *Fourth Assessment Report* calculates the GWP of CH₄ as 25 and the GWP of N₂O 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 (MTCO₂e), or million metric tons (MMTCO₂e).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, 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 issued the first corporate fuel economy standards in 2010, requiring cars and light-duty vehicles to achieve certain fuel economy targets by 2016, with the intention of gradually increasing the targets and the range of vehicles to which they would apply.

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

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.]. New York and Cambridge, United Kingdom: Cambridge University Press, Website: www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf (accessed April 2018).

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

California will take to achieve that goal and to update it every 5 years. In 2015, Governor Jerry Brown enhanced the overall adaptation planning effort with Executive Order (EO) B-30-15, establishing an interim GHG reduction goal of 40 percent below 1990 levels by 2030, and requiring State agencies to factor climate change into all planning and investment decisions.

Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008, furthered State climate action goals by mandating coordinated transportation and land use planning through the preparation of Sustainable Communities Strategies (SCSs). The CARB 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 action toward achieving the regional emission 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 CARB in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentine and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All 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 California Air Resources Board. Sustainable Communities. Website: <https://www.arb.ca.gov/cc/sb375/sb375.htm>.

2.2 Regulations

2.2.1 Federal and California Clean Air Acts

The 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 CARB set standards for the concentration of pollutants in the air. At the federal level, these standards are called 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: CO; NO₂; O₃; PM, which is broken down for regulatory purposes into PM₁₀ and PM_{2.5}; and SO₂. In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), 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 (TACs); some criteria pollutants are also TACs, or may include certain TACs in their general definitions.

2.2.2 Transportation Conformity

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

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

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO₂, O₃, PM₁₀, PM_{2.5}, and in some areas (although not in California), SO₂. California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO₂, and also has a nonattainment area for Pb; however, Pb is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of RTPs and 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 FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization, the FHWA, and the FTA make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the

FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity 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 FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and FTIP and the project has a design concept and scope⁴ that has not changed significantly from those in the RTP and FTIP. If the design concept and scope have changed substantially from that used in the RTP Conformity analysis, RTP and FTIP amendments may be needed. Project-level conformity also needs to demonstrate that project analyses have used the latest planning assumptions 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 requires that policies and regulations administered by the federal government be 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 affect the environment. It requires environmental review of federal actions including the creation of environmental documents 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

CEQA⁵ 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. Although State standards are often stricter 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 quality laws and regulations including local and air district ordinances and rules.

SCAQMD and the SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the South Coast Air Basin. The main purpose of an AQMP is to bring

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.

⁵ For general information about CEQA, see: <http://resources.ca.gov/ceqa/more/faq.html>.

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the area into compliance with federal and State air quality standards. Every three years, SCAQMD prepares a new AQMP, updating the previous plan and 20-year horizon (SCAQMD 2016).

SCAQMD approved the 2016 AQMP on March 3, 2017, and submitted the plan to CARB on March 10, 2017. Key elements of the 2016 AQMP include the following:

- Calculating and taking credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation).
- A strategy with fair-share emission reductions at the federal, State, and local levels.
- Investment in strategies and technologies meeting multiple air quality objectives.
- Seeking new partnerships and significant funding for incentives to accelerate deployment of zero-emission and near-zero emission technologies.
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis.
- Attainment of the 24-hour PM_{2.5} standard in 2019 with no additional measures.
- Attainment of the annual PM_{2.5} standard by 2025 with implementation of a portion of the O₃ strategy.
- Attainment of the 1-hour O₃ standard by 2022 with no reliance on “black box” future technology (FCAA Section 182(e)(5) measures).

SCAG is responsible under the FCAA for determining the conformity of projects, plans, and programs with the SCAQMD AQMP. As indicated in the SCAQMD *CEQA Air Quality Handbook* (1993), there are two main indicators of consistency:

- Whether the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and
- Whether the project would exceed the AQMP’s assumptions for 2020 or increments based on the year of project buildout and phase.

3. Affected Environment

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

The Barton Road Bridge Removal and Road Construction Project is on the boundary of the City of Colton and the City of Grand Terrace, in San Bernardino County, an area within the South Coast Air Basin, which also includes non-desert portions of Los Angeles County and the western portions of San Bernardino and Riverside Counties. The SCAQMD administers air quality regulation in the South Coast Air Basin. Current population for San Bernardino County is 2.18 million (U.S. Census 2019). San Bernardino County's economy is largely driven by retail trade, healthcare, manufacturing, transport/warehouse, and accommodation/food (San Bernardino County Economic Development Agency 2020).

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 San Bernardino climatological station, maintained by SCAQMD, is located near the Project site and is representative of meteorological conditions near the proposed Project. Figure 3-1 shows a wind rose illustrating the predominant wind patterns near the proposed Project. The climate of the Project Area is generally Mediterranean in character, with cool winters (lows average 42.1° Fahrenheit [°F] in January) and warm, dry summers (average 97.3 °F in August).⁶ Temperature inversions are common, affecting localized pollutant concentrations in the winter and enhancing ozone formation in the summer. The San Gabriel Mountains, ranging to 10,000 feet in altitude (U.S. Forest Service 2015), tend to trap pollutants in the region by limiting airflow. Annual average rainfall is 16.01 inches (at San Bernardino County Yard SBYC1), mainly falling during the winter months.

⁶ Data from Western Regional Climate Center. Website: https://mesonet.agron.iastate.edu/sites/monthlysum.php?station=SBYC1&network=CA_DCP, accessed April 2020.

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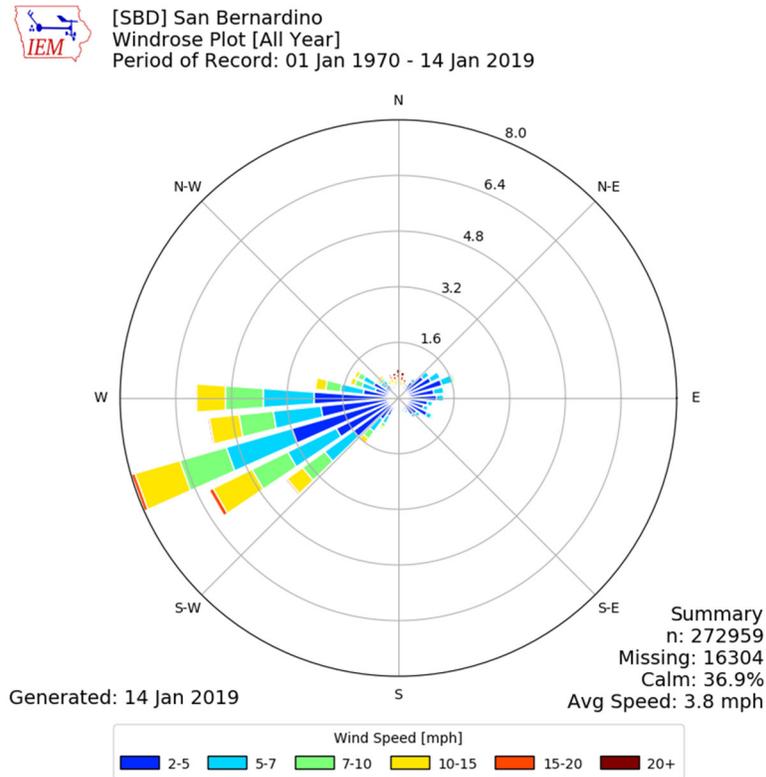


Figure 3-1. Predominant Wind Patterns at the San Bernardino County Yard at 24302 4th Street Monitoring Station.

3.2 Existing Air Quality

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

The SCAQMD operates several air quality monitoring station near the Project area. The San Bernardino Air Quality Monitoring Station is the closest to the proposed Project. Figure 3-2 shows the location of the San Bernardino 24302 4th Street Monitoring Station.

3.2.1 Criteria Pollutants and Attainment Status

Air quality monitoring stations are located throughout the nation and are maintained by local air districts and State air quality regulating agencies. The U.S. EPA uses data collected at permanent monitoring stations to identify regions as "attainment," "nonattainment," or "maintenance," depending on whether the regions meet the requirements stated in the primary NAAQS.

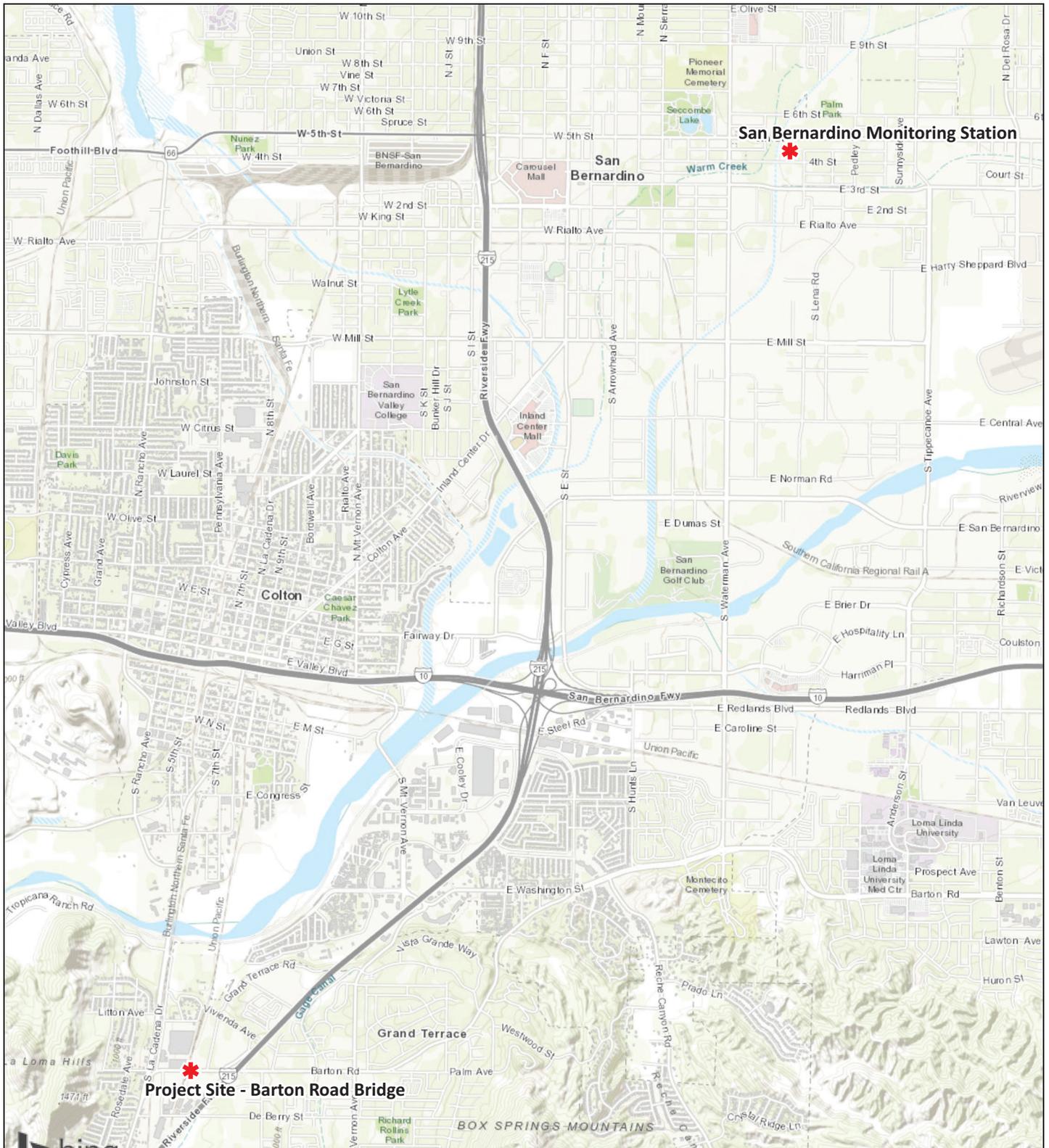
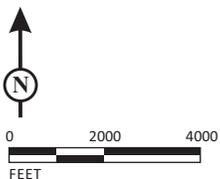


FIGURE 3-2



SOURCE: Bing, ESRI

I:\CNS1901\G\Monitoring Station.cdr (10/5/2020)

*Barton Road Bridge Removal
and Road Construction Project*

Map of Air Quality Monitoring Station Located Near the Project

BRLS 5056 (024)

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Nonattainment areas are imposed with additional restrictions as required by the U.S. EPA. In addition, different classifications of nonattainment (e.g., marginal, moderate, serious, severe, and extreme) are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the NAAQS. Table 3-1 lists the State and federal attainment status for all regulated pollutants.

Table 3-1. State and Federal Attainment Status for the South Coast Air Basin

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O ₃)	Nonattainment (1-hour and 8-hour)	Extreme Nonattainment (8-hour)
Respirable Particulate Matter (PM ₁₀)	Nonattainment	Attainment/Maintenance
Fine Particulate Matter (PM _{2.5})	Nonattainment	Moderate Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment/Maintenance
Nitrogen Dioxide (NO ₂)	Attainment	Attainment/Maintenance
Sulfur Dioxide (SO ₂)	Attainment/Unclassified	Attainment/Unclassified
Lead (Pb)	Nonattainment (Los Angeles County only)	Nonattainment (Los Angeles County only)
Visibility-Reducing Particles	Attainment/Unclassified	Not Applicable
Sulfates	Attainment/Unclassified	Not Applicable
Hydrogen Sulfide	Attainment/Unclassified	Not Applicable
Vinyl Chloride	Attainment/Unclassified	Not Applicable

Source: California Air Resources Board. Air Quality Standards and Area Designations. Website: <http://www.arb.ca.gov/desig/desig.htm> (accessed September 2020).

The SCAQMD San Bernardino Air Quality Monitoring Station located at San Bernardino at 24302 4th Street, monitors five criteria pollutants (O₃, CO, NO₂, PM₁₀ and PM_{2.5}). Table 3-2 lists air quality trends identified for data collected at both air quality monitoring stations between 2015 and 2019.

3.2.2 Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories).

Controlling air toxic emissions became a national priority with the passage of the FCAA Amendments 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 latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Volume 73, No. 201, page 61,358; October 16, 2008) and identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System. 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 from its 2011 National Air Toxics Assessment. These are acrolein, benzene, 1,3-butadiene, acetaldehyde, diesel PM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While the FHWA considers these the priority MSAT, the list is subject to change and may be adjusted in consideration of future U.S. EPA rules. Table 3-3 lists the ambient concentrations

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Table 3-2. Air Quality Concentrations for the Past Five Years Measured at San Bernardino 4th Street Monitoring Station

Pollutant	Standard	2015	2016	2017	2018	2019
Ozone						
Max 1-hour concentration (ppm)		0.134	0.158	0.158	0.138	0.127
No. days exceeded: State	0.09 ppm	52	70	81	63	96
Max 8-hour concentration (ppm)		0.118	0.118	0.136	0.116	0.114
No. days exceeded: State	0.070 ppm	79	108106	114	107	73
Federal	0070 ppm	78		112	102	96
Carbon Monoxide						
Max 1-hour concentration (ppm)		2.3	2.2	2.5	2.7	1.3
No. days exceeded: State	20 ppm	0	0	0	0	0
Federal	35 ppm	0	0	0	0	0
Max 8-hour concentration (ppm)		1.8	1.7	2.3	2.5	1.1
No. days exceeded: State	9.0 ppm	0	0	0	0	0
Federal	9 ppm	0	0	0	0	0
PM₁₀						
Max 24-hour concentration (µg/m ³)		187.0	277.0	157.8	130.2	112.0
No. days exceeded: State	50 µg/m ³	19.2	ND	ND	30.9	36.0
Federal	150 µg/m ³	7.1	ND	1.1	0	0
Max annual concentration (µg/m ³)		31.7	ND	ND	33.0	29.9
No. days exceeded: State	20 µg/m ³	3	ND	14	5	4
PM_{2.5}						
Max 24-hour concentration (µg/m ³)		53.5	53.5	38.2	30.1	34.8
No. days exceeded: Federal	35 µg/m ³	6.9	3.0	3.3	0	0
Max annual concentration (µg/m ³)		10.7	32.5	25.6	22.9	10.1
No. days exceeded: State	12 µg/m ³	ND	ND	1	0	0
Federal	12 µg/m ³	2	1	ND	ND	ND
Nitrogen Dioxide						
Max 1-hour concentration (ppb)		71.4	60.1	65.8	57.3	59.3
No. days exceeded: State	180 ppb	0	0	0	0	0
Federal	100 ppb	0	0	0	0	0
Max annual concentration (ppb)		15.2	16.6	15.8	15.8	14.3
No. days exceeded: State	30 ppb	0	0	0	0	0
Federal	53 ppb	0	0	0	0	0

Source: U.S. EPA, Air Quality Data. Website: <https://www.epa.gov/outdoor-air-quality-data> (accessed September 2020).

ND = No data available or monitored

µg/m³ = micrograms per cubic meter

avg. = average

max = maximum

PM₁₀ = particulate matter less than 10 microns in size

PM_{2.5} = particulate matter less than 2.5 microns in size

ppb = parts per billion

ppm = parts per million

U.S. EPA = United States Environmental Protection Agency

Table 3-3. Mobile Source Air Toxics Measured Concentrations in the Project Vicinity

MSAT	Unit	Measured Maximums				
		2015	2016	2017	2018	2019
Acrolein	ppb	1.0	1.3	0.6	2.1	ND
Benzene	ppb	0.62	0.82	1.1	1.2	ND
1,3-Butadiene	ppb	0.23	0.17	0.14	0.16	ND
Acetaldehyde	ppb	2.6	2.7	2.8	ND	ND
Ethylbenzene	ppb	0.3	0.9	0.5	0.5	ND
Formaldehyde	ppb	6.5	7.7	7.4	ND	ND

Source: CARB, website: <https://www.arb.ca.gov/adam/toxics/toxics.html> (accessed September 2020).

Notes: 2015–2018 data from Riverside - Rubidoux Station, 2019 data is not available.

The diesel PM, naphthalene, and polycyclic organic matter MSATs are not monitored.

CARB = California Air Resources Board

MSAT = mobile source air toxics

ND = No data available or monitored

PM = particulate matter

ppb = parts per billion

of the MSATs at the San Bernardino 4th Street Monitoring Station (the closest MSAT monitoring station) in the Project vicinity.

3.2.3 Greenhouse Gas and Climate Change

CO₂, as part of the carbon cycle, is an important compound for plant and animal life, but also accounted for 84 percent of California's total GHG emissions in 2017. Transportation, primarily on-road travel, is the single largest source of CO₂ emissions in the State.

The proposed Project is located in San Bernardino County, and is included in the SCAG RTP/SCS and FTIP. The proposed Project appears on the Grouped Projects listing under the Adopted Final 2019 FTIP under the Federal Highway Bridge Program (HBP) ID# 1056. The Final 2019 FTIP HBP was adopted on September 6, 2018, by the SCAG Regional Council, and later updated to the 2019 Grouped Projects Detailed Backup Lists on November 1, 2019. The proposed Project is described in the 2019 FTIP HBP as the removal of Barton Road Bridge (Bridge No. 54C0379) over the previous Union Pacific rail road tracks 0.25 mile west of the I-215. The proposed Project would replace the two-lane bridge with a four-lane asphalt road at grade-level, with associated bicycle lanes. Minor seismic activity contribution would occur during bridge removal. The City of Colton will be the implementing lead agency for design and construction.

3.3 Sensitive Receptors

Existing land uses in the proposed Project area include single-family and multifamily residences, a mobile home park, industrial storage yards, food distribution facilities, commercial uses, vacant land, and a clinical laboratory.

Land uses north of Barton Road and west of the S. La Cadena Drive include single-family residences, a mobile home park, commercial park, and industrial food distribution center.

Land uses south of Barton Road adjacent to the proposed Project area consist of a construction equipment yard, commercial supply companies, a collision center, and office uses.

Land uses east of the proposed Project area include a clinical laboratory, and a mobile home park.

Figure 3-3 presents the locations of the sensitive receptors near the Project area.

3.4 Conformity Status

The Transportation Conformity Rule is based on FCAA Section 176(c), which prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the SIP for attaining the NAAQS. Conformity applies to highway and transit projects

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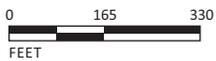
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FIGURE 3-3

LEGEND

- Project Site
- Residential Areas



SOURCE: Google Earth

*Barton Road Bridge Removal
and Road Construction Project*

Sensitive Receptors Located Near the Proposed Project

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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. U.S. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for the NAAQS and do not apply at all for State standards regardless of the status of the area.

3.4.1 Regional Conformity

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO₂, O₃, PM₁₀, and PM_{2.5}, and in some areas (although not in California), SO₂. California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for Pb; however, the FCAA does not currently require Pb to be covered in transportation conformity analysis.

As part of the Clean Air Rules of 2004, the U.S. EPA published a final rule in the *Federal Register* on July 1, 2004, to amend the Transportation Conformity Rule to include criteria and procedures for the new 8-hour O₃ and PM_{2.5} NAAQS. The final rule addressed a March 2, 1999, court decision by incorporating U.S. EPA and USDOT guidance. On July 20, 2004, the EPA published a technical correction notice to correct two minor errors in the July 1, 2004, notice. To remain consistent with the stricter federal standards, CARB approved a new 8-hour O₃ standard (0.07 parts per million [ppm], not to be exceeded) on April 28, 2005. Additionally, the CARB retained the current 1-hour-average standard for O₃ (0.09 ppm) and the current monitoring method for O₃, which uses the ultraviolet photometry method.

Table 2 of 40 CFR, Section 93.126 lists the types of projects that are exempt. The bridge removal and new at-grade level street widening with no additional lanes as part of the Build Alternative is one of the exempt projects listed in Table 2. Therefore, the proposed Project is exempt from all emissions analyses. Projects that are included in Table 3 of 40 CFR, Section 93.127 are exempt from regional conformity. Because the proposed Project would remove the Barton Street Bridge and widen a new at-grade level asphalt road with no additional lanes, it is exempt from regional emissions analysis.

The proposed Project is located in San Bernardino County, located in the 2019 FTIP under the HBP, is consistent with the SCAG’s approved RTP/SCS. The Final 2019 FTIP includes all federally funded transportation projects, the regional plan RTP/SCS was adopted by SCAG on September 6, 2018. The proposed Project appears on the Grouped Projects listing under the Adopted Final 2019 FTIP under the HBP ID No. 1056. The Final 2019 FTIP HBP 1056 was also adopted on September 6, 2018, by the SCAG Regional Council, and updated to the 2019 Grouped Projects Detailed Backup Lists on November 1, 2019 (Appendix A).

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The design concept and scope of the proposed Project is consistent with the project description in the 2016 RTP and 2019 FTIP and the “open to traffic” assumptions of the SCAG’s regional emissions analysis. Table 3-4 summarizes conformity status information. Appendix A includes copies of relevant pages from the RTP/SCS and FTIP.

Table 3-4. Status of Plans Related to Regional Conformity

MPO	Plan/TIP	Date of Adoption by MPO	Date of SCAG Approval	Last Amendment	Date of FHWA Approval of Last Amendment
SCAG	Regional Transportation Plan/Sustainable Communities Strategy	April 7, 2016	September 17, 2018	Amendment No. 19-16	December 31, 2019
SCAG	Transportation Improvement Program (FSTIP approval)	September 14, 2016	February 23, 2018	Amendment No. 17-18	March 26, 2018

FHWA = Federal Highway Administration
 FSTIP = Federal Statewide Transportation Improvement Program
 MPO = Metropolitan Planning Organization
 SCAG = Southern California Association of Governments
 TIP = Transportation Improvement Program

3.4.2 Project-Level Conformity

The proposed Project is in an attainment/maintenance area for federal CO standards, a nonattainment area for federal PM_{2.5}, and an attainment/maintenance area for federal PM₁₀ standards; thus, 40 CFR 93.109 requires a project-level hot-spot analysis for all three pollutants. The proposed Project does not cause or contribute to any new localized CO, PM_{2.5}, and/or PM₁₀ 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

Pursuant to the transportation conformity rules and regulations, all nonexempt projects must go through review by the SCAG Transportation Conformity Working Group (TCWG). Based on the exempt projects listed in Table 2 of 40 CFR 93.126 - Widening narrow pavements or reconstructing bridges (no additional travel lanes), the proposed Project is exempt from all project-level conformity requirements. A copy of the Transportation Air Quality Conformity Findings Checklist is included in Appendix B.

3.5 NEPA Analysis/Requirement

NEPA applies to all projects that receive federal funding or involve a federal action. NEPA requires that all reasonable alternatives for a proposed project be rigorously explored and objectively evaluated. As described above, the proposed Project is listed in a conforming RTP and FTIP. Construction will last less than three years and will not substantially affect traffic due to detours, road

closures, and/or temporary terminations. Thus, impacts of the resulting traffic flow changes do not need to be analyzed.

3.6 CEQA Analysis/Requirement

This air quality study addresses pollutants for which California has established air quality standards (O₃, PM₁₀, PM_{2.5}, CO, NO₂, SO₂, Pb, visibility-reducing particles, sulfates, H₂S, and vinyl chloride), as well as GHGs, MSAT, and asbestos. Similar to NEPA, the analysis/documentation requirements for CEQA vary by pollutant (see the table in Section 4.1), ranging from a narrative describing that the pollutant is typically not a transportation issue to an emission analysis. Because construction would not last more than three years or substantially affect traffic due to detours, lane closures, and/or temporary bridge closures, the impacts of the resulting traffic flow changes do not need to be analyzed. For CEQA analyses, emissions from the future year Build Alternative scenarios are compared to emissions from the existing/baseline conditions.

Emission FACTors (EMFAC) is California's federally-approved on-road mobile source emission inventory model that reflects California-specific driving and environmental conditions, fleet mix, and mobile source regulations. EMFAC is a computer model used for estimating emission rates for on-road mobile sources in California for calendar years 2000 to 2050. The EMFAC model supports CARB's regulatory and air quality planning efforts and fulfills the Federal Clean Air Act and the Federal Highway Administration's transportation planning requirements. The U.S. EPA has approved EMFAC2017 for use in State Implementation Plan (SIP) and transportation conformity analyses. On September 27, 2019, the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program." (84 Fed. Reg. 51,310 (September 27, 2019).) The Part One Rule revokes California's authority to set its own greenhouse gas emissions standards and set zero emission vehicle mandates in California. Therefore, the approval of the Rule means that the previously approved EMFAC2017 model no longer accurately estimates future transportation emissions and requires off-model adjustment factors until the next update in order to reflect the impacts of the Rule. Note that the Rule affects emissions only from gasoline-powered Light Duty Vehicles (i.e. LDA, LDT1, LDT2, and MDV vehicle categories). CARB has provided off-model adjustment factors for EMFAC2017 to account for the impacts of the Rule (CARB 2019). These adjustment factors are multipliers that were applied to EMFAC emissions outputs for this project.

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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 Project-Level Carbon Monoxide Protocol* (CO Protocol; Garza et al., 1997), *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM₁₀ 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 would have an adverse environmental impact if they result in pollutant emission levels that either create or worsen a violation of an ambient air quality standard (identified in previously referenced Table 2-1) or contribute to an existing air quality violation. As analyzed in the following sections, neither the short-term construction impacts nor the long-term operational impacts would exceed thresholds with implementation of minimization measures.

4.2 Short-Term Effects (Construction Emissions)

4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NO_x, volatile organic compounds (VOCs), directly emitted PM (PM_{2.5} and PM₁₀), and TACs (e.g., diesel exhaust PM).

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, and paving roadway surfaces. Construction-related effects on air quality from most roadway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate CO, NO_x, VOCs, PM₁₀, and PM_{2.5}. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after drying. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀

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emissions would also depend on soil moisture, the silt content of soil, wind speed, and the amount of equipment operating at the time. Larger dust particles would settle near the source, while finer particles would be dispersed over greater distances from the construction site.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, NO_x, VOCs, and some soot particulate (PM_{2.5} and PM₁₀) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site. Areas within 500 feet of CARB-defined sensitive land uses would be labeled as no-idle areas where material storage/transfer and equipment maintenance activities are not to occur.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 ppm of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and CARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO₂-related issues due to diesel exhaust would be minimal.

The construction emissions were estimated for the proposed Project using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 9.0.0, which is consistent with the guidance provided by the SCAQMD for evaluating construction impacts from roadway projects. Table 4-1 presents the maximum amount of construction-related emissions during a peak construction day (model data are provided in Appendix C). The PM₁₀ and PM_{2.5} emissions assume a 50 percent control of fugitive dust as a result of watering and associated dust-control measures. The Project construction emissions presented below are based on the best information available at the time of calculations and specify that the schedule for construction of the Build Alternative is anticipated to take approximately 14 months. Additionally, the SCAQMD has established rules for reducing fugitive dust emissions. With the implementation of standard construction measures (providing 50 percent effectiveness) such as frequent watering (e.g., a minimum of twice per day) as well as Minimization Measures AQ-1 through AQ-6 (see Chapter 6, Minimization Measures), fugitive dust and exhaust emissions from construction activities would not result in any adverse air quality impacts.

Table 4-1. Maximum Daily Project Construction Emissions

Project Phases	ROG	CO	NO _x	Total PM ₁₀	Total PM _{2.5}
Grubbing/Land Clearing (lbs/day)	1.11	9.87	11.99	16.52	3.79
Grading/Excavation (lbs/day)	9.30	69.99	105.01	20.31	7.22
Drainage/Utilities/Sub-Grade (lbs/day)	6.38	50.78	69.79	18.91	6.00
Paving (lbs/day)	1.02	13.22	12.02	0.60	0.50
Maximum (lbs/day)	9.30	69.99	105.01	20.31	7.22
Total (tons/construction project)	0.98	7.65	10.96	2.55	0.85

Source: Compiled by LSA (September 2020).

CO = carbon monoxide
 lbs/day = pounds per day
 NO_x = oxides of nitrogen

PM_{2.5} = particulate matter less than 2.5 microns in size
 PM₁₀ = particulate matter less than 10 microns in size
 ROG = reactive organic gases

Construction activities would not last for more than three years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR, Section 93.123(c)(5)).

Prior to the commencement of any construction activities, the Construction Contractor will submit a Construction Emission Control Plan for review and approval to the City of Colton Department of Public Works, which will be implemented during construction. The Construction Emission Control Plan will comply with federal, State, and local regulations as specified below:

- The contractor will adhere to the Caltrans Standard Specifications for Construction, Sections 14.9-01, 14.9-02, 14-9.03, 18-1.02C, and 18-1.03 (or Greenbook equivalent specifications). Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the right-of-way line depending on local regulations in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas (providing an estimated 50 percent reduction of fugitive emissions) in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low-sulfur fuel as required by California Code of Regulations (CCR) Title 17, Section 93114.
- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Equipment and material storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly in compliance with the SCAQMD Rule 402 (Nuisance).
- Environmentally sensitive areas will be established near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited to the extent feasible [as required by CCR Title 13, Section 2485(c)].
- Track-out reduction measures will be used, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, in accordance with the State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4).
- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation in compliance with the SCAQMD Rule 403.

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- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions [State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4)].
- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times (consistent with the traffic control plan approved by the City of Colton Traffic Engineer).
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown PM in the area. Note that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may require controls such as dampened straw [Caltrans Standard Specifications for Construction, Sections 18.1-02C (Dust Control Binders) and 18-1.03 (Construction – Dust Palliatives) or Greenbook equivalent].

4.2.2 Asbestos

The proposed Project is in San Bernardino County, which is among the counties listed as containing serpentine and ultramafic rock. However, the portion of San Bernardino County in which the proposed Project lies is not known to contain serpentine or ultramafic rock, according to the California Department of Conservation, Division of Mines and Geology (2000). Therefore, the impact from naturally occurring asbestos during Project construction would be minimal to zero. In the unlikely event that naturally occurring asbestos, serpentine, or ultramafic rock is discovered, SCAQMD will be notified per Section 93105, Title 17 of the CCR.

There is the potential for asbestos-containing materials (ACM) to be present in the existing bridge structure or in buildings on properties that would be acquired. If asbestos is found to be present in structures that would be modified as part of the Build Alternative, the certified asbestos abatement specialist would monitor the removal and disposal of the ACMs as they are uncovered. The contractor will be required to comply with Caltrans Standard Specifications Section 14-9.02 or Greenbook equivalent specification pertaining to air pollution control compliance with rules, regulations, ordinances, and statutes during renovation and demolition activities.

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. An aerially deposited lead (ADL) survey will be conducted to identify soils within the Project area containing high levels lead.

There is the potential for lead-based coatings in buildings on properties that would be acquired. If lead-based coatings are found to be present in structures that would be modified as part of the Build Alternative, the lead abatement specialist would monitor the removal and disposal of the lead-based coatings/soils as they are uncovered. The contractor will be required to comply with Caltrans Standard Specifications 14-9.02, 2015 or Greenbook equivalent specification pertaining to air

pollution control compliance with rules, regulations, ordinances, and statutes during renovation and demolition activities.

4.3 Long-Term Effects (Operational Emissions)

The purpose of the project is to provide safe connectivity between La Cadena and the Barton Road/Interstate 215 (I-215) interchange and to facilitate efficient access between Colton and Grand Terrace. The potential impact of the proposed Project on regional vehicle emissions was calculated using traffic data for the Project region and emission rates from the Emission Factor Model, Version 2017 (EMFAC2017).

The Project Area traffic for the existing Baseline, No Build Alternative, and Build Alternative were estimated using data from the *Traffic Study Report* (KOA 2020). The traffic data, along with the EMFAC2017 emission rates, were used to calculate the CO, reactive organic gases (ROG), NO_x, PM₁₀, and PM_{2.5} emissions for the existing condition (2019), opening year 2023, and horizon year 2045. The modeling results are summarized in Table 4-2 and are included in Appendix D.

Table 4-2. 2023 Opening Year and 2045 Horizon Year Regional Vehicle Emissions

Alternative	2023 Opening Year (lbs/day)						
	Vehicle Exhaust					Fugitive Dust	
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
Existing (2019)	0.54	13.78	3.87	0.06	0.58	0.05	0.23
No Build Alternative (2023)	0.64	16.86	4.23	0.05	1.00	0.05	0.40
<i>Change from Existing</i>	0.10	3.09	0.36	0.00	0.41	0.00	0.16
Build Alternative (2023)	0.47	14.33	3.64	0.04	1.00	0.04	0.40
<i>Change from Existing</i>	-0.07	0.55	-0.22	-0.02	0.41	-0.01	0.16
<i>Change from No Build Alternative</i>	-0.17	-2.53	-0.58	-0.01	0.00	-0.01	0.00
Alternative	2045 Horizon Year (lbs/day)						
	Vehicle Exhaust					Fugitive Dust	
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
Existing (2019)	0.54	13.78	3.87	0.06	0.58	0.05	0.23
No Build Alternative (2045)	0.56	12.28	2.38	0.03	1.43	0.03	0.57
<i>Change from Existing</i>	0.02	-1.50	-1.49	-0.03	0.85	-0.02	0.34
Build Alternative (2045)	0.50	11.67	2.04	0.03	1.43	0.03	0.57
<i>Change from Existing</i>	-0.04	-2.11	-1.83	-0.03	0.85	-0.03	0.34
<i>Change from No Build Alternative</i>	-0.06	-0.61	-0.34	0.00	0.00	0.00	0.00

Source: Compiled by LSA using EMFAC2017 with SAFE Rule adjustment factors.

Note: Totals may not appear to total correctly due to rounding. Fugitive dust consists of tire and brake wear and re-entrained road dust.

CO = carbon monoxide

EMFAC = Emission Factor Model

lbs/day = pounds per day

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ROG = reactive organic gases

As Table 4-2 shows for the vehicle exhaust emissions in 2023, the No Build and Build Alternative emissions are all lower than the existing condition emissions, except for fugitive dust PM₁₀ and PM_{2.5} emissions. Additionally, the Build Alternative for horizon year 2045 criteria pollutant emissions from vehicle exhaust are all less than the No Build Alternative emissions. The fugitive PM_{2.5} and PM₁₀ emissions consist of tire wear, brake dust, and re-entrained road dust emissions that are purely related to the increased regional VMT. The slight increase in fugitive dust PM₁₀ and PM_{2.5} emissions will not cause violations of the State PM₁₀ and PM_{2.5} ambient air quality standards in the South Coast Air Basin. The proposed Project would not substantially contribute to or cause deterioration of existing air quality.

4.3.1 Carbon Monoxide Analysis

The methodology required for a CO local analysis is summarized in the Caltrans Transportation Project-Level Carbon Monoxide Protocol (CO Protocol), Section 3 (Determination of Project Requirements) and Section 4 (Local Analysis).

In Section 3, the CO Protocol provides two conformity requirement decision flowcharts designed to assist project sponsors in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 (Appendix E of this report) of the CO Protocol applies to new projects and was used in this local analysis conformity decision. The following provides a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the project (Garza et al., 1997).

The flowchart begins with Section 3.1.1:

- **3.1.1. Is this project exempt from all emissions analyses?**

No.

Table 1 of the CO Protocol is Table 2 of 40 CFR, Section 93.126. The CO flowchart inquires whether the project is exempt. Such projects appear in Table 1 of the CO Protocol. The Build Alternative is not one of the exempt projects listed in Table 1 of the CO Protocol; therefore, the proposed Project is not exempt from all emission analyses.

- **3.1.2. Is the project exempt from regional emissions analyses?**

No.

Table 2 of the CO Protocol is Table 3 of 40 CFR, Section 93.127. The question attempts to determine whether the proposed Project is listed in Table 2. Projects that are included in Table 2 of the CO Protocol are exempt from regional conformity. Because the proposed Project would expand and add traffic lanes to an existing bridge, it is not exempt from regional emission analysis.

- **3.1.3. Is the project locally defined as regionally significant?**

No.

As noted above, the proposed Project would replace an existing two lane bridge with a widened two-lane surface road. Therefore, the proposed Project is not regionally significant.

- **3.1.4. Is the project in a federal attainment area?**

No.

The proposed Project is within an attainment/maintenance area for the federal CO standard; therefore, the Project is subject to a regional conformity determination.

- **3.1.5. Are there a currently conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP)?**

Yes.

Refer to Appendix A.

- **3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?**

Yes.

The proposed Project is included in the SCAG 2016 RTP (HBP ID: 1056) and the 2019 FTIP (Project ID: SBDLS08; Description: Bridge No. 54C0379, Barton Rd, over UP RR, 0.25 Mi W Route 215. Replace 2-lane bridge with new 2-lane asphalt roadway, minor seismic contribution.

- **3.1.7. Has the project design concept and/or scope changed significantly from that in the regional analysis?**

No.

As discussed in bullet number 3.1.6, regional conformity for the proposed Project has been demonstrated for the RTP and the FTIP. The proposed Build Alternative is consistent with the proposed Project description in the 2016 RTP/SCS, and the 2019 FTIP.

- **3.1.9. Examine local impacts.**

Section 3.1.9 of the flowchart directs the project evaluation to Section 4 (Local Analysis) of the CO Protocol. This concludes Figure 1.

Section 4 contains Figure 3 (Local CO Analysis [Appendix E of this report]). This flowchart is used to determine the type of CO analysis required for the Build Alternative. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines

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the next applicable level of the flowchart for the Build Alternative. The flowchart begins at Level 1:

- **Level 1. Is the project in a CO nonattainment area?**

No.

The Project site is in an area that has demonstrated attainment with the federal CO standard.

- **Level 1 (cont.). Was the area redesignated as “attainment” after the 1990 Clean Air Act?**

Yes.

- **Level 1 (cont.). Has “continued attainment” been verified with the local Air District, if appropriate?**

Yes.

The U.S. EPA designated the Basin as attainment/maintenance on June 11, 2007. (Proceed to Level 7.)

- **Level 7. Does the project worsen air quality?**

No.

Because the proposed Project would not meet any of the criteria discussed below, it would not potentially worsen air quality.

- a. The project significantly increases the percentage of vehicles operating in cold start mode. Increasing the number of vehicles operating in cold start mode by as little as 2% should be considered potentially significant.*

The percentage of vehicles operating in cold start mode is the same or lower for the bridge under study compared to those used for the intersections in the attainment plan. It is assumed that all vehicles on the Barton Road are in a fully warmed-up mode. Therefore, this criterion is not met.

- b. The project significantly increases traffic volumes. Increases in traffic volumes in excess of 5% should be considered potentially significant. Increasing the traffic volume by less than 5% may still be potentially significant if there is also a reduction in average speeds.*

The proposed Project will improve safety and operation for vehicles traveling on Barton Road between La Cadena and the I-215 interchange. As shown in Table 1-3, although the Project would result in lower traffic delays and traffic congestion, the proposed Project would increase traffic volumes on Barton Road between La Cadena and the I-215 interchange. Therefore, this criterion is not met.

- c. *The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 mph) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.*

As shown in Table 1-4, the proposed Project would present the lowest volume-to-capacity ratio for the Project's roadway segment of Barton Road between La Cadena and the I-215 interchange in both scenarios, opening day (2023) and horizon year (2045). Because the Project would not worsen traffic flow, rather expanding existing lanes to provide improvements to traffic flow and safety, this criterion is not met.

This concludes Figure 3 (Local CO Analysis [Appendix E of this report]). Using the levels and criteria in Figure 3 of the CO protocol, the Project would be considered satisfactory, and no further analysis is needed.

4.3.2 PM Analysis

Emissions Analysis

As Table 4-2 shows for the vehicle exhaust emissions in 2023 and 2045, the No Build and Build Alternative PM₁₀ and PM_{2.5} emissions from vehicle exhaust are both lower than the existing condition emissions. The fugitive PM_{2.5} and PM₁₀ emissions consist of tire wear, brake dust, and re-entrained road dust emissions that are purely related to the increased regional VMT.

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 PM₁₀ 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; U.S. EPA, 2015). 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 California Emission Factor Model (EMFAC) 2011 and U.S. EPA's 2012 PM NAAQS final rule. The November 2015 version reflects Motor Vehicle Emission Simulator (MOVES) 2014 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;
- (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;

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- (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- (v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM_{2.5} and PM₁₀ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The interagency consultation has not yet taken place and is anticipated in the future before Project approval. Once conducted, this report will be updated to report the POAQC determination from that consultation.

4.3.3 Nitrogen Dioxide Analysis

The U.S. EPA modified the NO₂ NAAQS to include a 1-hour standard of 100 parts per billion in 2010. Currently there is no federal project-level NO₂ analysis requirement. However, NO₂ is among the near-road pollutants of concern. Within the Project Area, it is unlikely that NO₂ standards will be approached or exceeded based on the relatively low ambient concentrations of NO₂ in the South Coast Air Basin and on the long-term trend toward reduction of NO_x emissions. Because of these factors, a specific analysis of NO₂ was not conducted for the proposed Project.

4.3.4 Mobile Source Air Toxics Analysis

The 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 annual average daily traffic 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 near populated areas or, in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, and hospitals).

As shown in Table 1-1, the existing traffic on Barton Road is well below the criteria of 125,000 average daily trips or 10,000 truck trips. The proposed Project is not expected to result in a substantial change to auto or truck volumes on Barton Road or adjacent streets. Consequently, the emission effects of the proposed Project would be low, and it is expected that there would be no appreciable difference in overall MSAT emissions between the No Build and Build alternatives. Because the emission effects of the proposed Project would be low, it is expected that there would be no appreciable difference in overall MSAT emissions between the No Build and Build alternatives.

4.3.5 Greenhouse Gas Emission Analysis

Greenhouse gas emissions associated with the Project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. There would also be long-term greenhouse gas emissions associated with Project-related changes to vehicular trips. Recognizing that the field of global climate change analysis is rapidly evolving, the approaches advocated most recently indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, construction activities, and any other significant source of emissions within the Project Area. As with the criteria pollutant analysis described in Section 4.2.1, the construction emissions were estimated for the proposed Project using the Sacramento Metropolitan Air Quality Management District's Road Construction Model (RoadMod, Version 9.0.0). The RoadMod results were used to quantify greenhouse gas emissions generated by construction of the proposed Project and are presented below in Table 4-3.

Table 4-3. Project Construction Greenhouse Gas Emissions

Project Phases	CO₂ (tons/phase)	CH₄ (tons/phase)	N₂O (tons/phase)	CO₂e (MT/phase)
Grubbing/Land Clearing (lbs/day)	32.62	0.01	0.00	29.99
Grading/Excavation (lbs/day)	1,104.64	0.33	0.02	1,014.24
Drainage/Utilities/Sub-Grade (lbs/day)	490.43	0.13	0.01	449.59
Paving (lbs/day)	78.93	0.01	0.01	73.44
Maximum (tons/phase)	1104.64	0.33	0.02	1,014.24
Total (tons/construction project)	1,706.63	0.47	0.03	1,727.58

Source: Compiled by LSA (September 2020).

CH₄ = methane

CO₂e = carbon dioxide equivalent

N₂O = Nitrous Oxide

CO₂ = carbon dioxide

MT = metric tons

tons/phase = tons per phase

Construction would generate short-term GHG emissions from excavation, grading, hauling, and other activities. As with the criteria pollutant analysis described in Section 4.2.1, the construction emissions shown in Table 4-3 were estimated for the proposed Project using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 9.0.0.

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The operation of the proposed Project would have low- to no-potential for an increase in GHG emissions. Construction emissions will be unavoidable, but there will likely be long-term GHG benefits from improved operation and smoother traffic flow. Table 4-4 shows the CO₂ emissions and VMT for the Project scenarios. Note that these CO₂ emission numbers are only useful for a comparison of the alternatives.

Table 4-4. Modeled Annual CO₂ Emissions and Vehicle Miles Traveled, by Alternative

Alternative	CO₂ Emissions (metric tons/year)	Annual Vehicle Miles Traveled¹
Existing/Baseline Year 2019	2.18	3,106,177
Open to Traffic Year 2023		
No Build	3.33	5,304,145
Build Alternative	2.89	5,304,145
20-Year Horizon/Design-Year 2045		
No Build	3.44	7,574,670
Build Alternative	3.27	7,574,670

Source: LSA (September 2020)

Notes: Traffic data from Traffic Study Report, emissions calculated using EMFAC2017 with SAFE Rule adjustment factors.

¹ Annual VMT values derived from Daily VMT values multiplied by 347, per CARB methodology (CARB 2008).

CARB = California Air Resources Board

CO₂ = carbon dioxide

VMT = vehicle miles traveled

Although the vehicle miles traveled would increase from the Existing/Baseline (2019) scenario to the Opening year (2023) No Build and Build scenarios, the CO₂ emissions for the Build scenario would be less than both the Existing/Baseline (2019) and Opening year (2023) No Build scenarios due to the reduced congestion from the Project. The same Project-related CO₂ emission reduction would occur in the 20-Year Horizon scenario, which was used to be consistent with the traffic analysis and the RTP/SCS.

4.4 Cumulative/Regional/Indirect Effects

O₃, secondary PM₁₀, and secondary PM_{2.5} are normally regional issues because they are formed by photochemical and chemical reactions over time in the atmosphere. For these pollutants, localized impact analysis is not meaningful. However, emission analyses may be required to make some comparison with the Baseline and No Build conditions. Formation of O₃ and secondary PM are a function of ROG and NO_x emissions. As shown in Table 4-2, the emissions of ROG and NO_x are less for the Build Alternative compared to the No Build Alternative in both 2023 and 2045. Thus, the proposed Project would not result in increases in the emissions of O₃, secondary PM₁₀, or secondary PM_{2.5}.

The proposed Project is listed in the financially constrained list of projects in the 2016 RTP/ SCS under HBP ID 1056, which includes a regional emissions analysis for ozone and PM. As described in the Program Environmental Impact Report for the 2016 RTP/SCS, "Both the 2016 RTP/SCS which includes Amendment No. 3 meet the regional emissions and other tests set forth by the federal Transportation Conformity regulations, demonstrating the integrity of the State Implementation

Plans prepared pursuant to the Federal Clean Air Act for the non-attainment and maintenance areas in the SCAG region.” Further, it concludes: “Despite temporary significant construction emissions, long term criteria pollutant emissions by the County is expected to decline with implementation of the Plan.” Thus, as the proposed Project is included in the 2016 RTP/SCS, it would also not result in a significant cumulative regional air quality effect.

4. *Environmental Consequences*

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5. Minimization Measures

CEQA requires that feasible measures that can eliminate or substantially reduce project impacts be addressed. The 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 measures (23 CFR 771).

5.1 Short-Term (Construction)

The following measures are required to be implemented during construction activities.

Prior to the commencement of any construction activities, the Construction Contractor will submit a Construction Emission Control Plan for review and approval to the City of Colton Department of Public Works, which will be implemented during construction. The Construction Emission Control Plan will comply with federal, State, and local regulations as specified below:

- The contractor will adhere to the Caltrans Standard Specifications for Construction, Sections 14.9-01, 14.9-02, 14-9.03, 18-1.02C, and 18-1.03 (or Greenbook equivalent specifications). Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the right-of-way line depending on local regulations in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas (providing an estimated 50 percent reduction of fugitive emissions) in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low-sulfur fuel as required by CCR Title 17, Section 93114.
- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities in compliance with the SCAQMD Rule 403 (Fugitive Dust).
- Equipment and material storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly in compliance with the SCAQMD Rule 402 (Nuisance).

5. Minimization Measures

- Environmentally sensitive areas will be established near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited to the extent feasible [as required by CCR Title 13, Section 2485(c)].
- Track-out reduction measures will be used, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, in accordance with the State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4).
- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation in compliance with the SCAQMD Rule 403.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions [State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4)].
- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times (consistent with the traffic control plan approved by the City of Colton Traffic Engineer).
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown PM in the area. Note that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may require controls such as dampened straw [Caltrans Standard Specifications for Construction, Sections 18.1-02C (Dust Control Binders) and 18-1.03 (Construction – Dust Palliatives) or Greenbook equivalent].

5.2 Long-Term (Operational)

No avoidance, minimization, and/or mitigation measures are required, as the Project would not produce substantial operational air quality impacts. No further action is required by the Cities.

However, Caltrans is firmly committed to implementing statewide strategies to help reduce the potential effects of GHG emissions statewide. These GHG reduction strategies are discussed below.

One of the main strategies in the Caltrans *Climate Action Program* to reduce GHG emissions is to make California's transportation system more efficient. In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, California Governor Jerry Brown identified key climate change strategy pillars (concepts), as shown in Figure 5-1, The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals. These pillars highlight the concept that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent California's electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy, Safeguarding California.

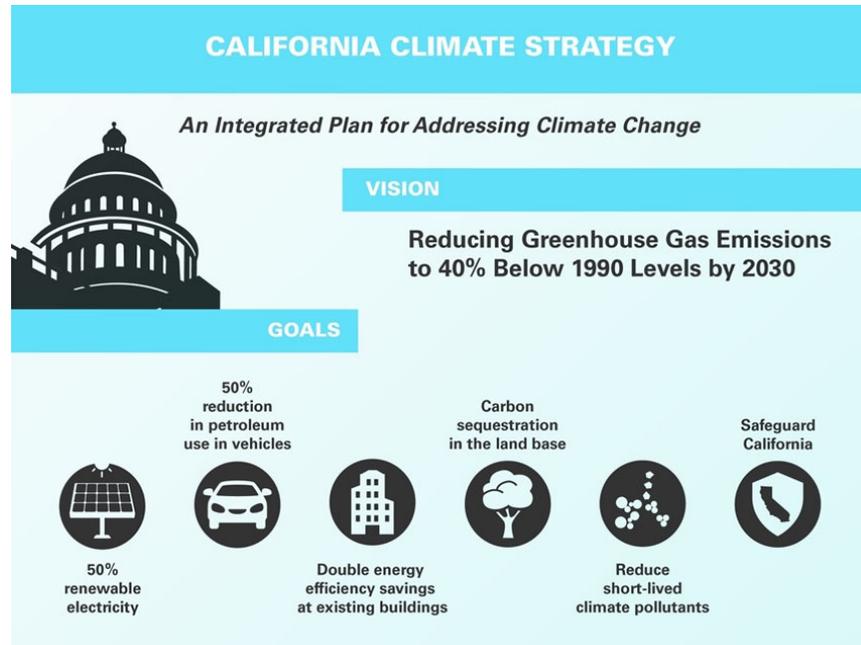


Figure 5-1. The Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the State builds on its past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of VMT. One of Governor Brown’s key pillars sets the ambitious goal of reducing today’s petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove CO₂ from the atmosphere through biological processes, and to then sequester carbon in above-and below-ground matter.

5. *Minimization Measures*

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6. Conclusions

The purpose of the project is to provide safe connectivity between La Cadena and the Barton Road/I-215 interchange and to facilitate efficient access between Colton and Grand Terrace. As shown in Section 4, Environmental Consequences, neither the short-term construction impacts nor the long-term operational impacts would exceed thresholds. Project improvements would have no meaningful impacts on regional traffic volumes or vehicle mix. The proposed Project would not substantially contribute to or cause deterioration of existing air quality. Furthermore, the Build Alternative would not result in any meaningful changes in regional traffic volumes, vehicle mix, or any other factor that would cause an increase in emissions impacts relative to the No Build Alternative. Minimization measures presented in Section 5, above, would be implemented to ensure that short-term construction impacts and long-term operational impacts would not exceed applicable air quality standards.

6. *Conclusions*

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7. *References*

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8. Appendices

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Appendix A

RTP and FTIP Listings for the Project

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2014/15-2019/20 Highway Bridge Program

#17-00 SBD SBDLS08 Highway Bridge Program

See the appropriate FTIP/FSTIP for current funding commitments. This listing provides the backup project information to support the lump sum amounts programmed in the FTIP.

District: 08 County: San Bernardino
 Responsible Agency HBP-ID Project Description

Colton 1056 BRIDGE NO. 54C0379, BARTON RD, OVER UP RR, 0.25 MI W ROUTE 215. Replace 2 lane bridge with new 2 lane Asphalt roadway. Minor seismic contribution. The City of Colton will be the implementing agency for design and construction.

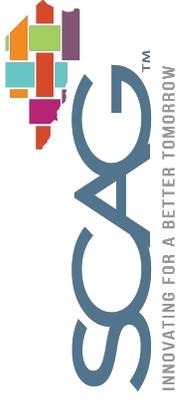
Phase Summary:	Prior	14/15	15/16	16/17	17/18	18/19	19/20	Beyond	Total
PE				462,887					462,887
R/W				600,000					600,000
CON							2,499,592		2,499,592
Total				1,062,887			2,499,592		3,562,479
Fund Source Summary:	Prior	14/15	15/16	16/17	17/18	18/19	19/20	Beyond	Total
Fed \$	-18			940,974			2,212,889		3,153,845
Local Match	18			121,913			235,088		357,019
LSSRP Bond							51,615		51,615
Local AC									
Total				1,062,887			2,499,592		3,562,479

Project #:	5065(024)
	5421(002)

PE Summary:	Prior	14/15	15/16	16/17	17/18	18/19	19/20	Beyond	Total
Fed \$	-18			409,794					409,776
Local Match	18			53,093					53,111
LSSRP Bond									
Local AC									
Total				462,887					462,887

R/W Summary:	Prior	14/15	15/16	16/17	17/18	18/19	19/20	Beyond	Total
Fed \$				531,180					531,180
Local Match				68,820					68,820
LSSRP Bond									
Local AC									
Total				600,000					600,000

CON Summary:	Prior	14/15	15/16	16/17	17/18	18/19	19/20	Beyond	Total
Fed \$							2,212,889		2,212,889
Local Match							235,088		235,088
LSSRP Bond							51,615		51,615
Local AC									
Total							2,499,592		2,499,592



Final 2019 Federal Transportation Improvement Program

San Bernardino County Project Listing Local Highway (in \$000's)

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment	
ACTIVE TRANSPORTATION PROGRAM				9,534	9,534	4,743	4,791						9,534	
20151502 Total				11,508	11,508	5,808	5,700						11,508	
20171402	San Bernardino	SCAB		4TL104	NCN25		PTC	23,006			L	EXEMPT - 93.126	0	
Description: Grouped Projects for Bicycle and pedestrian facilities - Non - Motorized (ATP Cycle 3 State/MPO): Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and Table 3 categories - Bicycle and pedestrian facilities (Non-motorized)														
Fund		ENG	R/W	CON	Total		2018/2019	2019/2020	2020/2021	2021/2022		2022/2023	2023/2024	Total
CITY FUNDS				4,641	4,641		2,439	935	827					4,641
ACTIVE TRANSPORTATION PROGRAM				8,246	8,246		4,082	1,291	1,560					8,246
ACTIVE TRANSPORTATION PROGRAM - MPO				10,119	10,119		3,789	2,732	3,278					10,119
20171402 Total				23,006	23,006		10,310	4,958	5,665					23,006
20171905	San Bernardino	SCAB		SBD31905	NCR36		PTC	88,065			L	EXEMPT - 93.126	0	
Description: MT. VERNON AVENUE BRIDGE (OVERHEAD) AT BNSF REPLACE GRADE SEPARATION, REPLACE 4 LANE BRIDGE WITH 4 LANE BRIDGE FROM 2ND TO 5TH STREETS (0.2 MILES SOUTH OF RTE. 66)(BRIDGE NO 54C0066)														
Fund		ENG	R/W	CON	Total		2018/2019	2019/2020	2020/2021	2021/2022		2022/2023	2023/2024	Total
CITY FUNDS		417	256	8,980	9,653		9,242	9,242						9,653
LOCAL ADVANCE CONSTRUCTION								72,764				-72,764		
BRIDGE - LOCAL		3,222	1,979	72,764	77,965		2,024	2,024				72,764		77,965
LOCAL BRIDGE SEISMIC RETROFIT ACCOUNT				447	447			447						447
SBD31905 Total				82,191	88,065		3,588	84,477						88,065
2018086	San Bernardino	SCAB		SBDLS08	NCR36		PTC	175,650			L	EXEMPT - 93.126	0	
Description: GROUPED PROJECTS FOR BRIDGE REHABILITATION AND RECONSTRUCTION - HBP PROGRAM -PROJECTS ARE CONSISTENT WITH 40 CFR PART 93.126, 127, 128 EXEMPT TABLES 2 & 3														
Fund		ENG	R/W	CON	Total		2018/2019	2019/2020	2020/2021	2021/2022		2022/2023	2023/2024	Total
AGENCY				19,444	19,444		475	662	1,225	2,101		10,620		19,444
BRIDGE - LOCAL				155,633	155,633		3,668	5,111	9,454	18,290		85,447		155,633
LOCAL BRIDGE SEISMIC RETROFIT ACCOUNT				573	573				573					573
SBDLS08 Total				175,650	175,650		4,143	5,773	11,252	20,391		96,067		175,650
200886	San Bernardino	MDAB		REG0701	NCR78		PTC	8,540			L	EXEMPT - 93.126	0	
Description: BRIDGE NO. 54C0547, BEAR VALLEY ROAD, OVER BNSF RY, AMTRAK, & UP RR, 3.8 MI E OF ROUTE I-15. Widen 6 lane bridge to 7 lanes (median turn lane) and seismically retrofitting existing bridge.														
Fund		ENG	R/W	CON	Total		2018/2019	2019/2020	2020/2021	2021/2022		2022/2023	2023/2024	Total
CITY FUNDS		80	17	882	979		882	882						979

2018/19-2023/24 Highway Bridge Program

See the appropriate FTIP/FSTIP for current funding commitments. This listing provides the backup project information to support the lump sum amounts programmed in the FTIP.

#19-15 SBD SBDLS08 HBP

District: 08 County: San Bernardino
 Responsible Agency: HBP-ID Project Description

Colton 1056 BRIDGE NO. 54C0379, BARTON RD, OVER UP RR, 0.25 MI W ROUTE 215. Replace 2 lane bridge with new 2 lane Asphalt roadway, Minor seismic contribution. The City of Colton will be the implementing agency for design and construction.

Phase Summary:	Prior	18/19	19/20	20/21	21/22	22/23	23/24	Beyond	Total
PE	462,887				331,700				794,587
R/W					600,000				600,000
CON								2,499,592	2,499,592
Total	462,887				931,700			2,499,592	3,894,179
Fund Source Summary:	Prior	18/19	19/20	20/21	21/22	22/23	23/24	Beyond	Total
Fed \$	409,776				824,834			2,212,889	3,447,499
Local Match	53,111				106,866			235,088	395,065
LSSRP Bond								51,615	51,615
Local AC									
Total	462,887				931,700			2,499,592	3,894,179

Project #:	5065(024)
	5421(002)

PE Summary:	Prior	18/19	19/20	20/21	21/22	22/23	23/24	Beyond	Total
Fed \$	409,776				293,654				703,430
Local Match	53,111				38,046				91,157
LSSRP Bond									
Local AC									
Total	462,887				331,700				794,587

R/W Summary:	Prior	18/19	19/20	20/21	21/22	22/23	23/24	Beyond	Total
Fed \$					531,180				531,180
Local Match					68,820				68,820
LSSRP Bond									
Local AC									
Total					600,000				600,000

CON Summary:	Prior	18/19	19/20	20/21	21/22	22/23	23/24	Beyond	Total
Fed \$								2,212,889	2,212,889
Local Match								235,088	235,088
LSSRP Bond								51,615	51,615
Local AC									
Total								2,499,592	2,499,592

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Appendix B

Transportation Air Quality Conformity Findings Checklist

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Transportation Air Quality Conformity Findings Checklist

PROJECT INFORMATION

Project Name: Barton Bridge Removal and Road Construction Project

DIST-CO-RTE-PM: 8-SBD-

EA: Federal Aid Number: BRLS 5065(024)

Document Type: 23 USC 326 CE 23 USC 327 CE EA EIS

CHECKLIST

Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM2.5, or PM10 per [EPA's Green Book](#) listing of non-attainment areas?

- If no, go to Step 17. **Transportation conformity does not apply to the project.**
- If yes, go to Step 2.

Step 2. Is the project exempt from conformity per [40 CFR 93.126](#) or [40 CFR 93.128](#)?

- If yes, go to Step 17. **The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128)** (check one box below and identify the project type, if applicable).
- 40 CFR 93.126¹
Project type from Table 2: Widening narrow pavements or reconstructing bridges (no additional travel lanes)
- 40 CFR 93.128
- If no, go to Step 3.

Step 3. Is the project exempt from regional conformity per [40 CFR 93.127](#)?

- If yes, go to Step 8. **The project is exempt from regional conformity requirements (40 CFR 93.127)** (identify the project type).
Project type: _____
- If no, go to Step 4.

Step 4. Is the project located in a region with a currently conforming RTP and TIP?

- If yes, **the project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b])** Go to Step 8.
- If no and the project is located in an isolated rural area, go to Step 5.
- If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.

¹ Please refer to [Clarifications on Exempt Project Determinations](#) to verify exempt project type from Table 2. Road diets, auxiliary lanes less than one-mile, and ramp metering may be exempt under "projects that correct, improve, or eliminate a hazardous location or feature."

Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?

- If yes, go to Step 6.
- If no, go to Step 8. **The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[e]).**

Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?

- If yes, go to Step 8. **The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[e]).**
- If no, go to Step 7.

Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.

- Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[e] and 95.105).² Go to Step 8.**

Step 8. Is the project located in a CO nonattainment or maintenance area? (South Coast Air Basin only)

- If no, go to Step 9. **CO conformity analysis is not required.**
- If yes, **hot-spot analysis requirements for CO per the [CO Protocol](#) (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors³) have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)⁴.** Go to Step 9.

Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?

- If no, go to Step 13. **PM2.5/PM10 conformity analysis is not required.**
- If yes, go to Step 10.

² The analysis must support this conclusion before going to the next step.

³ Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach. Use of CAL3QHCR must follow U.S. EPA's latest CO hot spot guidance, using EMFAC instead of MOVES; see: <http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#co-hotspot>.

⁴ As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.

Step 10. Is the project considered to be a Project of Air Quality Concern (POAQC), as described in EPA’s [Transportation Conformity Guidance](#) for PM 10 and PM 2.5?

- If no, **the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA’s Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on _____.** Go to Step 12.
- If yes, go to Step 11.

Step 11. The project is a POAQC.

- The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA’s Hot-Spot Guidance. Interagency Consultation concurred with this determination on _____. Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA’s Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards.** Go to Step 12.

Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures? [Control measures can be found in the applicable Federal Register notice at: <https://www.epa.gov/state-and-local-transportation/conformity-adequacy-review-region-9#ca>.]

- If yes, **a written commitment is made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).** Go to Step 14.
- If no, go to Step 13.

Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project’s design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR

Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project’s NEPA document? AND

Step 13c (applies only if Step 13a and/or 13b are answered “yes”). Has a written commitment been made as part of the air quality analysis to implement the identified measures?

- If yes to 13a and/or 13b and 13c, **a written commitment is made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project’s NEPA document and/or as conditions of the RTP or TIP conformity determination (40 CFR 93.125(a)).** Go to Step 14.
- If no, go to Step 14.

Step 14. Does the project qualify for a Categorical Exclusion pursuant to 23 USC 326?

- If yes, go to step 15.
- If no, go to Step 16.

Step 15. Is any analysis required by steps 1-13 of this form?⁵

- If yes, then Caltrans prepares the appropriate analysis and documentation for the project file and makes the conformity determination through its signature on the CE form. No FHWA involvement is required. See the AQCA Annotated Outline. Go to Step 17.
- If no, then Caltrans makes the conformity determination through its signature on the CE form. No FHWA involvement is required. Go to Step 17.

Step 16. Does the project require preparation of a Categorical Exclusion, EA, or EIS pursuant to 23 USC 327?

- If yes, is the project located in a non-attainment/maintenance area for **ozone only** and considered not regionally significant/non-exempt?
 - If yes, go to Step 17.⁶
 - If no, then Caltrans submits a conformity determination request to FHWA for FHWA's conformity determination letter. **An AQCA is needed.** See the AQCA Annotated Outline.

Date of FHWA air quality conformity determination: _____

Step 17. STOP as all air quality conformity requirements have been met.

SIGNATURE

Michael Slavick



10-8-2020

Senior Air Quality Specialist

Signature

Date

⁵ Please note that not all projects that qualify for a categorical exclusion will be exempt from air quality conformity requirements. Many types of projects that may qualify for a CE (such as the addition of auxiliary lanes less than one-mile, weaving lanes less than one-mile, turning lanes less than one-mile, climbing lanes less than one-mile, parking, road diets, ramp metering, and even many bridge projects) MAY require some level of project level conformity analysis and may even require interagency consultation. Additionally, please note that for ALL projects the project file must include evidence that one of the three following situations apply: 1) Conformity does not apply to the project area; or 2) The project is exempt from all conformity analysis requirements; or 3) The project is subject to project-level conformity analysis (and possibly regional conformity analysis) and meets the criteria for a conformity determination. The project file must include all supporting documentation and this checklist.

⁶ Project-level conformity analysis shows that the project will conform to the State Implementation Plan. Because the project area is Attainment/Unclassified for carbon monoxide (CO) and particulate matter (PM10 and PM2.5), no hot spot analysis is required for the project-level conformity determination by 40 CFR 93.116 and 93.123. The project comes from a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). Include documentation of interagency consultation review in the final CE/EA/EIS, if applicable.

Appendix C

Construction Emission Calculations

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Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Barton Raod Bridge Removal Project														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	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	1.11	9.87	11.99	16.52	0.52	16.00	3.79	0.46	3.33	0.02	2,118.40	0.58	0.05	2,146.36
Grading/Excavation	9.30	69.99	105.01	20.31	4.31	16.00	7.22	3.89	3.33	0.16	15,939.95	4.69	0.25	16,132.72
Drainage/Utilities/Sub-Grade	6.38	50.78	69.79	18.91	2.91	16.00	6.00	2.67	3.33	0.11	10,615.45	2.73	0.14	10,726.81
Paving	1.02	13.22	12.02	0.60	0.60	0.00	0.50	0.50	0.00	0.03	3,416.85	0.56	0.25	3,504.35
Maximum (pounds/day)	9.30	69.99	105.01	20.31	4.31	16.00	7.22	3.89	3.33	0.16	15,939.95	4.69	0.25	16,132.72
Total (tons/construction project)	0.98	7.65	10.96	2.55	0.46	2.09	0.85	0.41	0.44	0.02	1,706.63	0.47	0.03	1,727.58

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 14
 Total Project Area (acres) -> 2
 Maximum Area Disturbed/Day (acres) -> 2
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	200	40
Grading/Excavation	71	0	120	0	1,120	40
Drainage/Utilities/Sub-Grade	5	0	30	0	720	40
Paving	0	220	0	330	320	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 -> Barton Raod Bridge Removal Project														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	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	0.02	0.15	0.18	0.25	0.01	0.25	0.06	0.01	0.05	0.00	32.62	0.01	0.00	29.99
Grading/Excavation	0.64	4.85	7.28	1.41	0.30	1.11	0.50	0.27	0.23	0.01	1,104.64	0.33	0.02	1,014.24
Drainage/Utilities/Sub-Grade	0.29	2.35	3.22	0.87	0.13	0.74	0.28	0.12	0.15	0.01	490.43	0.13	0.01	449.59
Paving	0.02	0.31	0.28	0.01	0.01	0.00	0.01	0.01	0.00	0.00	78.93	0.01	0.01	73.44
Maximum (tons/phase)	0.64	4.85	7.28	1.41	0.30	1.11	0.50	0.27	0.23	0.01	1,104.64	0.33	0.02	1,014.24
Total (tons/construction project)	0.98	7.65	10.96	2.55	0.46	2.09	0.85	0.41	0.44	0.02	1,706.63	0.47	0.03	1,567.25

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.

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Appendix D

Operational Emission Calculations

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VMT		Existing (2019)		2023 No Build		2023 Build		2045 No Build		2045 Build	
Link	Length	ADT	VMT	ADT	VMT	ADT	VMT	ADT	VMT	ADT	VMT
Barton Road	1.02	8,776	8,952	14,986	15,286	14,986	15,286	21,401	21,829	21,401	21,829

Emission Units in Pounds per day

2019 Existing Condition

Fugitive Dust

Roadway Link	ROG	CO	NOx	CO2	CH4	PM10	PM2.5	Benzene	Acrolein	acetaldehyde	formaldehyde	Butadiene	naphthalen	POM	Diesel PM	DEOG	PM10	PM2.5
Barton Road	0.542325	13.77651	3.867532	4795.031	0.167875	0.055673	0.052535	0.017903	0.000791	0.014946	0.035403	0.003669	0.000532	0.000832	0.03598	0.168287	0.582355	0.231946

Under LOS F, Assuming average vehidle speed of: 30 mph (speed limit is 45 mph)
 Under LOS C, Assuming average vehidle speed of: 45 mph (speed limit is 45 mph)

(Based on emissions factors from EMFAC2017)

Emission Units in Pounds per day

2023 No Build

Roadway Link	ROG	CO	NOx	CO2	CH4	PM10	PM2.5	Benzene	Acrolein	acetaldehyde	formaldehyd	Butadiene	naphthalen	POM	Diesel PM	DEOG	PM10	PM2.5
Barton Road	0.638085	16.8648	4.22704	7335.716	0.2197047	0.051637389	0.048119	0.020883	0.000893	0.017212	0.040846	0.004249	0.000604	0.000906	0.017087	0.194065	0.995426	0.396279

2023 Build

Roadway Link	ROG	CO	NOx	CO2	CH4	PM10	PM2.5	Benzene	Acrolein	acetaldehyde	formaldehyd	Butadiene	naphthalen	POM	Diesel PM	DEOG	PM10	PM2.5
Barton Road	0.470413	14.33012	3.643543	6373.55	0.1587571	0.040660786	0.03794	0.01545	0.000687	0.011078	0.027077	0.003217	0.000439	0.000658	0.014804	0.119694	0.995406	0.396271

Under LOS F, Assuming average vehidle speed of: 30 mph (speed limit is 45 mph)
 Under LOS C, Assuming average vehidle speed of: 45 mph (speed limit is 45 mph)

Based on emissions factors from EMFAC2017

SAFE Rule Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles						
Year	NOx	TOG Evap	TOG Exhau	PM Exhaus	CO Exhaust	CO2
2023	1.0007	1.0006	1.0007	1.0032	1.0027	1.0126

Emission Units in Pounds per day

2045 No Build

Roadway Link	ROG	CO	NOx	CO2	CH4	PM10	PM2.5	Benzene	Acrolein	cetaldehyd	rmaldehyc	Butadiene	Japhthalen	POM	Diesel PM	DEOG	Fugitive Dust	
																	PM10	PM2.5
Barton Road	0.5649	12.277805	2.3808651	7589.8738	0.1981056	0.029975	0.027911	0.019003	0.00076	0.019104	0.04353	0.003789	0.000619	0.000725	0.009527	0.221335	1.43057	0.569014

2045 Build

Roadway Link	ROG	CO	NOx	CO2	CH4	PM10	PM2.5	Benzene	Acrolein	cetaldehyd	rmaldehyc	Butadiene	Japhthalen	POM	Diesel PM	DEOG	Fugitive Dust	
																	PM10	PM2.5
Barton Road	0.502115	11.66587	2.0412313	7200.5996	0.1741198	0.027328	0.025483	0.016893	0.000698	0.016455	0.037678	0.003396	0.000534	0.000646	0.009112	0.189018	1.430511	0.568991

Under LOS F, Assuming average vehidle speed of: 30 mph (speed limit is 45 mph)

Under LOS C, Assuming average vehidle speed of: 45 mph (speed limit is 45 mph)

Based on emissions factors from EMFAC2017

SAFE Rule Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles						
Year	NOx	TOG Evapor	TOG Exhaust	PM Exhaust	CO Exhaust	CO2
2045	1.0124	1.0225	1.0109	1.0303	1.0306	1.1243

Table 1 Scenario Years Regional Vehicle Emissions (lbs/day)

Alternative	Scenario Years						
	ROG	CO	NOX	PM10		PM2.5	
	Exhaust	Exhaust	Exhaust	Exhaust	Fugitive	Exhaust	Fugitive
2019 Existing	0.54	13.78	3.87	0.06	0.58	0.05	0.23
No Build Alternative 2023	0.64	16.86	4.23	0.05	1.00	0.05	0.40
Change from Existing	0.10	3.09	0.36	0.00	0.41	0.00	0.16
Build Alternative 2023	0.47	14.33	3.64	0.04	1.00	0.04	0.40
Change from Existing	-0.07	0.55	-0.22	-0.02	0.41	-0.01	0.16
Change from No Build	-0.17	-2.53	-0.58	-0.01	0.00	-0.01	0.00
No Build Alternative 2045	0.56	12.28	2.38	0.03	1.43	0.03	0.57
Change from Existing	0.02	-1.50	-1.49	-0.03	0.85	-0.02	0.34
Build Alternative 2045	0.50	11.67	2.04	0.03	1.43	0.03	0.57
Change from Existing	-0.04	-2.11	-1.83	-0.03	0.85	-0.03	0.34
Change from No Build	-0.06	-0.61	-0.34	0.00	0.00	0.00	0.00

Source: Compiled by LSA (September 2020).

lbs/day = pounds per day

ROG = reactive organic gases

CO = carbon monoxide

NOX = nitrogen oxides

PM10 = particulate matter less than 10 microns in size

PM2.5 = particulate matter less than 2.5 microns in size

Table 2 MSAT Emissions (lbs/day)									
Alternative	Scenario Years								
	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Diesel PM	Ethyl-benzene	Formaldehyde	Naphthalene	POM
2019 Existing	0.0037	0.0149	0.0008	0.0179	0.0360	0.1683	0.0354	0.0005	0.0008
No Build Alternative 2023	0.0042	0.0172	0.0009	0.0209	0.0171	0.0000	0.0408	0.0006	0.0009
Change from Existing	0.0006	0.0023	0.0001	0.0030	-0.0189	-0.1683	0.0054	0.0001	0.0001
Build Alternative 2023	0.0032	0.0111	0.0007	0.0154	0.0148	0.1197	0.0271	0.0004	0.0007
Change from Existing	-0.0005	-0.0039	-0.0001	-0.0025	-0.0212	-0.0486	-0.0083	-0.0001	-0.0002
Change from No Build	-0.0010	-0.0061	-0.0002	-0.0054	-0.0023	0.1197	-0.0138	-0.0002	-0.0002
No Build Alternative 2045	0.0038	0.0191	0.0008	0.0190	0.0095	0.2213	0.0435	0.0006	0.0007
Change from Existing	0.0001	0.0042	0.0000	0.0011	-0.0265	0.0530	0.0081	0.0001	-0.0001
Build Alternative 2045	0.0034	0.0165	0.0007	0.0169	0.0091	0.1890	0.0377	0.0005	0.0006
Change from Existing	-0.0003	0.0015	-0.0001	-0.0010	-0.0269	0.0207	0.0023	0.0000	-0.0002
Change from No Build	-0.0004	-0.0026	-0.0001	-0.0021	-0.0004	-0.0323	-0.0059	-0.0001	-0.0001

Source: Compiled by LSA (September 2020).

MSAT = Mobile Source Air Toxics

lbs/day = pounds per day

Diesel PM = diesel particulate matter

POM = polycyclic organic matter

Table 3 GHG Emissions for Scenario Years			
Greenhouse Gas Emissions (Metric Tons/day)			
Alternative	CO2	CH4	CO2e
Existing Condition 2019	2.17	0.00	2.18
No Build 2023	3.33	0.00	3.33
Change from Existing	1.15	0.00	1.15
Build Alternative 2023	2.89	0.00	2.89
Change from Existing	0.72	0.00	0.72
Change from No Build	-0.44	0.00	-0.44
No Build 2045	3.44	0.00	3.44
Change from Existing	1.27	0.00	1.27
Build Alternative 2045	3.27	0.00	3.27
Change from Existing	1.09	0.00	1.09
Change from No Build	-0.06	0.00	-0.06

Source: Compiled by LSA (September 2020).

CO2 = carbon dioxide

CH4 = Methane

CO2e = Carbon dioxide equivalent

Alternative	Annual VMT Traveled¹
Existing Condition 2018	3,106,177
No Build 2023	5,304,145
Change from Existing	2,197,967
Build Alternative 2023	5,304,145
Change from Existing	2,197,967
Change from No Build	0
No Build 2045	7,574,670
Change from Existing	4,468,493
Build Alternative 2045	7,574,670
Change from Existing	4,468,493
Change from No Build	2,270,525

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

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Appendix E

CO Flow Chart (Based on the CO Protocol)

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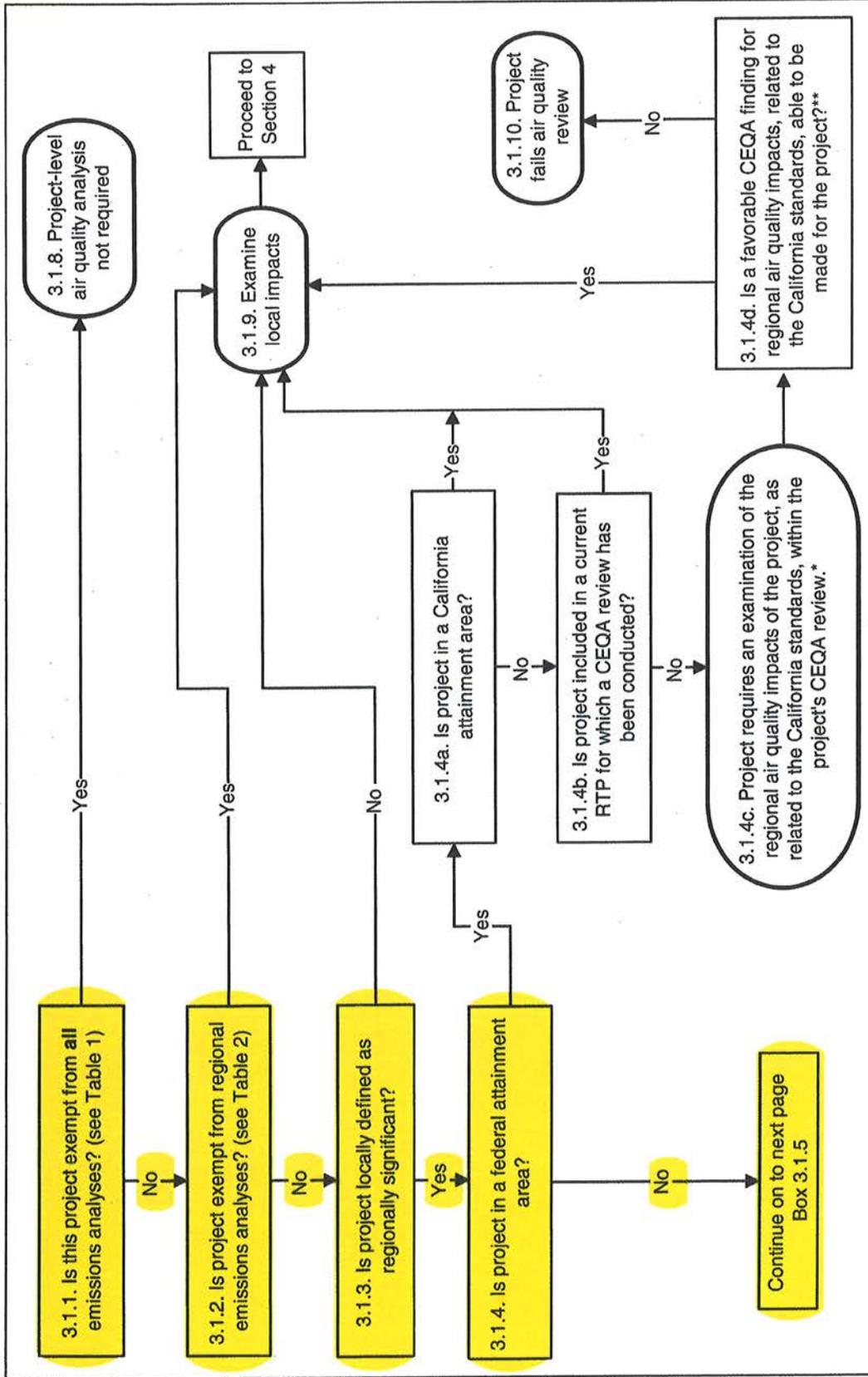
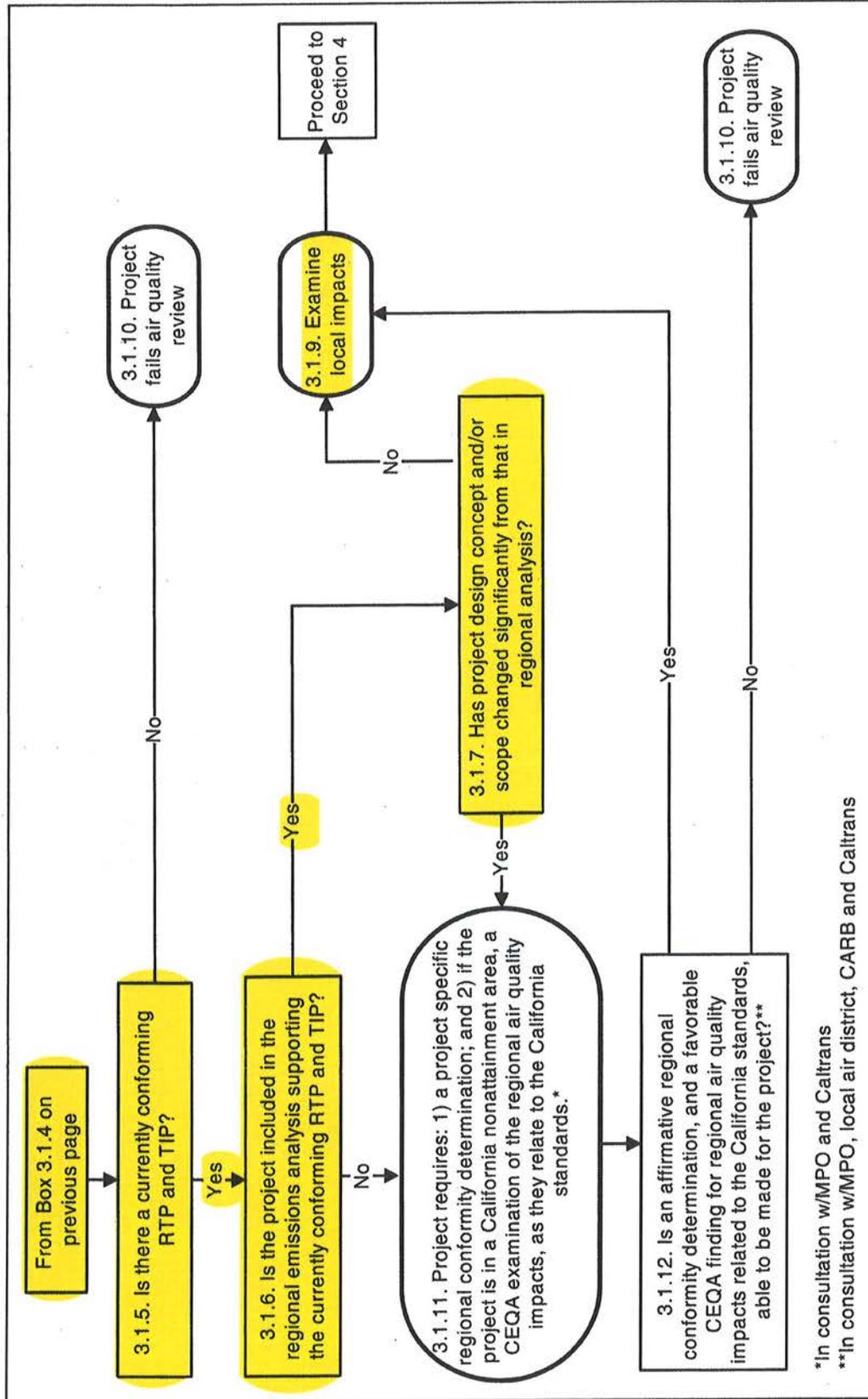


Figure 1. Requirements for New Projects



*In consultation w/MPO and Caltrans

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

Figure 1 (cont.). Requirements for New Projects

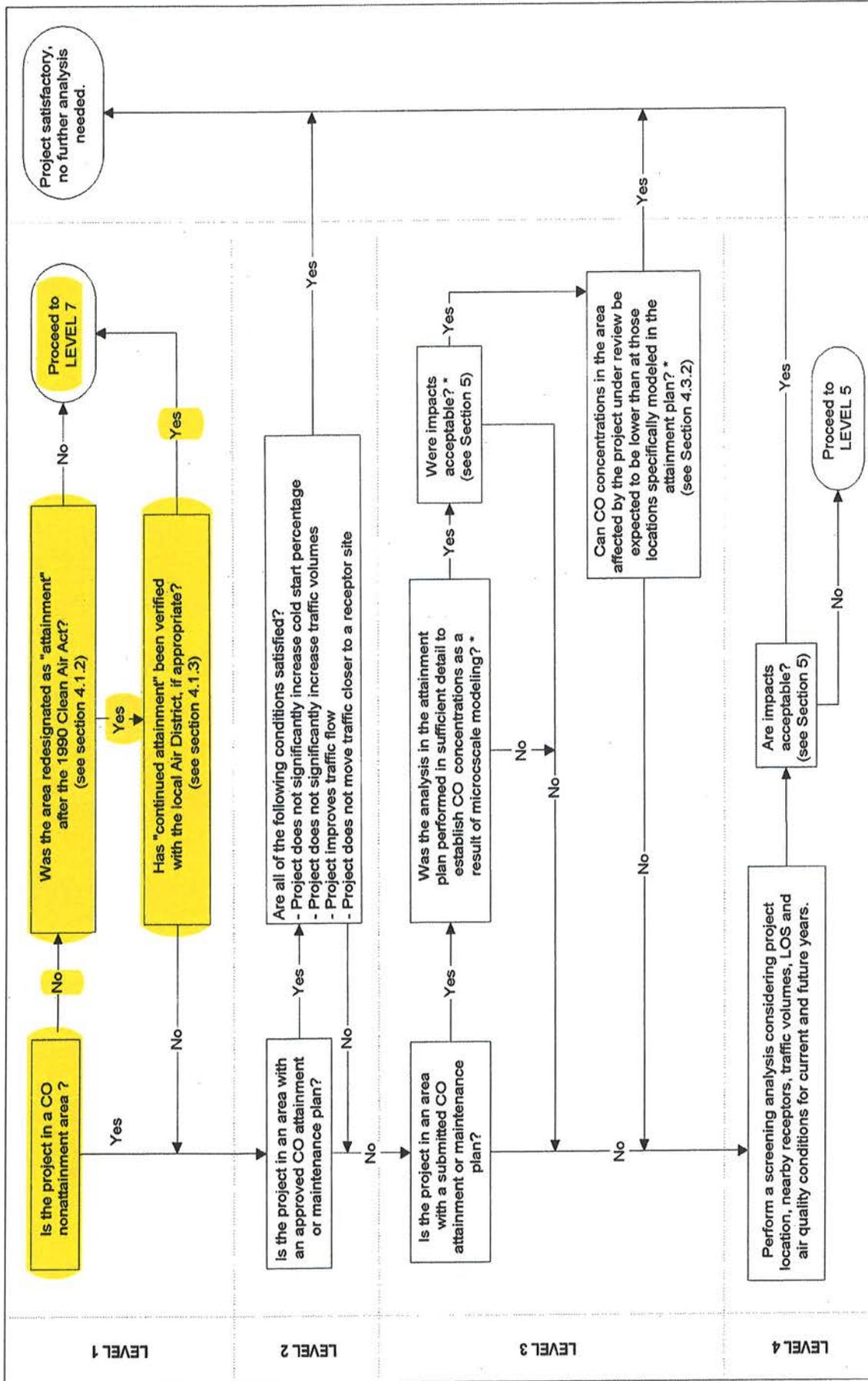


Figure 3. Local CO Analysis

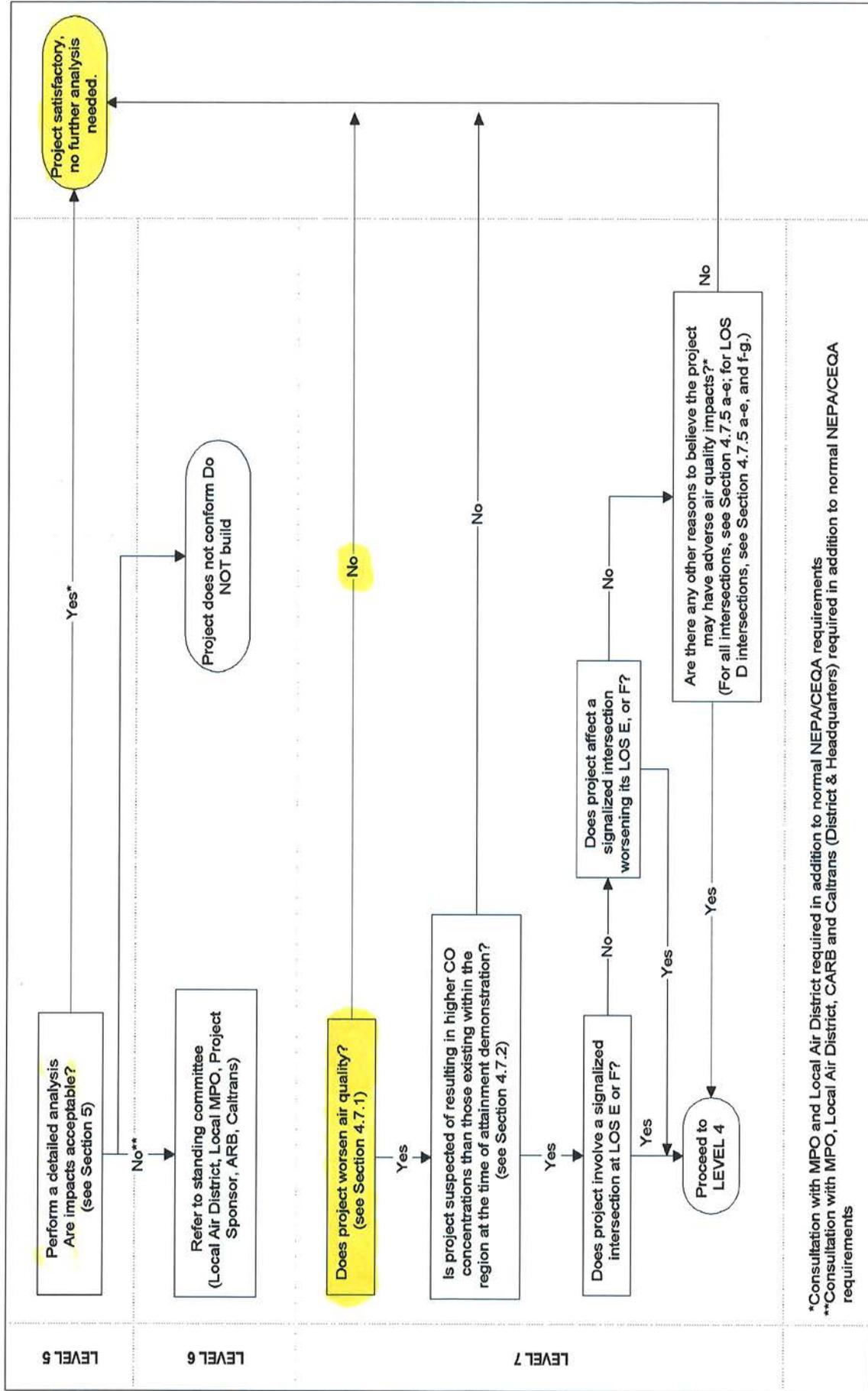


Figure 3 (cont.). Local CO Analysis