Ontario International Airport Connector Project

ONTCONNECTOR

APPENDIX C
AIR QUALITY TECHNICAL REPORT

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ACRONYMS AND ABBREVIATIONS

%	percent
°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
%	percent
ADA	Americans with Disabilities Act
a.m.	Ante meridiem
AQMP	Air Quality Management Plan
AQS	Air Quality System
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	carbon monoxide
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
HAP	Hazardous Air Pollutant
I-10	Interstate 10
I-15	Interstate 15
ID	Identification
lbs/day	pounds per day
LST	localized significance threshold
m	meters
MEP	Mechanical, electrical, and plumbing
MM	Mitigation Measure
mph	miles per hour
MSAT	mobile source air toxics
MSF	maintenance and storage facility
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

NO	nitrogen oxide
NO^2	nitrogen dioxide
NO_X	oxides of nitrogen
O^3	ozone
OIAA	Ontario International Airport Authority
ONT	Ontario International Airport
Pb	lead
p.m.	Post meridiem
PM	particulate matter
$PM_{2.5}$	particulate matter sized 2.5 microns or less in diameter
PM_{10}	particulate matter sized 10 microns or less in diameter
Ppb	parts per billion
ppm	parts per million
Project	Ontario International Airport Connector Project
ROW	right-of-way
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RTS	regional thresholds of significance
SANBAG	San Bernardino Associated Governments
SBCTA	San Bernardino County Transportation Authority
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCRRA	Southern California Regional Rail Authority
SIP	State Implementation Plan
SO^2	sulfur dioxide
TAC	Toxic Air Contaminant
TCR	Transportation Control Measures
TBM	tunnel boring machine
TCR	Transportation Conformity Rule
UPRR	Union Pacific Railroad
USC	United States Code
US DOT	United States Department of Tranportation
Vent shaft	Ventilation shaft
VMT	Vehicle Miles Traveled
VOC	volatile organic compound

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1 INTRODUCTION

San Bernardino County Transportation Authority (SBCTA), in cooperation with the Federal Transit Administration (FTA), proposes to construct a 4.2-mile-long transit service tunnel directly connecting the Southern California Regional Rail Authority (SCRRA) Cucamonga Metrolink Station to the Ontario International Airport (ONT). The proposed ONT Connector Project (Project) is to expand access options to ONT by providing a direct transportation connection from Cucamonga Metrolink Station to ONT. The proposed Project is subject to federal and state environmental review requirements pursuant to National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). FTA is the lead agency for NEPA, while SBCTA is the lead agency under CEQA. Partner agencies include the Ontario International Airport Authority (OIAA), Omnitrans, the City of Ontario and the City of Rancho Cucamonga.

ONT is located approximately two miles east of downtown Ontario in San Bernardino County. The airport services more than 25 major cities via 10 commercial carriers. ONT is owned and operated under a joint powers agreement between the City of Ontario and the San Bernardino County. OIAA provides overall direction, management, operations, and marketing for ONT. In 2014, the San Bernardino Associated Governments (SANBAG), now SBCTA, prepared the Ontario Airport Rail Access Study (SANBAG 2014), which identified the need for a direct rail-to-airport connection to ONT to support its projected growth. ONT is one of the fastest growing commercial airports, forecasted to serve 14 million annual passengers by 2045 (OIAA 2019).

The purpose of this technical report is to evaluate potential environmental impacts of air quality that the Project may have within the proposed Project area. This technical report describes existing setting, applicable regulatory settings, methodology, and potential impacts from construction and operation of the proposed Project and the No Project Alternative. The information contained in this technical report will be used to prepare the required environmental documents under CEQA.

2 PROJECT DESCRIPTION

2.1 PROJECT PURPOSE AND OBJECTIVES

The purpose of the proposed Project is to expand access options to ONT by providing a direct transportation connection from Cucamonga Metrolink Station to ONT. This new connection would increase mobility and connectivity for transit patrons, improve access to existing transportation services, provide a connection to future Brightline West service to/from ONT, and support the use of clean, emerging technology for transit opportunities between Cucamonga Metrolink Station and ONT. More specifically, the proposed Project's objectives are as follows:

- Expand access options to ONT by providing a convenient and direct connection between ONT and the Metrolink network, and other transportation services at the Cucamonga Station.
- Reduce roadway congestion by encouraging a mode shift to transit from single-occupancy vehicles and provide reliable trips to and from ONT.
- Support autonomous electric vehicle technology usage for transit projects.

2.2 PROJECT NEED

The proposed Project need includes:

- Lack of direct transit connection coinciding with Metrolink trains and peak airport arrival and departure schedules. The lack of a direct transit connection between Cucamonga Metrolink Station and ONT creates mobility challenges for air passengers accessing ONT. In many cases, the lack of a last-mile connection between the Metrolink system and ONT forces airport passengers to use rideshare services or private single-occupancy vehicles, adding congestion to the local roads between the Cucamonga Metrolink Station and ONT. This congestion results in delays for the public to reach their destination, community services, and facilities.
- Roadway congestion affecting trip reliability and causing traffic delays. ONT travelers using rideshare services or private single-occupancy vehicles adds traffic volumes and increasing congestion on the local roads between Cucamonga Metrolink Station and ONT. Increases in future traffic volumes and roadway congestion affects trip reliability for travelers and commuters to and from ONT.
- Increasing Vehicle Miles Traveled (VMT) resulting from ONT travelers and lack of a direct transit connection.
- Increased greenhouse gas emissions within communities surrounding ONT from single-occupancy vehicle travel to and from ONT.

2.3 ALTERNATIVES EVALUATED

2.3.1 No Project Alternative

CEQA requires that existing conditions and the proposed Project be evaluated against a No Project Alternative in an Environmental Impact Report (EIR). The No Project Alternative represents the Project area if the proposed Project is not constructed, and additional municipal projects would still be developed in the area. The No Project Alternative is used for comparison purposes to assess the relative benefits and impacts of constructing a new transit project versus only constructing projects which are already funded and planned for in local and regional plans. The No Project Alternative would result in no new direct electrically powered, on-demand fixed transit guideway connection from the Cucamonga Metrolink Station to Ontario International Airport (ONT). Omnitrans currently operates a limited-service bus route to ONT, known as ONT Connect or Route 380, which would remain operational under the No Project Alternative. ONT Connect currently operates Monday through Sunday, with bi-directional (northbound and southbound) service frequencies ranging from 35-60 minutes. However, ONT Connect travels with general/mixed traffic on existing roadways. The No Project Alternative assumes that the existing roadway system near ONT (such as the Interstate 10 [I-10] and Interstate 15 [I-15]) will implement some planned expansion and improvement projects and undergo routine maintenance activities. The San Bernardino County Transportation Authority (SBCTA) and California Department of Transportation (Caltrans) propose to construct Express Lanes, including tolled facilities, in both directions of I-15. In addition, Caltrans is proposing to improve I-10 by constructing freeway lane(s) and other improvements through all or a portion of the 33-mile-long segment of I-10 from the Los Angeles/San Bernardino County line to Ford Street in San Bernardino County.

A detailed list of the planned projects included in the No Project Alternative is found in the Cumulative Impacts Technical Report (SBCTA 2024a).

2.3.2 Proposed Project

The proposed Project includes a 4.2-mile tunnel alignment, three passenger stations, a maintenance and storage facility (MSF), and an access and ventilation shaft (vent shaft) in the cities of Rancho Cucamonga and Ontario within sSan Bernardino County (see Figure 2-1). The proposed Project would include autonomous electric vehicles that would be grouped and queued at their origin station and depart toward the destination station once boarded with passengers. The following sections provide additional details on the proposed Project location and land uses, and on the proposed design, construction, and operation, as applicable, for these project elements.

2.3.2.1 Project Location

The proposed Project is located in the City of Rancho Cucamonga and in the City of Ontario within San Bernardino County. Figure 2-1 illustrates the proposed Project site's regional location and vicinity. The proposed Project alignment is a reversed L-shaped alignment consisting of the Cucamonga Metrolink Station, Milliken Avenue, East Airport Drive, and ONT. Figure 2-2 illustrates the proposed Project area. Cucamonga Metrolink Station is located at 11208 Azusa Court in the City of Rancho Cucamonga and serves the Metrolink San Bernardino Line commuter rail. ONT is located at 1923 East Aviation in the City of Ontario and provides international airport service with over 10 different airline partners. Information related to the proposed Project Design is found in Section 2.3.2.3.

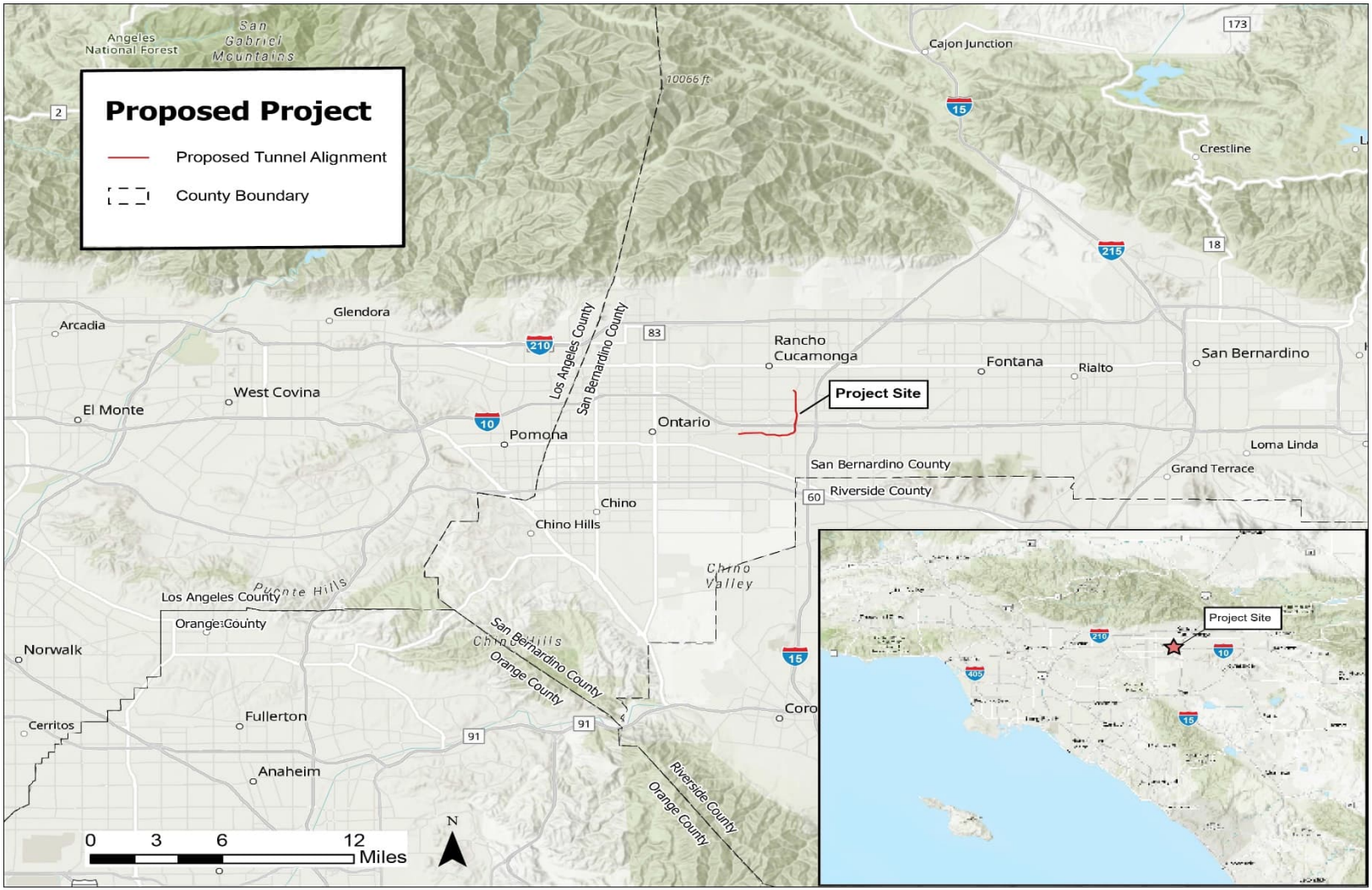
2.3.2.2 Existing Land Uses

The northwestern portion of the proposed Project alignment includes the Cucamonga Metrolink Station. There are 980 standard parking stalls and 24 Americans with Disabilities Act (ADA) compliant stalls at the Cucamonga Metrolink Station (Metrolink 2022).

From the northwestern portion of the proposed Project, the tunnel alignment travels under Milliken Avenue, which is a major north-south arterial roadway. Milliken Avenue consists of three travel lanes north of Inland Empire Boulevard and four travel lanes south of Inland Empire Boulevard. From Milliken Avenue, the alignment travels south crossing under the existing I-10. I-10 is an east-west cross-country highway and has six lanes in each direction at the proposed Project site. The alignment eventually connects to East Airport Drive, which is an east-west arterial roadway with three travel lanes in each direction.

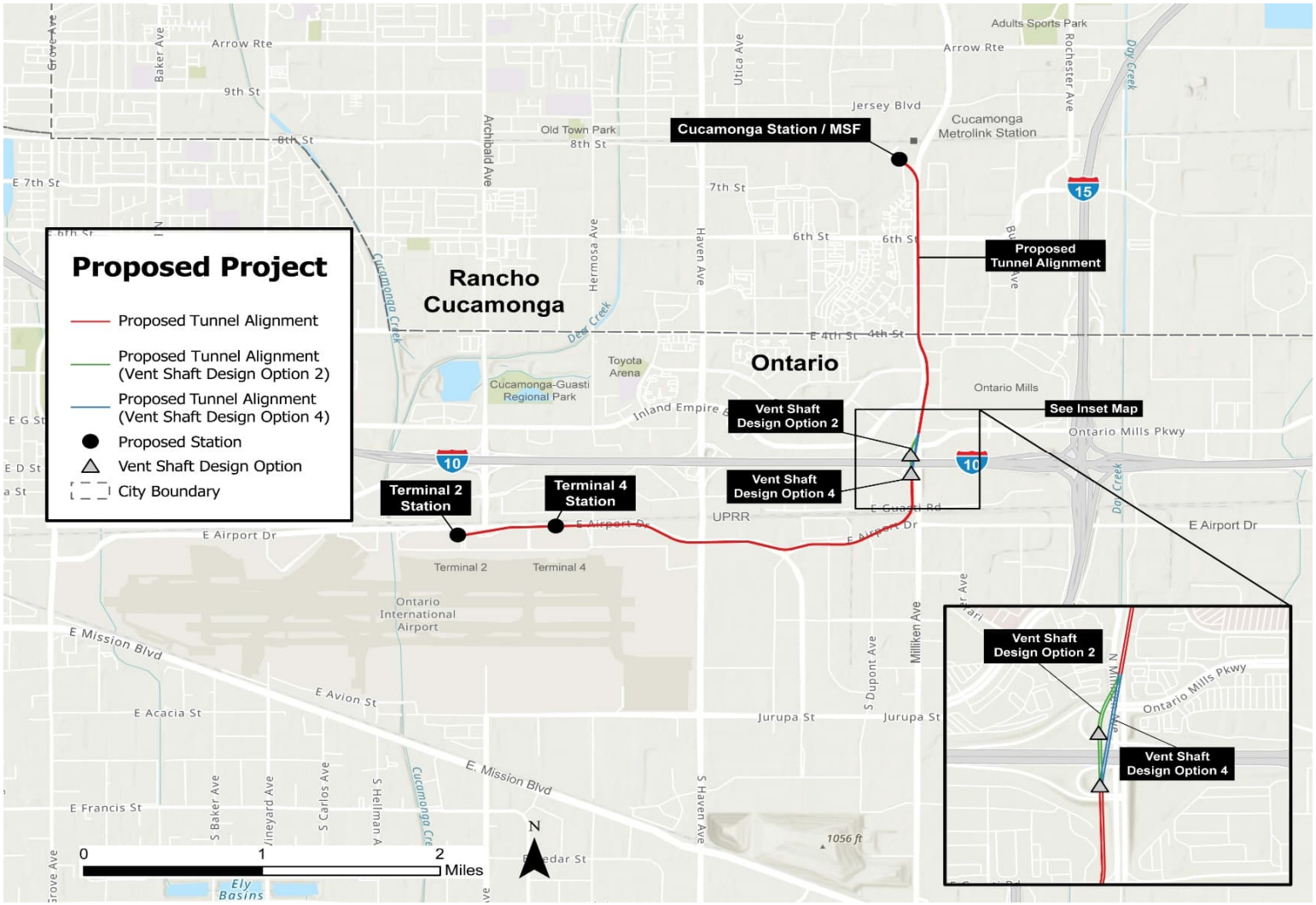
The southwestern portion of the proposed Project tunnel alignment terminates at ONT. Parking Lots 2 through 5 are located on the northern side of ONT. Parking Lots 2, 3, and 4 are surface lots that provide general parking and are a short walk away from the terminals at ONT. Parking Lot 5 is a surface economy lot at which a shuttle service is available.

Figure 2-1: Regional Location Map



Source: AECOM 2024

Figure 2-2: Proposed Project Site



Source: AECOM 2024

2.3.2.2.1 Surrounding Land Uses

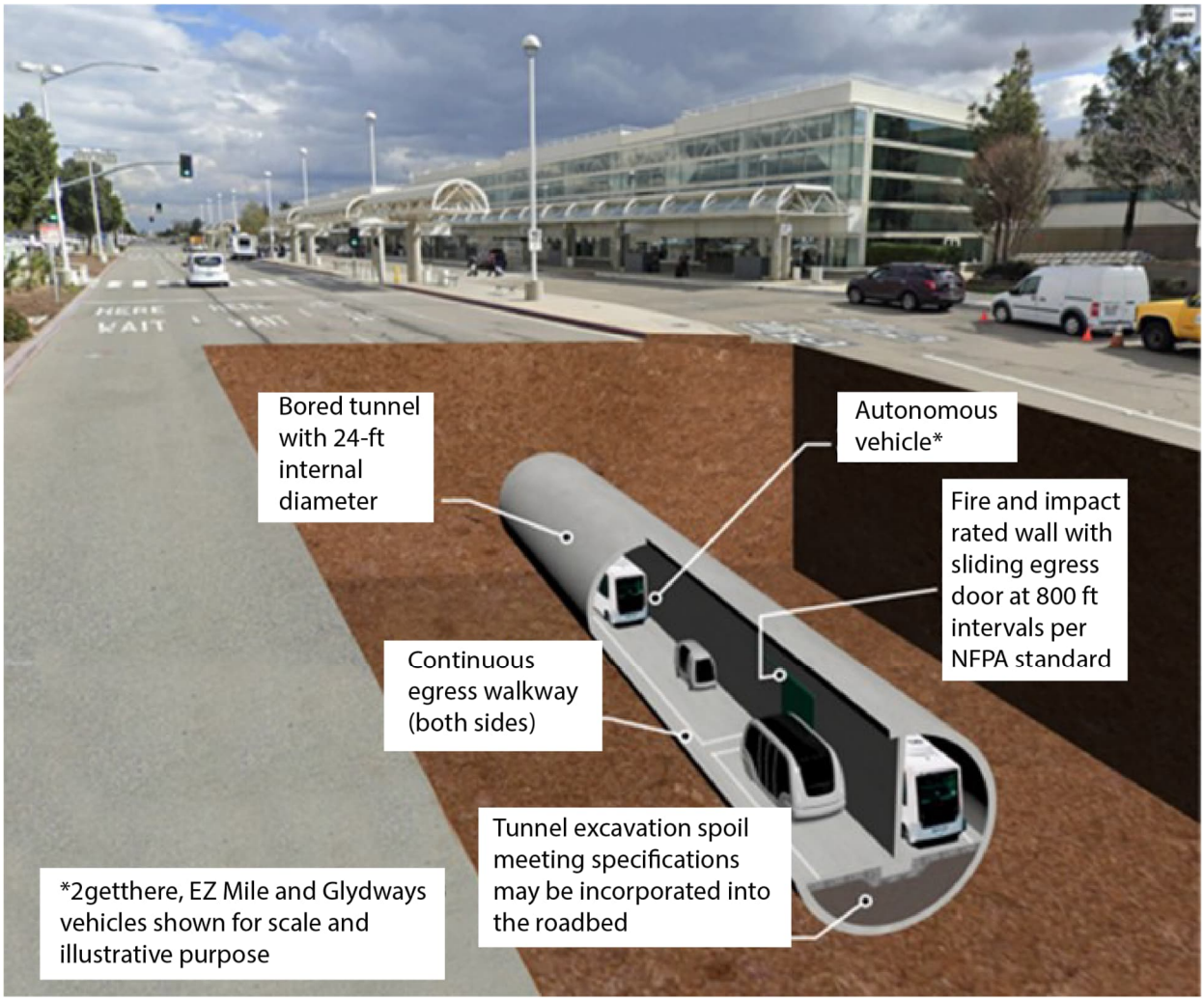
Development in the immediate vicinity of the proposed Project site includes a mix of industrial, commercial, manufacturing, transportation, office, multi-family residential, hotel, and airport related land uses. The proposed Project site's surrounding land uses are located within the City of Rancho Cucamonga and City of Ontario. Immediately adjacent uses include the following:

- North: Railroad tracks, industrial and manufacturing uses, trucking facilities, surface parking lots, Rancho Cucamonga Fire Station Number 174, and All Risk Training Center for the Rancho Cucamonga Fire Protection District.
- South: Industrial and manufacturing uses, along with trucking facilities, rental car facilities, parking lots, hotel uses, and other airport related uses. ONT includes two passenger terminals, general aviation facilities, air freight buildings, parking lots, and numerous airport and aircraft maintenance and support services.
- East: The eastern side of Milliken Avenue from 5th Street south to 4th Street consists primarily of hotel uses. Concentrated areas of commercial uses and restaurants are located along Milliken Avenue from 4th Street south to I-10, including Ontario Mills, which is a regional shopping mall complex. Hotel uses are also located adjacent to the Ontario Mills shopping mall.
- West: The western side of Milliken Avenue from approximately 7th Street south to 4th Street consists primarily of multi-family residential uses. Concentrated areas of large retail, commercial uses, restaurants, hotels, and the Toyota Arena are located along Milliken Avenue from 4th Street south to I-10.

2.3.2.3 Proposed Project Design

The proposed Project includes construction of transit facilities, including three at-grade passenger stations, one MSF, and one emergency access and vent shaft. The proposed alignment would run primarily within a 4.2-mile single underground tunnel (24-foot inner diameter bi-directional tunnel) alignment that begins at the Cucamonga Metrolink Station and travels south along Milliken Avenue and crosses beneath 6th Street and 4th Street, I-10, and the Union Pacific Railroad (UPRR), before traveling west beneath East Airport Drive to connect to Terminals 2 and 4 at ONT. A tunnel configuration has been identified as the proposed Project based on technical analysis, evaluation, and stakeholder input. Figure 2-3 depicts a typical transit tunnel section. Please see the Alternatives Considered Report for additional background on the development and refinement of the proposed Project design.

Figure 2-3: Typical Transit Tunnel Section View



Source: HNTB 2024

The three proposed at-grade stations would be constructed to serve Cucamonga Metrolink Station, ONT Terminal 2, and ONT Terminal 4. The MSF would be located adjacent to Cucamonga Metrolink Station and would support operations for the proposed Project by storing, maintaining, and cleaning autonomous electric transit vehicles, and it would also include employee amenities and parking. The access and vent shaft would be constructed to provide a means of emergency passenger egress and first responder access.

The proposed Project would include autonomous electric vehicles that would transport passengers on demand between Cucamonga Metrolink Station and ONT. The autonomous electric vehicles would run on rubber tires, and the vehicles are proposed to travel on a dedicated asphalt guideway within the proposed tunnel. The tunnel will include access ramps for the transit vehicles to surface to grade and provide access to the three proposed at-grade stations for passenger boarding and alighting.

2.3.2.2.1 Stations

The proposed Project includes three passenger stations. One station would be located in the northwestern corner of the existing Cucamonga Metrolink Station parking lot, which is owned and maintained by the City of Rancho Cucamonga. The other two proposed stations would be located within two of the existing parking lots at ONT, specifically Parking Lot 2 and Parking Lot 4, which are located across from Terminals 2 and 4. These proposed stations would be located at-grade and would connect to their associated tunnel portals along Terminal Way at ONT. Stations are proposed to be one to two stories and up to approximately 40 feet in height. All three stations would be connected to the bored tunnel via a cut-and-cover structure and an at-grade guideway. The guideway would be enclosed by fencing, and the walls would be buffered with landscaping. A pedestrian walkway would be provided bordering the outside of the guideway. A pedestrian walkway would be provided bordering the outside of the guideway. Figure 2-4 and Figure 2-5 illustrate the overview of the proposed station footprint.

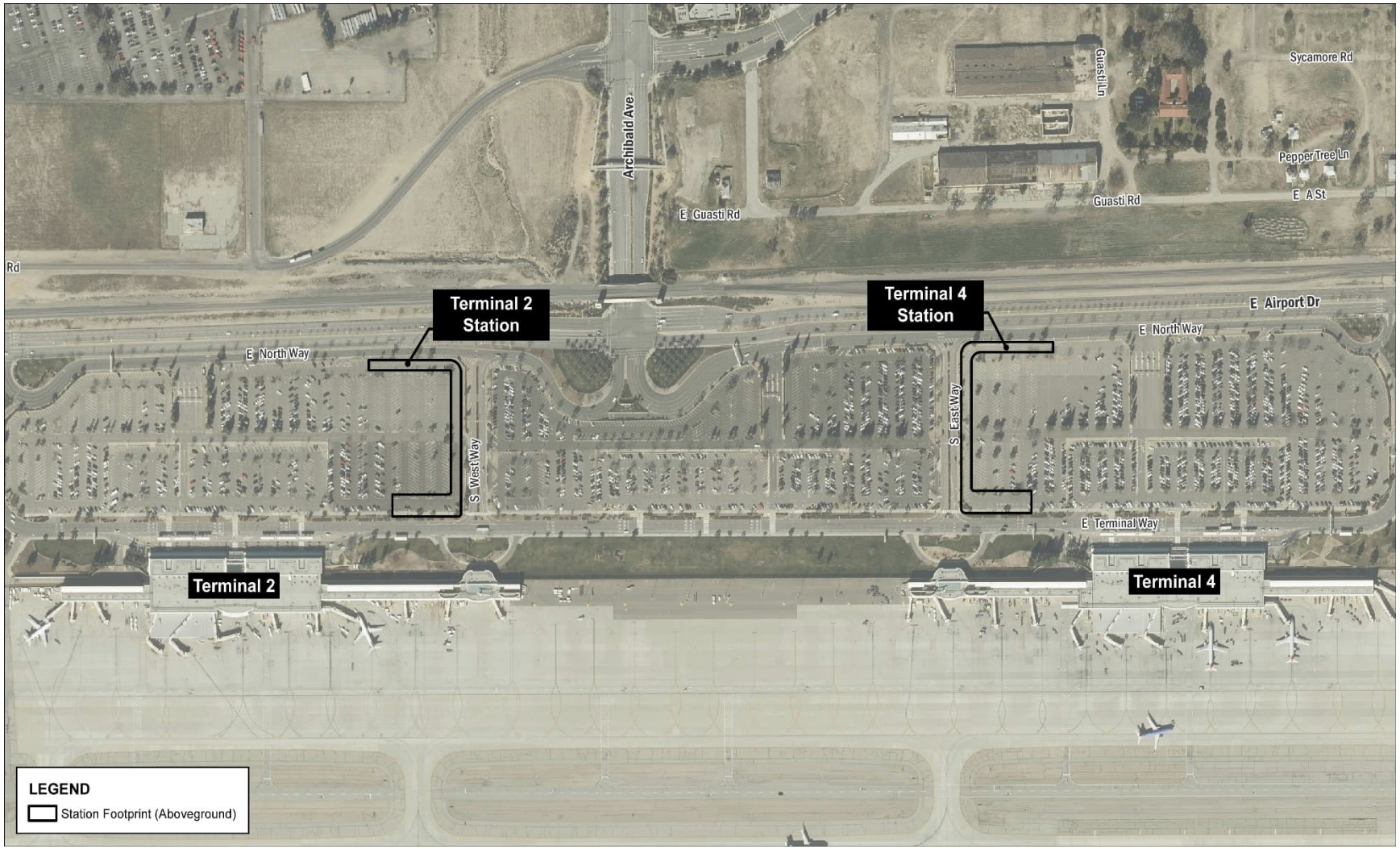
The proposed at-grade station Cucamonga Station would be approximately 8,000 square-feet and would be located at the northwest corner of the existing Cucamonga Metrolink Station parking lot. The existing Cucamonga Metrolink Station parking lot is owned and maintained by the City of Rancho Cucamonga. Approximately 180 parking stalls would be permanently removed from the existing Cucamonga Metrolink Station parking lot to accommodate the proposed Cucamonga Station. Two other stations, each approximately 10,000 square-feet, would be located at-grade within two of the existing parking lots at ONT Terminal 2 and Terminal 4. The Cucamonga Station also includes the proposed Project's MSF.

The two airport-serving stations would connect to their associated tunnel portals along Terminal Way via an at-grade connection. The proposed stations would be entirely located within the ONT right-of-way (ROW). Approximately 80 parking stalls would be permanently removed to accommodate the ONT Terminal 2 station, and approximately 115 spaces would be permanently removed to accommodate the ONT Terminal 4 station.

Figure 2-4: Cucamonga Station

Source: HNTB 2024

Figure 2-5: Ontario International Airport - Terminal 2 Station and Terminal 4 Station



Source: HNTB 2024

2.3.2.2.2 Maintenance and Storage Facility

The proposed Cucamonga Station would include an adjacent maintenance and storage facility with enclosed bays to store, clean, and maintain vehicles. The MSF would be approximately 11,000 square feet, with an additional 5,000 square feet second story and would contain an operations control center with lockers, breakrooms, and restrooms. Employee parking for the facility would be provided at the existing parking lot owned by SBCTA, in the southeastern quadrant of the Milliken Avenue/Azusa Court intersection.

2.3.2.2.3 Description of Vent Shaft Design Options

A vent shaft would be constructed to provide a means of emergency passenger egress and first responder access to and from the tunnel. Two locations are being considered west of Milliken Avenue on the north and south sides of I-10, as shown in Figure 2-6. A final decision about the location of the vent shaft would be made after the completion of the CEQA and NEPA environmental processes, and consideration of operational needs, environmental impacts, and stakeholder coordination.

The location option on the north side of I-10 would be in the ROW for the westbound off-ramp and would provide surface ground access from the Milliken Avenue/I-10 westbound off ramp intersection or from the westbound off ramp right lane near the ramp termini or directly from Milliken Avenue. The location option on the south side of I-10 would be in the ROW for the eastbound on-ramp and would provide surface ground access from Milliken Avenue near the eastbound on-ramp.

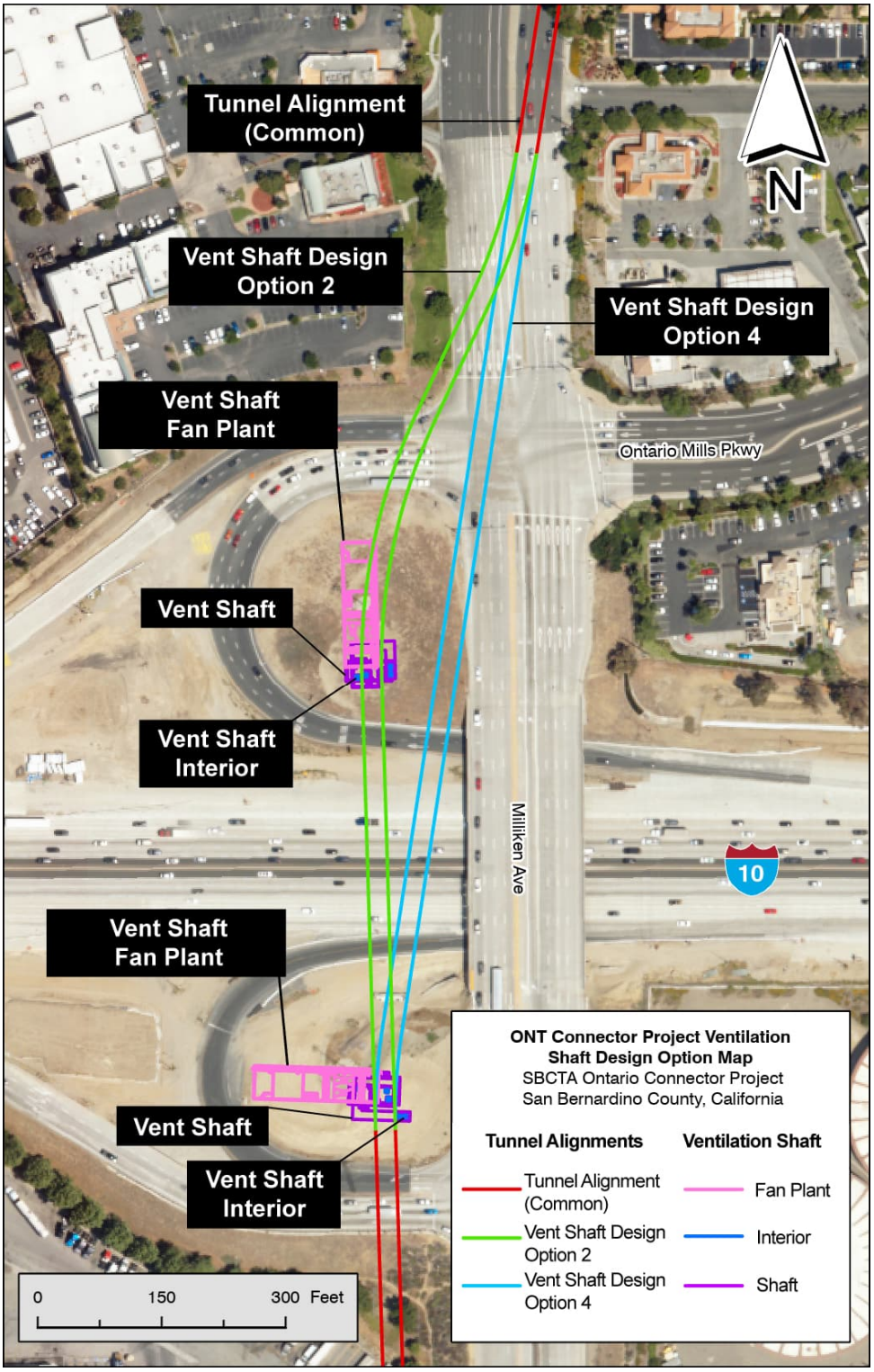
The vent shaft would consist of both underground and above ground structures. The underground shaft would extend to the tunnel level and the surface structures would consist of a one-(1) story structure above ground.

Access points would include underground, surface, and road access for emergencies to and from the tunnel. The proposed vent shaft would include associated electrical and ventilation equipment, and access would be controlled via a lock and key.

2.3.2.4 Proposed Operations

The proposed Project includes operation of autonomous electric vehicles to transport passengers to and from the proposed stations. The autonomous electric vehicles would be grouped and queued at their origin station and would depart toward the destination station once boarded with passengers. After the group of vehicles arrives at the destination station and passengers deboard, new passengers would board, and the group of vehicles would return to its origin station. If no new passengers are present, empty vehicles would be returned to the origin station to pick up new passengers. The proposed Project would provide a peak one-way passenger throughput of approximately a minimum of 100 per hour. Operations would be managed by Omnitrans, with on-demand service provided daily from 4:00 a.m. to 11:30 p.m., including weekends and holidays.

Figure 2-6: Vent Shaft Design Option 2 and Vent Shaft Design Option 4



Source: HNTB 2024

Fleet size and capacity of the vehicles will be up to the Operating System Provider and Design-Builder to determine to provide an initial operating system capable of transporting a minimum of 100 passengers per hour per direction and scalable to meet ridership demand. Based on the initial operating requirements and preliminary vehicle capacities, SBCTA is anticipating initial fleet sizes of between 7 and 60 vehicles to be required. Vehicles are rubber-tired electric autonomous vehicles.

2.3.2.5 Proposed Construction

This section describes the construction approach for the proposed Project. Overall construction of the proposed Project would last approximately 56 months, with project elements varying in their specific construction duration. Construction is projected to start in 2025 and is anticipated to be completed in 2031. The Construction Methods Technical Report provides additional details regarding the construction approach and process for the key project elements (stations, MSF, tunnel construction, and vent shaft) associated with the proposed Project (SBCTA 2024b).

2.3.2.5.1 Stations and Maintenance and Storage Facility Construction

A construction staging area would be required at each of the three proposed Project stations, which includes the MSF at Cucamonga Station, and at the vent shaft location. Construction staging areas would be used to store building materials and construction equipment, assemble the tunnel boring machine (TBM), temporarily store excavated materials, and serve as temporary field offices for the contractor. Heavy-duty, steel, track-out grates (i.e., rumble plates) would be staged at the entrance of the construction staging areas to capture dirt and soil debris from the wheels of trucks and construction equipment. Best Management Practices would minimize a public nuisance that can result from soil and mud tracks on the public roadway. For security purposes, construction staging areas would be equipped with fences, lighting, security cameras, and guards to prevent vandalism and theft.

Cut-and-cover sites would occur at each proposed station location. Cut-and-cover activities involve the excavation of a shallow underground guideway from the existing street surface. During the construction phase, the cut-and-cover sites at Cucamonga Metrolink Station and Terminal 2 at ONT would be used as the TBM launching and receiving pits. Ultimately, the station cut-and-cover sites would serve as the vehicle ramps for the proposed Project's operations where the underground guideway would transition to at-grade.

Following the mass excavation and grading, the stations would require the installation of the waterproof membrane around the station box. The construction sequence for the station structures would typically commence with construction of the foundation base slab, followed by installation of exterior walls any interior column elements, and pouring of the station roof. Once station structure work is complete, the station excavation would be backfilled, and the permanent roadway would be constructed. Decking removal and surface restoration would then occur. Stations are proposed to be 1 to 2 stories, up to approximately 40 feet in height.

Generally, stations would be built simultaneously with or following guideway construction. However, construction of the Cucamonga Station may need to occur after the completion of all excavation and in-tunnel work. Truck haul routes, described in Table 2-1, would be designated for each staging site to transport excavated material from the staging sites. Additional construction details for the proposed stations and MSF are described, in Table 2-1, and in the Construction Methods Technical Report. Table 2-2 provides an overview of the typical sequencing for transit construction activities (SBCTA 2024b).

2.3.2.5.1.1 Construction Details for Cucamonga Station and Maintenance and Storage Facility

Construction at the proposed Cucamonga Station would require a mass excavation and the TBM would be launched from the invert of the Cucamonga Station and retrieved from the ONT Terminal 2 Station construction site. Construction at the proposed Cucamonga Station would require approximately 3.2 acres. Approximately 170 parking stalls would be temporarily unavailable at the Cucamonga Metrolink Station parking lot. Construction at the Cucamonga Station would occur for up to 37 months. No road closures are anticipated for staging at the Cucamonga Station. Equipment needs would include the following: excavators, backhoes, a vertical conveyor system, a gantry crane, a crawler crane, concrete trucks, haul trucks, a wheel loader, Foamplant, cooling towers, a tunnel fan grout plant, segment cars, and flatcars.

Additionally, construction would not interrupt Metrolink service at the Cucamonga Metrolink Station, as construction activities and staging would occur within the existing Cucamonga Station parking lot. SBCTA will coordinate construction at Cucamonga Station with the SCRRA, prior to the start of construction and throughout the construction period, to maintain station access and to coordinate station parking, as needed.

The proposed Cucamonga Station includes an MSF to store, clean, and maintain vehicles. The MSF would be approximately 11,000 square feet, with an additional 5,000 square feet second story and would contain an operations control center with lockers, breakrooms, and restrooms. The MSF would be constructed adjacent to the Cucamonga Station and would include enclosed bays.

Table 2-1: Stations, Maintenance and Storage Facility Construction Details

Proposed	Construction Area	Duration	Haul Route
Cucamonga Station and MSF	Would require approximately 3.2 acres within the existing Cucamonga Metrolink Station parking lot. Approximately 170 parking stalls would be temporarily unavailable from the existing Metrolink parking lot.	Construction at the Cucamonga Station would occur for up to 37 months.	Haul trucks are needed to support removal and transport of materials from the mass excavation for each construction site (for the stations and vent shaft) and from tunnel boring activities. Haul trucks would collect excavated material from the construction sites and transport it away from the sites, utilizing designated haul routes. Haul trucks would exit the staging area, travel north along Milliken Avenue, and turn right on Foothill Boulevard to access I-15. No road closures are anticipated for staging at the Cucamonga Station.
ONT Terminal 2 Station	Would require approximately 3.4 acres within the existing ONT Terminal 2 parking lot. Approximately 300 parking stalls would be temporarily unavailable from the ONT parking lot.	Construction at ONT Terminal 2 would occur for up to 27 months.	Haul trucks are needed to support removal and transport of materials from the mass excavation for each construction site (for the stations and vent shaft) and from tunnel boring activities. Haul trucks would collect excavated material from the construction sites and transport it away from the sites, utilizing designated haul routes. Haul trucks would exit the staging area, travel east along Terminal Way, and turn left on Haven Avenue to access I-10. No road closures are anticipated for staging at the Terminal 2 Station.
ONT Terminal 4 Station	Would require approximately 3.2 acres within the existing ONT Terminal 4 parking lot. Approximately 300 parking stalls would be temporarily unavailable from the ONT parking lot.	Construction at ONT Terminal 4 would occur for up to 15 months.	Haul trucks are needed to support removal and transport of materials from the mass excavation for each construction site (for the stations and vent shaft) and from tunnel boring activities. Haul trucks would collect excavated material from the construction sites and transport it away from the sites, utilizing designated haul routes. Haul trucks would exit the staging area, travel east along Terminal Way, and turn left on Haven Avenue to access I-10. No road closures are anticipated for staging at the Terminal 4 Station.

Table 2-2: Typical Sequencing of Transit Construction Activities

At Grade or Underground	Activity	Typical Duration (Total Months)	Description
At Grade Construction Activities	Utility Relocation	7-14	Relocate utilities from temporary and permanent elements related to the construction and/or operation of the Project.
At Grade Construction Activities	Construction Staging Laydown Yard	3-6	Prepare existing lots to store construction equipment and materials, including the TBM, office space.
At Grade Construction Activities	Roadway	6-18	Reconfigure roadway, demolition of existing roadway installation of curb and gutter and other public ROW improvements.
At Grade Construction Activities	At-grade Guideway	6-18	Install asphalt and striping for guideway.
At Grade Construction Activities	Station Construction (overall)	24-48	Install mechanical, electrical, and plumbing (MEP), canopies, faregates, ticketing, finishes, stairs, and walkways.
At Grade Construction Activities	Parking	3-6	Restoring existing parking stalls temporarily unavailable due to construction, as applicable.
At Grade Construction Activities	MSF	8-12	Install MEP, fencing, enclosed bays, specialized washing equipment, and rebar installation, and concrete pours.
Underground Construction Activities	Utility Relocation	7-14	Relocate and hang underground utilities from temporary and permanent elements related to the construction and operation of the Project.
Underground Construction Activities	Open Cut and Cut and Cover Construction	18-24	Supports the construction of the TBM launching and receiving pit, and of the access ramps connecting the tunnel with the at-grade stations. Install soldier piles for beam and lag support of excavation and excavation. Cover excavation with temporary decking.
Underground Construction Activities	Bored Tunnel	16-24	Underground guideway construction.
Underground Construction Activities	Ventilation and Emergency Access Shaft	6-8	Install ventilation and emergency access shaft.
Underground Construction Activities	Underground Guideway	12-18	Install asphalt and striping for guideway.

2.3.2.5.1.2 Construction Details for ONT Terminal 2 Station

Construction staging at the proposed ONT Terminal 2 station would require approximately 3.4 acres within the existing ONT Terminal 2 parking lot. Approximately 300 parking stalls would be temporarily unavailable at the ONT Terminal 2 parking lot. Construction at the ONT Terminal 2 Station would occur for up to 27 months. No road closures are anticipated for staging at the ONT Terminal 2 Station. Equipment needs would include the following: a piling rig, a gantry crane, a crawler crane, excavators, concrete trucks, muck trucks, a wheel loader, Foamplant, cooling towers, a tunnel fan, a grout plant, segment cares, and flatcars.

2.3.2.5.1.3 Construction Details for ONT Terminal 4 Station

Construction Staging at the proposed ONT Terminal 4 station would require approximately 3.2 acres within the existing ONT Terminal 4 parking lot. Approximately 300 parking stalls would be temporarily unavailable at the ONT Terminal 4 parking lot. Construction at the ONT Terminal 4 Station would occur for up to 15 months. No road closures are anticipated for staging at the ONT Terminal 4 Station. Equipment needs would include the following: a piling rig, a crawler crane, concrete trucks, muck trucks, a compressor, a generator, a water treatment plant, a wheel wash, a wheel loader, backhoes, and excavators.

2.3.2.5.2 Tunnel Construction

The proposed Project will travel in a below grade tunnel configuration for most of its proposed alignment. A TBM will be utilized in the construction of the tunnel. TBMs are typically used in the construction of infrastructure projects to build deep underground tunnels by boring, or excavating, through soil, rocks, and/or other subsurface materials. The TBM would be launched from the Cucamonga Metrolink Station to construct the tunnel. Additional details regarding the underground construction process for the Project are included in the Construction Methods Technical Report (SBCTA 2024b).

The TBM would be launched from the invert of the Cucamonga Station and retrieved from the ONT Terminal 2 Station construction site. A large crane would be used to assemble and disassemble the TBM from the excavation and receiving pits. Ontario International Airport Authority height limits at ONT and Rancho Cucamonga, 135 feet and 160 feet, respectively, would restrict crane heights. The TBM would operate six days a week, with maintenance occurring each Sunday. Construction of the entire tunnel would take approximately 22 months. Both ends of the tunnel would need to be constructed via direct excavation (cut and cover) to launch or retrieve the TBM. After mining is completed and TBM logistics are demobilized, both ends of the tunnel would be utilized to build the invert roadway, walkways, center wall and MEP systems, etc.

Vehicle ramps connecting to the tunnel would be constructed via direct excavation, as well. Equipment at the TBM launch site would include trucks, a crane, excavators, a grout plant, a compressor plant, a tunnel fan, and cooling towers. The launch area would also store tunnel construction materials (rail, pipe, ducts, etc.) and stockpile excavated material.

Truck haul routes at the proposed launch site at Cucamonga Station and the proposed retrieval site at ONT Terminal 2 Station are described in Table 2-1. The Construction Methods Technical Report includes additional details on the overall construction approach for the proposed tunnel (SBCTA 2024b).

2.3.2.5.3 Vent Shaft Construction

Two Vent Shaft Design Options with different access points are being considered for the proposed Project. Vent shaft design option 2 would be located west of Milliken Avenue on the westbound off-ramp of the I-10. Vent shaft design option 4 would be located west of Milliken Avenue on the eastbound on-ramp of the I-10. The vent shaft will consist of both underground and above ground structures. The underground shaft will extend to the tunnel level and the surface structure will consist of a one-(1) story structure above ground. One vent shaft would be constructed along the tunnel alignment.

The vent shaft could be constructed before or after the construction of the tunnel and would be installed using a similar construction methodology to that of the tunnel and take approximately 6 months to complete. A drill rig would install up to 5 piles deep per day, each 70 feet deep. Piles would be drilled (i.e., no impact driving). The access shaft would then be excavated. The excavation would be supported by an internal bracing system. The vent shaft would require a construction staging area approximately 0.62-acres (27,000 square feet). Anticipated equipment at the location would include haul trucks, a drill rig, a crane, an excavator, a wheel loader, a compressor, and a ventilation fan. The staging area would include material storage, stockpiles of excavated material, water treatment, a workshop, a construction office, and an employee parking. Additional details regarding the construction process for the vent shaft are included in the Construction Methods Technical Report (SBCTA 2024b).

2.3.2.5.4 Utilities

Utility relocations are anticipated at the launch and retrieval locations at the Cucamonga Metrolink Station site, ONT, and ventilation/emergency access shaft. Multiple utilities would be relocated to allow for the construction of the access shaft, including: potential electric underground distribution cables owned and operated by Southern California Edison; landscape irrigation line owned and operated by the City of Ontario; and Caltrans fiber optic duct bank. In a future project phase, coordination with the existing utility service providers prior to utility relocation would be conducted to reduce potential impacts to utility service and minimize disruptions. Relocations of existing utilities would be coordinated with utility service providers and would be in previously disturbed areas or established ROW close to their existing locations and would stay within the evaluated Project footprint.

2.3.2.6 Proposed Project Easements

The proposed Project would require easements from 19 properties. This includes the need for 12 permanent subsurface easements, two permanent surface easements, and five parcel acquisitions for both subsurface and surface easements. Seven of the easements would be for the three stations and would total approximately 2 acres. SBCTA would require these easements for construction and/or

operation of the proposed Project. There are two locations that are options for the location of the Vent Shaft, both belonging to Caltrans. This document evaluates the impacts for both options without selection of a preferred site. The decision of the preferred site will depend in part on the CEQA and NEPA processes, including any potential input from the public. The final decision as to which option is preferred may occur after the completion of the CEQA/NEPA process. Land uses for the parcels where these easements would be required include industrial, transportation facilities, utilities, and commercial. The owners of these parcels include SBCTA and City of Rancho Cucamonga (Cucamonga Metrolink Station west and east parking lots), OIAA, a utility service provider, and some private owners. No relocations of businesses and residences would be required to construct the proposed Project.

3 REGULATORY SETTING

3.1 FEDERAL

The following sections describe applicable federal policies and regulations.

3.1.1 Federal Transportation Improvement Program

Federal Transportation Improvement Program (FTIP) is a federal document that details programs and projects listed in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and ensures compliance with federal and state requirements. The FTIP lists multi-modal transportation projects, including the Southern California Association of Governments' (SCAG) FTA-funding projects, which are required to be included in the FTIP. Projects included in the FTIP relate to transit, bus and rail, highway improvements, active transportation, intersection improvements, among other transportation-related projects. SCAG completed their FTIP in 2023 and passed all five of the transportation conformity requirements tests, required by United States Department of Transportation (U.S. DOT) Metropolitan Transportation Regulation and United States Environmental Protection Agency (EPA) Transportation Conformity Regulations. The 2023 SCAG FTIP passed the consistency with the 2020 RTP/SCS test, regional emissions tests, timely implementation of Transportation Control Measures (TCM) test, inter-agency consultation and public involvement test, and the financial constraint test.

3.1.2 National Environmental Policy Act [42 United States Code Section 4321 et seq.]

NEPA requires consideration of potential environmental effects, including Air Quality effects, in the evaluation of any proposed federal agency action. NEPA also obligates federal agencies to consider the environmental consequences and costs in their projects and programs as part of the planning process. General NEPA procedures are set forth in the Council on Environmental Quality regulations 42 United States Code (USC) 4332 Section 102.

3.1.3 Clean Air Act and National Ambient Air Quality Standards

United States EPA, under Clean Air Act (CAA) of 1970, 42 USC Section 7401, et seq., amended in 1977 and 1990, has developed National Ambient Air Quality Standards (NAAQS) to protect human health and welfare. NAAQS, codified in 40 CFR Part 50, include primary standards, which are designed to protect human health, including sensitive subpopulations, such as children, the elderly, and those with chronic respiratory problems. The secondary standards are designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health.

NAAQS apply to the following criteria pollutants:

- Particulate matter (PM) including PM sized 10 microns or less in diameter (PM_{10}),
- PM sized 2.5 microns or less in diameter ($PM_{2.5}$),
- Carbon monoxide (CO),
- Sulfur dioxide (SO_2),
- Nitrogen dioxide (NO_2),
- Lead (Pb), and
- Ground-level ozone (O_3).

O_3 is not emitted directly from emission sources but is created near the ground level by a chemical reaction between oxides of nitrogen (NO_X) and volatile organic compounds (VOCs) in the presence of sunlight. As a result, NO_X and VOCs are referred to as ozone precursors and are regulated as a means to prevent O_3 formation. NO_X is composed primarily of NO_2 and nitrogen oxide (NO). SO_2 and NO_X are also precursors to secondary PM formation (in particular, $PM_{2.5}$).

NAAQS are expressed in terms of a concentration level and an associated averaging period. The concentration levels may be expressed as parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu g/m^3$). States and municipalities are able to adopt standards more stringent than NAAQS. Current NAAQS for criteria pollutants and the Federal Register references are included in the Federal and State Air Quality Standards, sourced from the California Air Resources Board (CARB) and summarized in Table 3-1.

3.1.4 Attainment Status and Clean Act Conformity

CAA requires geographic areas to be designated according to their ability to attain NAAQS, and these areas are categorized for each criteria pollutant as:

- Attainment Area: Areas where no exceedance of NAAQS for a specific criteria pollutant occurred.
- Nonattainment Area: Areas where exceedance of NAAQS for a specific criteria pollutant occurred.
- Maintenance Area: Areas that have previously been designated as nonattainment areas but are still in need of efforts to maintain the improved conditions in the future. Most of the CAA rules for nonattainment areas are still applicable to a maintenance area.
- Unclassified Area: Areas where EPA is unable to determine attainment status after evaluating available information.

Table 3-1: Federal and State Air Quality Standards

Criteria Pollutant	Averaging Time	California Ambient Air Quality Standards (CAAQS)	NAAQS
O_3	1-Hour	0.09 ppm	—
O_3	8-Hour	0.070 ppm	0.070 ppm
PM_{10}	24-Hour	50 µg/m^3	150 µg/m^3
PM_{10}	Annual	20 µg/m^3	—
$PM_{2.5}$	24-Hour	—	35 µg/m^3
$PM_{2.5}$	Annual	12.0 µg/m^3	12.0 µg/m^3
CO	1-Hour	20 ppm	35 ppm
CO	8-Hour	9 ppm	9 ppm
NO_2	1-Hour	0.18 ppm	0.10 ppm
NO_2	Annual	0.030 ppm	0.053 ppm
SO_2	1-Hour	0.25 ppm	75 ppb
SO_2	24-Hour	0.04 ppm	0.14 ppm
SO_2	Annual Arithmetic Mean	—	0.03 ppm
Pb	30-Day Average	1.5 µg/m^3	—
Pb	Rolling 3-Month Average, 24-Hour	—	1.5 µg/m^3
Sulfates	24-Hour	25 µg/m^3	—
Hydrogen Sulfides	1-Hour	0.03 ppm (42 µg/m^3)	—
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	—

Source: CARB 2016

If an area is designated as nonattainment for a criteria pollutant under NAAQS, state governments must develop a specific State Implementation Plan (SIP) and implement control plans to reduce the emission level of that pollutant.

Per CAA Section 176(c), federal agencies are required to ensure that their actions conform to the SIP in nonattainment or maintenance areas for purposes of reducing the severity and number of violations of NAAQS in an effort to achieve attainment of these standards. There are two sections of the conformity regulations in CAA that are applicable to federal actions:

- Transportation projects funded or approved by Federal Highway Administration (FHWA) or FTA, which are governed by the CAA's Transportation Conformity Rule (TCR). The TCR is enforced on both a regional level and project level.

- Non-FHWA/FTA projects or components of a FHWA/FTA transportation project requiring actions by other federal agencies such as Federal Aviation Administration, which are governed by the CAA's General Conformity Rule. This rule does not apply to the proposed Project because no federal agencies other than FTA are lead or corporate agencies for this federal action.

3.1.5 Mobile Source Air Toxics

In addition to the criteria pollutants, CAA also lists 187 air toxins, known as hazardous air pollutants (HAPs). CAA authorizes EPA to characterize and control emissions of these pollutants. However, unlike the criteria pollutants, the majority of air toxics do not have ambient air quality standards. Of the 187 HAPs, 93 have been identified as mobile source air toxics (MSAT), and the following nine MSATs are priority pollutants:

- Acetaldehyde;
- Acrolein;
- Benzene
- 1,3-butadiene;
- Diesel PM plus diesel exhaust organic gases (diesel PM);
- Ethylbenzene;
- Formaldehyde;
- Naphthalene; and
- Polycyclic organic matter.

To reduce emissions of MSATs, EPA has issued various regulations, including the following:

- March 2001: Regulation targeting 21 HAPs from motor vehicles and their fuel. The goal of regulation was to reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 67 to 76 percent (%), and reduce on-highway diesel PM emissions by 90%.
- February 2007: Regulation limiting the benzene content of gasoline and reducing toxic emissions from passenger vehicles and gasoline cans. EPA estimates that, in 2030, this rule will reduce total emissions of MSATs by 330,000 tons and VOC emissions by over 1 million tons.
- April 2014: Regulation requiring Tier 3 standards for motor vehicles. The standards will reduce both tailpipe and evaporative emissions from all passenger vehicles and provide more stringent gasoline sulfur standards.

3.2 STATE

3.2.1 California Clean Air Act

Along with the federal CAA regulations, enforced by EPA, California must also comply with the air quality regulations under California Clean Air Act (CCAA). CCAA was adopted in 1988 and requires CARB to establish CAAQS. These standards are also included in Table 3-1. In most cases, CAAQS are more stringent than NAAQS. California has also established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. Other CARB responsibilities include, but are not limited to, overseeing local air district compliance with state and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emission standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. In addition to CARB, Regional Air Quality Management Districts and Air Pollution Control Districts administer CCAA on the regional and local levels.

CCAA requires that each area exceeding CAAQS for O_3, CO, SO_2, and NO_2 develop a plan aimed at achieving those standards. California Health and Safety Code Section 40914 requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5% or more, averaged every consecutive 3-year period. To satisfy this requirement, the local air districts have to develop and implement air pollution reduction measures, which are described in their air quality attainment plans, and outline strategies for achieving CAAQS for any criteria pollutants for which the region is classified as nonattainment.

3.2.2 California Environmental Quality Act

CEQA was adopted in 1970 and intended to inform governmental decision-makers and the public about potential environmental impacts of a project; identify ways to avoid or reduce adverse environmental impacts; offer alternatives to the project or mitigation measures to prevent significant, avoidable environmental damage; and disclose to the public why a project was approved if that project has significant environmental impacts that cannot be mitigated.

3.2.3 Tanner Toxics Act

Toxic air contaminants (TACs) in California are regulated primarily through Tanner Air Toxics Act (Chapter 1047, Statutes of 1983) and Air Toxics Hot Spots Information and Assessment Act (Chapter 1252, Statutes of 1987). Assembly Bill 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before CARB can designate a substance as a TAC. Air Toxics Hot Spots Information and Assessment Act requires that TAC emissions from stationary sources be quantified and compiled into an inventory according to criteria and guidelines

developed by CARB, and, if directed to do so by the local air district, a health risk assessment must be prepared to determine the potential health impacts of such emissions.

3.3 REGIONAL AND LOCAL

3.3.1 South Coast Air Quality Management District

The proposed Project is located within South Coast Air Basin (SCAB). The local Air Quality Management or Air Pollution Control Districts are responsible for preparing the portion of the California SIP applicable within their boundaries, adoption of air quality control regulations for stationary sources, and implementation of indirect source and transportation air quality control measures.

South Coast Air Quality Management District (SCAQMD) is the regulatory agency responsible for improving air quality for large areas of Los Angeles, Orange, Riverside and San Bernardino counties, including the Coachella Valley. The region is home to more than 17 million people—about half the population of the entire state of California.

As stated in Appendix G of the 2024 CEQA Guidelines, the significance criteria established by the applicable air quality management board or air pollution control district may be relied on to make the impact determinations for specific program elements.

3.3.1.1 Regional Thresholds of Significance

SCAQMD has established recommended screening level thresholds of significance for regional emissions. The SCAQMD regional thresholds of significance (RTSs) are shown in Table 3-2. The RTSs were designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards, which were established using health-based criteria to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution. Because regional air quality standards have been established for these criteria pollutants to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution, these RTSs can also be used to assess the proposed Project emissions and inform the proposed Project's impacts to regional air quality and health risks under CEQA.

3.3.1.2 Localized Significance Thresholds

In order to assess local air quality impacts, SCAQMD has developed Localized Significance Thresholds (LSTs) and supporting LST Methodology to assess the proposed Project-related emissions in the proposed Project vicinity (SCAQMD 2008). The LST Methodology found that the primary emissions of concern are NO_2, CO, PM_{10}, and $PM_{2.5}$.

Table 3-2: SCAQMD Regional Thresholds of Significance for Select Criteria Pollutants

Pollutant	Daily Emissions in lbs/day (Construction)	Daily Emissions in lbs/day (Operation)
NO_X	100	55
PM_{10}	150	150
$PM_{2.5}$	55	55
CO	550	550
VOC	75	55
SO_X	150	150
Pb[1]	3	3

Notes: lbs/day = pounds per day
[1] This analysis does not directly evaluate Pb because little to no quantifiable and foreseeable emissions of this substance would be generated by the proposed Project. Pb emissions have significantly decreased due to the near elimination of leaded fuel use.
Source: SCAQMD 2023

The LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards and are developed based on the ambient concentrations of that pollutant for each source receptor area. Because the LSTs consider the ambient air quality, LSTs can also be used to identify those projects that would result in significant levels of air pollution and impact sensitive receptors.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of a project site and distance to the nearest sensitive receptors. The Look-Up Tables provide thresholds for 1-, 2-, and 5-acre project sites.

3.3.1.3 Air Quality Management Plan

Under CCAA, SCAQMD is required to develop an air quality attainment plan for nonattainment criteria pollutants within the air district. The most recent air quality plan developed by SCAQMD are the 2016 Air Quality Management Plan (AQMP; SCQAMD 2017) to address the 1997 8-hour O_3 standards and $PM_{2.5}$ standards and the 2022 AQMP that is focused on attaining the 2015 8-hour O_3 standard of 70 ppb (SCAQMD 2022). The 2016 and 2022 AQMPs are the legally enforceable blueprint for how the region will meet and maintain NAAQS and CAAQS. These AQMPs identify strategies and control measures needed to achieve attainment of the 8-hour O_3 standard and federal annual and 24-hour standard for $PM_{2.5}$ in the SCAB (SCAQMD 2017; 2022). The future emission forecasts are primarily based on demographic and economic growth projections provided by Southern California Association of Governments.

3.3.1.4 Southern California Air Quality Management District Rule 402

Rule 402 (Nuisance), adopted by SCAQMD on May 7, 1976, states a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment,

nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

3.3.1.5 Southern California Air Quality Management District Rule 403

Rule 403 (Fugitive Dust), adopted by SCAQMD on February 7, 1976, and amended on April 20, 2010, has the purpose of reducing the amount of PM entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions.

3.3.1.6 2020-2045 Regional Transportation Plan/Sustainable Community Strategies (Connect SoCal)

The 2020-2045 RTP/SCS, also known as Connect SoCal, was adopted by the Regional Council on September 3, 2020, and replaces the 2016-2040 RTP/SCS. The RTP/SCS serves as a long-range regional transportation planning tool through the year 2045. The core vision of the 2020-2045 RTP/SCS is to build upon and expand land use and transportation strategies to increase mobility options, reduce VMT, and achieve a more sustainable growth pattern (SCAG 2020). The 2020-2045 RTP/SCS lists ten goals that were used to develop the plan and its guiding policies. These goals include the following:

1. Encourage regional economic prosperity and global competitiveness.
2. Improve mobility, accessibility, reliability, and travel safety for people and goods.
3. Enhance the preservation, security, and resilience of the regional transportation system.
4. Increase person and goods movement and travel choices within the transportation system.
5. Reduce GHG emissions and improve air quality.
6. Support healthy and equitable communities.
7. Adapt to changing climate and support an integrated regional development pattern and transportation network.
8. Leverage new transportation technologies and data-driven solutions that result in more efficient travel.
9. Encourage development of diverse housing types in areas that are supported by multiple transportation options.
10. Promote conservation of natural and agricultural lands and restoration of habitats.

3.3.2 San Bernardino County

San Bernardino County General Plan (San Bernardino County 2020) is a collection of planning tools intended to guide future decisions, investments, and improvements throughout San Bernardino County. San Bernardino County General Plan, Natural Resources Element contains the following policy related to air quality that is applicable to the proposed Project:

- Policy NR-1.8: Construction and Operations. Invest in County facilities and fleet vehicles to improve energy efficiency and reduce emissions. Encourage County contractors and other builders and developers to use low emission construction vehicles and equipment to improve air quality and reduce emissions.

3.3.3 City of Rancho Cucamonga

PlanRC is City of Rancho Cucamonga's General Plan, with long-term goals, objectives, and policies to guide land use planning decisions. Policies included in PlanRC that discuss air quality are as follows:

- Goal RC-5: Local Air Quality. Healthy air quality for all residents.
- Policy RC-5.1: Pollutant Sources. Minimize increases of new air pollutant emissions in the city and encourage the use of advance control technologies and clean manufacturing techniques.
- Policy RC-5.4: Health Risk Assessment. Consider the health impacts of development of sensitive receptors within 500 feet of a freeway, rail line, arterial, collector or transit corridor sources using health risk assessments to understand potential impacts.
- Policy RC-5.10: Clean and Green Industry. Prioritize non-polluting industries and companies using zero or low air pollution technologies.
- Policy RC-5.11: Dust and Odor. Require new construction to include measures to minimize dust and odor during construction and operation.

3.3.4 City of Ontario General Plan

City of Ontario's Policy Plan act as the General Plan, detailing long-term planning and policy goals to guide the City's growth and development. Policies related to air quality include the following:

- Goal ER-4: Improved indoor and outdoor air quality and reduced locally generated pollutant emissions.
- Policy ER4-5: Transportation. Promote mass transit and non-motorized mobility options (e.g., walking, biking) to reduce air pollutant emissions.
- Policy ER4-6: Particulate Matter. Support efforts to reduce PM to meet State and Federal Clean Air Standards.
- Policy ER4-7: Other Agency Collaboration. Collaborate with other agencies within the SCAB to improve regional air quality at the emission source, with a particular focus on sources that affect environmental justice areas in Ontario.

4 METHODOLOGY

4.1 RESOURCE STUDY AREA

The region of influence under the proposed Project would include the SCAB on a regional scale where SCAQMD is the agency responsible for attaining state and federal clean air standards and on a local level particularly including areas along: 1) the roadway network to be affected with potential impacts analyzed and described in the transportation technical report; and 2) the areas immediately adjacent to new stations and tunnel portals.

4.2 EVALUATION OF IMPACTS UNDER CALIFORNIA ENVIRONMENTAL QUALITY ACT

The following thresholds of significance are based on Appendix G of the 2024 CEQA Guidelines. For purposes of this technical report, implementation of the proposed Project could result in potentially significant impacts if the proposed Project would do the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

4.2.1 Operation

The operational emissions analysis for the proposed Project would address sources of direct air pollutant emissions and potential impacts on local and regional air quality under existing conditions, the No Project Alternative, and the proposed Project. Impacts would be addressed in accordance with CEQA thresholds as included in Appendix G of the 2024 CEQA Guidelines. CARB EMFAC2021 model will be used to predict both local and regional emissions based on the VMT data to be established through a transportation impact analysis along the corridor and sub traffic network affected by the proposed Project. The change in emissions burdens between the future No Project Alternative and proposed Project conditions is anticipated to result in a net reduction in emissions because the proposed Project would reduce total VMT and introduce all electric-powered vehicles that have no engine exhaust emissions as compared to the No Project Alternative.

4.2.1.1 CO Hot-Spot Analysis

Although, in California, there was the California Project-Level Carbon Monoxide Protocol developed in 1997 to determine the potential CO hot spots, as the CO was of local concern, the procedures and guidelines to be followed for CO hot-spot analysis will follow the most recent EPA guideline.

4.2.1.2 PM Hot-Spot Analysis

Because the proposed Project involves an underground tunnel operation with all electric-powered vehicles, it is not a highway project nor a new or expanded bus or rail intermodal terminal facility with a significant number of diesel vehicles, the proposed Project would not be considered to have a potential of air quality concerns. A qualitative assessment made per 40 CFR Section 93.123 is provided in Section 4.3.1.2.

4.2.1.3 Tunnel Portals Ventilation System Impact Analysis

Because no operational emissions would occur under the proposed Project, as both vehicles and exhaust fans will be electric-powered, the localized tunnel portals ventilation system impact analysis is not warranted.

4.2.2 Construction

Temporary on-road vehicle and off-road equipment emissions associated with the new stations, MSF, Vent Shaft Design Option, and tunnel construction will be estimated using the CARB EMFAC2021 and OFFROAD2021 models to estimate emissions factors with the construction resource input data to be established on the regional level as well as specific local sites, such as the proposed station near Cucamonga Metrolink Station.

4.2.2.1 Regional Emissions

The regional emissions associated with each construction phase will be compared to the RTS (Table 3-2) set forth by SCAQMD to determine the regional impacts.

4.2.2.2 Localized Emissions

Localized construction emissions include those emissions only generated within the construction sites such as the new off-airport stations, MSF, tunnel portals, haul trucks, and vent shaft, and will be estimated using the same modeling tools as described previously. The estimated site-specific emissions, the size of source area, and the distance from sensitive receptors to the site boundary will be used to compare with the applicable SCAQMD-established LSTs to determine potential localized construction period impacts and whether mitigation measures would be warranted.

5 EXISTING CONDITIONS

Air quality is defined by the concentration of pollutants in relation to their impact on human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions within the local air basin are influenced by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutant emissions released by existing air pollutant sources.

5.1 GENERAL CLIMATIC CONDITIONS

Climate, topography, and meteorology influence regional and local ambient air quality. Southern California is characterized as a semiarid climate, although it contains three distinct zones of rainfall that coincide with the coast, mountain, and desert. The proposed Project is located within the SCAB. The SCAB is bounded by the Pacific Ocean to the west, the San Gabriel Mountains, San Bernardino Mountains, and San Jacinto Mountains to the north and east, and the San Diego County line to the south.

The topography and climate of Southern California combine to make the SCAB an area of high air-pollution potential. A warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cooler surface layer, which traps the pollutants near the ground. Light winds can further limit ventilation. Additionally, abundant sunlight triggers the photochemical reactions that produce O_3 and the majority of PM (SCAQMD 2017).

The meteorological monitoring station at ONT has climatological data (1991 through 2020 monthly normal) tabulated by National Centers for Environmental Information (2022). The mean daily temperature ranges from 55.2 degrees Fahrenheit (°F) in December to 80.1°F in August. Precipitation peaks between December and March, while it is infrequent during the rest of the year, especially during summer months. The monthly variability of temperature and precipitation for ONT is shown in Table 5-1.

Table 5-1: Summary of General Climatic Conditions at Ontario International Airport

Month	Mean Maximum Temperature (°F)	Mean Minimum Temperature (°F)	Mean Daily Temperature (°F)	Mean Precipitation (inches)
January	67.7	44.6	56.1	2.57
February	68.1	46.2	57.1	3.07
March	71.7	48.7	60.2	1.64
April	75.7	51.1	63.4	0.76
May	79.8	55.6	67.7	0.30
June	86.4	60.0	73.2	0.02
July	93.8	64.7	79.2	0.05

Month	Mean Maximum Temperature (°F)	Mean Minimum Temperature (°F)	Mean Daily Temperature (°F)	Mean Precipitation (inches)
August	94.9	65.2	80.1	0.03
September	91.3	63.8	77.6	0.10
October	82.6	57.1	69.8	0.41
November	74.7	49.0	61.9	0.80
December	66.9	43.6	55.2	1.89
Annual	79.5 (average)	54.1 (average)	66.8 (average)	11.64 (total)

Source: National Centers for Environmental Information 2022

5.2 EXISTING AIR QUALITY AND ATTAINMENT STATUS

5.2.1 Attainment Status

Both EPA and CARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. An "attainment" designation for an area signifies that pollutant concentrations did not exceed the established standard. In most cases, areas designated or re-designated as attainment (i.e., an area that was previously in nonattainment but now attains the standard) must develop and implement maintenance plans. These areas are designated as maintenance areas and are currently under a maintenance plan to ensure continued compliance with the standard.

In contrast to attainment, a "nonattainment" designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

Finally, an unclassified designation indicates that insufficient data exist to determine attainment or nonattainment. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

As shown in Table 5-2, the SCAB is designated as an attainment area for all criteria air pollutants except O_3, PM_{10}, and $PM_{2.5}$ under CAAQS. San Bernardino County is designated as attainment, or maintenance, for all criteria pollutants except O_3, PM_{10}, and $PM_{2.5}$ under NAAQS.

Table 5-2: CAAQS/NAAQS Attainment Status

Criteria Pollutant	Averaging Time	CAAQS Designation (SCAB)[1]	NAAQS Designation (San Bernardino County)[2]
O_3	1-Hour	Nonattainment	—
O_3	8-Hour	Nonattainment	Nonattainment (Severe)
PM_{10}	24-Hour	Nonattainment	Nonattainment (Moderate)
PM_{10}	Annual	Nonattainment	—
$PM_{2.5}$	24-Hour	Nonattainment	Nonattainment (Serious)
$PM_{2.5}$	Annual	Nonattainment	Nonattainment (Serious)
CO	1-Hour	Attainment	Attainment (Maintenance)
CO	8-Hour	Attainment	
NO_2	1-Hour	Attainment	Unclassifiable/Attainment
NO_2	Annual	Attainment	Attainment
SO_2	1-Hour	----	Unclassifiable/Attainment
SO_2	24-Hour	----	Unclassifiable/Attainment
SO_2	Annual Arithmetic Mean	----	Unclassifiable/Attainment
Pb	30-Day Average	Attainment	—
Pb	Rolling 3-Month Average 24 Hour	Attainment	Unclassifiable/Attainment
Sulfates	24-Hour	Attainment	—
Hydrogen Sulfides	1-Hour	Attainment	—
Vinyl Chloride	24-Hour	Attainment	—

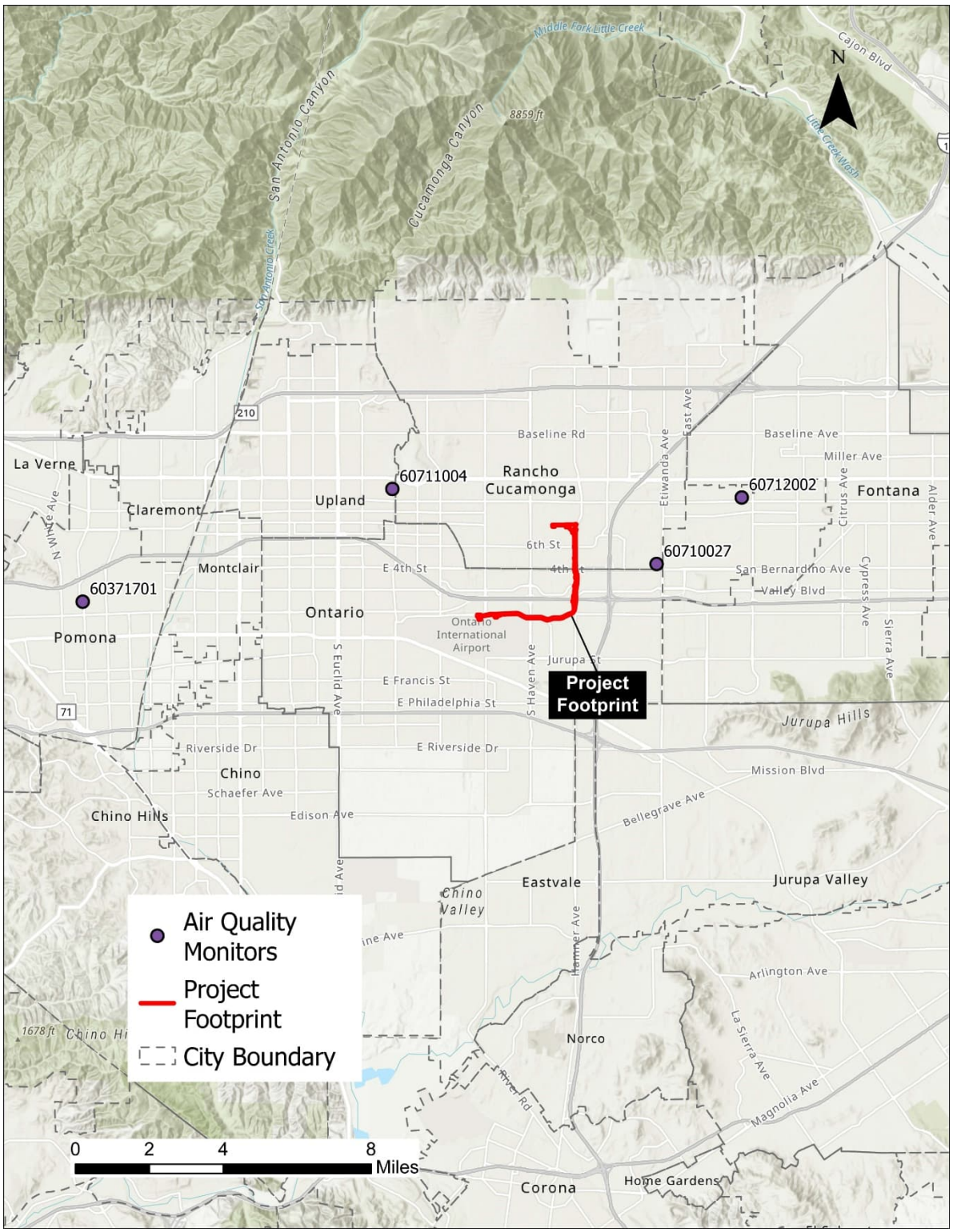
Notes: [1] SCAQMD 2016; [2]EPA 2024a Air Quality Monitoring Stations

SCAQMD is responsible for enforcing the rules and regulations protecting air quality in the SCAB. Ambient air pollutant concentrations in the SCAB are measured at air quality monitoring stations operated by CARB and SCAQMD. As shown in Figure 5-1, the closest active air quality monitoring stations to the proposed Project are the following:

- Pomona, Air Quality System (AQS) Site Identification (ID) 06-037-1701. Located: 924 North Garey Avenue, Pomona;
- Upland, AQS Site ID 06-071-1004. Located: 1350 San Bernardino Road, Upland;
- Fontana, AQS Site ID 06-071-2002. Located: 14360 Arrow Boulevard, Fontana; and
- Ontario Route 60–Near Road, AQS Site ID 06-071-0027. Located: 2330 South Castle Harbour Place, Ontario.

The most recent monitor values (for 2019 through 2021) for these monitoring stations were taken from the EPA's Air Quality Database (EPA 2024b) and are presented in Table 5-3.

Figure 5-1: Air Monitoring Station Locations



Source: EPA 2024b

Table 5-3: Air Quality Monitoring Concentrations

Pollutant	Averaging Period	Standard	Monitoring Station	Design Concentration (2019-2021)	Exceed Standard?
CO	1-Hour	NAAQS: 35 ppm CAAQS: 20 ppm	Pomona, ID 06-037-1701	2.1 ppm	No
CO	1-Hour	NAAQS: 35 ppm CAAQS: 20 ppm	Upland, ID 06-071-1004	1.6 ppm	No
CO	1-Hour	NAAQS: 35 ppm CAAQS: 20 ppm	Fontana, ID 06-071-2002	2.2 ppm	No
CO	8-Hour	NAAQS: 9 ppm CAAQS: 9 ppm	Pomona, ID 06-037-1701	1.4 ppm	No
CO	8-Hour	NAAQS: 9 ppm CAAQS: 9 ppm	Upland, ID 06-071-1004	1.2 ppm	No
CO	8-Hour	NAAQS: 9 ppm CAAQS: 9 ppm	Fontana, ID 06-071-2002	1.2 ppm	No
NO_2	1-Hour	NAAQS: 100 ppb CAAQS: 180 ppb	Pomona, ID 06-037-1701	58 ppb	No
NO_2	1-Hour	NAAQS: 100 ppb CAAQS: 180 ppb	Ontario Route 60 – Near Road, ID 06-071-0027	75 ppb	No
NO_2	1-Hour	NAAQS: 100 ppb CAAQS: 180 ppb	Upland, ID 06-071-1004	47 ppb	No
NO_2	1-Hour	NAAQS: 100 ppb CAAQS: 180 ppb	Fontana, ID 06-071-2002	59 ppb	No
NO_2	Annual	NAAQs: 53 ppb CAAQS: 30 ppb	Pomona, ID 06-037-1701	18 ppb	No
NO_2	Annual	NAAQs: 53 ppb CAAQS: 30 ppb	Ontario Route 60 – Near Road, ID 06-071-0027	30 ppb	No (but at CAAQS)
NO_2	Annual	NAAQs: 53 ppb CAAQS: 30 ppb	Upland, ID 06-071-1004	15 ppb	No
NO_2	Annual	NAAQs: 53 ppb CAAQS: 30 ppb	Fontana, ID 06-071-2002	19 ppb	No
O_3	8-Hour	NAAQS: 0.070 ppm (2015) CAAQS: 0.070 ppm	Pomona, ID 06-037-1701	0.090 ppm	Yes
O_3	8-Hour		Upland, ID 06-071-1004	0.103 ppm	Yes
SO_2	1-Hour	NAAQS: 75 ppb CAAQS: 250 ppb	Fontana, ID 06-071-2002	2 ppb	No
SO_2	1-Hour	CAAQS: 0.04 ppm	Fontana, ID 06-071-2002	0.001 ppm	No

Pollutant	Averaging Period	Standard	Monitoring Station	Design Concentration (2019-2021)	Exceed Standard?
$PM_{2.5}$	24-Hour	NAAQS: 35 µg/m^3	Fontana, ID 06-071-2002	37 µg/m^3	Yes
$PM_{2.5}$	Annual	NAAQS: 12 µg/m^3 CAAQS: 12 µg/m^3	Ontario Route 60 – Near Road, ID 06-071-0027	14.2 µg/m^3	Yes
$PM_{2.5}$	Annual	NAAQS: 12 µg/m^3 CAAQS: 12 µg/m^3	Fontana, ID 06-071-2002	12.1 µg/m^3	Yes
PM_{10}	24-Hour	NAAQS:150 µg/m^3 CAAQS: 50 µg/m^3	Fontana, ID 06-071-2002	83 µg/m^3	No for NAAQS Yes for CAAQS
PM_{10}	Annual	CAAQS: 20 µg/m^3	Upland, ID 06-071-1004	33 µg/m^3	Yes
PM_{10}	Annual	CAAQS: 20 µg/m^3	Fontana, ID 06-071-2002	37 µg/m^3	Yes

Source: EPA 2024b

As shown in Table 5-3, monitoring stations closest to the proposed Project were showing compliance with CO, NO_2, and SO_2 NAAQS and CAAQS standards. Exceedances were measured for O_3, $PM_{2.5}$ and PM_{10} (CAAQS only).

6 IMPACT EVALUATION

This section discusses the environmental impacts of the proposed Project in accordance with CEQA. To assess significance, this section is organized by the questions noted in Appendix G of the 2024 CEQA Guidelines with the analysis conducted according to the thresholds established by SCAQMD in terms of regional and localized emissions.

6.1 WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?

6.1.1 No Project Alternative

6.1.1.1 Construction Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. The No Project Alternative includes planned construction associated with expansion, improvement, and routine maintenance activities for the existing roadway system and transit facilities. The construction of these projects would be required to be in compliance of regulatory requirements with implementing SCAQMD rules and regulations to ensure that there would be a less than significant impact to sensitive land uses along the corridor.

6.1.1.2 Operational Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. Under the No Project Alternative, there would be no new direct transportation connection from Cucamonga Metrolink Station to ONT. The operation of the roadway system would remain the same as the existing condition, resulting in no conflict with or obstruction of implementation of the 2016 and 2022 AQMPs. Under CEQA, the No Project Alternative would have a less than significant impact.

6.1.2 Proposed Project

6.1.2.1 Construction Impacts

The proposed Project construction duration is short-term, from 2025 to 2031, and is not anticipated to conflict with the 2016 and 2022 AQMPs, which account for construction activity emissions. Construction of the proposed Project would require a TBM to build the 4.2-mile tunnel 70 feet below ground surface. As a result, construction would require over 200 daily truck trips to transport construction waste away. Project-related construction activities would implement SCAQMD rules and regulations, such as SCAQMD's Rule 403, which are developed to implement AQMP control measures. In particular, vent shaft design option 4 would be located slightly further away from sensitive receptors in the neighborhood,

resulting in fewer air quality impacts. Therefore, the proposed Project during construction would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant impact.

6.1.2.2 Operational Impacts

The most recent air quality plans developed by SCAQMD are the 2016 and 2022 AQMPs to address both 1997 (revoked) and 2015 8-hour O_3 and 24-hour $PM_{2.5}$ standards. The proposed Project does not alter any land use classifications and does not increase VMT. The proposed Project aims to encourage a shift from single-occupancy vehicles, using the surrounding road network to travel to and from ONT through the use of mass transit. The usage of autonomous electric vehicle technology also supports goals to reduce mobile source emissions. Further, vent shaft design option 2 and vent shaft design option 4 would rely on ventilation systems that are all electric, further reducing the emissions related to the operational footprint of the proposed Project. Therefore, the proposed Project during operation would not conflict with or obstruct the implementation of the applicable air quality plan, and impacts would be less than significant.

6.2 WOULD THE PROJECT ACTION RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD?

6.2.1 No Project Alternative

6.2.1.1 Construction Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. The No Project Alternative includes planned construction associated with expansion, improvement, and routine maintenance activities for the existing roadway system and transit facilities. The 2024 CEQA Guidelines define cumulatively considerable as "the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA 2024). The construction of these projects would be required to be in comply with regulatory requirements with implementing SCAQMD rules and regulations to ensure that no cumulatively considerable net increase in nonattainment air pollutants within the region that are below both LSTs and RTSs. Therefore, impacts during construction would be less than significant for the No Project Alternative.

6.2.1.2 Operational Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. Under the No Project Alternative, there would be no new direct transportation connection from Cucamonga Metrolink Station to ONT. Operation of the roadway system would essentially remain the same as the

existing condition, resulting in no considerable net increase in nonattainment pollutant emissions that are below both LSTs and RTSs. Therefore, impacts during operation would be less than significant for the No Project Alternative.

6.2.2 Proposed Project

6.2.2.1 Construction Impacts

6.2.2.1.1 Construction Regional Emissions Analysis

Table 6-1 below illustrates the proposed Project maximum regional daily emissions during construction including those from on-road hauling trucks to be emitted from four open construction/staging areas. Construction of the proposed Project would require a TBM to build the 4.2-mile tunnel 70 feet below ground surface. As a result, construction would require over 200 daily truck trips to transport construction waste away from the site. As shown, the proposed Project would not exceed any applicable SCAQMD regional thresholds.

Table 6-1: Maximum Daily Regional Emissions

Construction Area	NO_x	PM_{10}	$PM_{2.5}$	CO	VOC	SO_x
Cucamonga Metrolink Station (including MSF) and TBM Retrieval	27.7	33.9	4.5	28.8	3.3	0.1
Vent Shaft	25.4	17.6	2.6	29.7	3.0	0.1
Ontario Airport Terminal 4 Station	22.6	33.6	4.1	25.8	2.7	0.1
Ontario Airport Terminal 2 Station	36.2	34.4	4.8	45.3	5.0	0.2
Maximum Daily Regional Construction Emissions	95.2	118.3	15.0	107.0	11.1	0.6
SCAQMD Threshold	100	150	55	550	75	150
Exceed Threshold?	No	No	No	No	No	No

Source: CalEEMod 2021a

6.2.2.1.2 Localized Construction Emissions Analysis

Table 6-2 provides maximum daily localized construction emissions per construction site. Localized construction emissions represent emissions that are produced within the construction site only. Consistent with SCAQMD LST Methodology, only on-site emissions are included; thus, on-road emissions outside of the construction site are excluded from the localized totals, though these emissions are included in the regional totals listed in Table 6-1. Although each construction site would affect a given size of land as shown in Table 2-1, the size of earth disturbance area where equipment and trucks would operate resulting on-site fugitive dust emissions would be limited. As the SCAQMD LST Significance Threshold was established in a size sequence in terms of 1, 2, or 5 acres, it was assumed in the analysis that approximately 1 and 2 acre-land area where equipment and trucks would actually operate is considered for the shaft and each station site, respectively.

Table 6-2: Maximum Daily Localized Emissions

Construction Area	Maximum Daily Localized Construction Emissions (lbs/day)			
	NO_x	PM_{10}	$PM_{2.5}$	CO
Cucamonga Metrolink Station and TBM Retrieval	19.27	33.22	4.17	19.68
SCAQMD Significance Threshold for Southwest San Bernardino Valley (approximately 2 acres of site disturbance, receptor distance of 25m for NO_x/CO and 200m for PM_{10}/$PM_{2.5}$)	170	66	36	1,232
Exceed Threshold?	No	No	No	No
Vent Shaft Design Option	16.98	16.86	2.33	20.55
SCAQMD Significance Threshold for Southwest San Bernardino Valley (approximately 1 acres of site disturbance, receptor distance: 100m for NO_x/CO and 200m for PM_{10}/$PM_{2.5}$)	211	103	32	2,423
Exceed Threshold?	No	No	No	No
ONT Terminal 4 Station	14.14	32.86	3.84	16.70
SCAQMD Significance Threshold for Southwest San Bernardino Valley (approximately 2 acres of site disturbance, receptor distance: 50m for NO_x/CO and 500m for PM_{10}/$PM_{2.5}$)	263	160	150	3, 218
Exceed Threshold?	No	No	No	No
ONT Terminal 2 Station	27.78	33.63	4.55	36.21
SCAQMD Significance Threshold for Southwest San Bernardino Valley (approximately 2 acres of site disturbance, receptor distance: 25m for NO_x/CO and 500m for PM_{10}/$PM_{2.5}$)	170	160	150	1,232
Exceed Threshold?	No	No	No	No

Source: CalEEMOD 2021a

As noted in Section 3.3.1.2, localized construction emissions per site are compared to mass emission rates (lbs/day) provided by SCAQMD through a Look-Up Table based on the size of the construction disturbance area and closest distance to a sensitive receptor. As described in Section 6.3, sensitive receptor distances can vary between NO_x/CO and PM_{10}/$PM_{2.5}$ because NO_x and CO also consider commercial and industrialized locations, which may result in shorter distances to the closest receptor.

As shown in Table 6-2, localized emissions per construction site would be below applicable RTS and LST thresholds. Based on net reduction in operational emissions and temporary increase in construction

emissions being below applicable RTS and LST thresholds, the proposed Project would not violate air quality standards in O_3 (NO_x, as an O_3 precursor), PM_{10}, and $PM_{2.5}$.

Although the proposed Project would not violate air quality standards in ozone (NO_x, as an ozone precursor), PM_{10}, and $PM_{2.5}$, MM-AQ-1 would require dust control measures for the proposed Project. Implementation of MM-AQ-1 would require basic construction emission control practices what would address potential impacts associated with PM_{10} and $PM_{2.5}$ fugitive emissions.

Cumulative development would result in a significant impact in terms of violation of an air quality standard or a substantial contribution to an existing or projected air quality violation. SCAQMD recommends that individual projects that exceed the SCAQMD-recommended daily thresholds for project-specific impacts be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the SCAB is in non-attainment. The construction of the proposed Project would include PM_{10}, $PM_{2.5}$, NO_x, and VOC emissions, and development of the cumulative projects, in combination with the proposed Project, would exceed the same significance thresholds and result in a potentially significant cumulative impact. Therefore, the proposed Project's contribution would be cumulatively considerable, and the cumulative impact would be significant and unavoidable.

6.2.2.2 Operational Impacts

San Bernardino County is designated as in attainment, or maintenance, for all criteria pollutants except for ozone, PM_{10}, and $PM_{2.5}$ under NAAQS. To determine if the proposed Project would result in a cumulatively considerable net increase in the aforementioned pollutants, the proposed Project-level emission comparisons to applicable RTSs and LSTs can serve as an indicator. In addition, operation of the proposed Project would provide a net benefit in total emissions through the use of electric vehicles.

6.2.2.2.1 Operational Regional Emissions Analysis

Once construction of the proposed Project is complete, transit vehicles operating between Cucamonga Metrolink Station and ONT, as well as the ventilation system within the tunnel, will be electric. Considering that some single-occupancy vehicle trips are anticipated to be replaced by the proposed electric vehicle trips for travel between the Metrolink Station and ONT, operation of the proposed Project would produce a net benefit for regional emissions throughout the corridor from a reduction in regional emissions. Therefore, the proposed Project would result in a net air quality benefit with a reduction of air emissions during operation and the proposed Project would result in no impact.

6.2.2.2.2 Localized Operational Emissions Analysis

Once construction of the proposed Project is complete, transit vehicles operating between Cucamonga Metrolink Station and ONT, as well as the ventilation system within the tunnel, will be electric. Operation of the vent shaft design option would result in no net increase in air emissions and exceedances of either LSTs or RTSs. With construction is complete, the vehicles operating between Cucamonga Metrolink Station and ONT would be electric, and fans within the tunnel would also be electric. With the anticipation

of single-occupancy vehicles being replaced by the proposed electric vehicles, a net reduction of localized emissions through the corridor would be anticipated under the proposed Project. Therefore, the proposed Project during operation would not result in a cumulatively considerable net increase of any criteria pollutant, and impacts would be less than significant.

6.3 WOULD THE PROJECT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?

6.3.1 No Project Alternative

6.3.1.1 Construction Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. The No Project Alternative includes planned construction associated with expansion, improvement, and routine maintenance activities for the existing roadway system and transit facilities. The construction of these projects would be required to be in compliance of regulatory requirements with implementing SCAQMD rules and regulations to ensure that there is no substantial pollutant concentration exposure to sensitive receptors. Therefore, the No Project Alternative during construction would have a less than significant impact.

6.3.1.2 Operational Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. Under the No Project Alternative, no new direct transportation connection from Cucamonga Metrolink Station to ONT would be implemented. The operation of the roadway system would essentially remain the same as the existing condition, results in no substantial pollutant concentration exposure to sensitive receptors. Therefore, the No Project Alternative during operation would have a less than significant impact.

6.3.2 Proposed Project

Some members of the public are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. SCAQMD considers a sensitive receptor to be a receptor such as residence, hospital, or convalescent facility where it is possible that an individual could remain for 24 hours. Receptors such as industrial or commercial facilities may be considered for LST analysis for shorter-term pollutant/standards (such as 1-hour NO_2 and 1-hour/8-hour CO) because workers can be at these sites between 1 and 8 hours.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high

demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution because exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors for most of the time.

Sensitive receptors closest to the proposed Project footprint include commercial properties within 0.01 mile to 0.09 mile of all four construction locations (MSF, stations and vent shaft design option), an apartment community within 0.23 mile of the Cucamonga Metrolink Station site, a restaurant within 0.07 mile northwest of vent shaft design option 2, a restaurant within 0.11 mile southwest of vent shaft design option 4, airport terminals within 0.7 mile of the proposed ONT T2 Station and airport terminals within 0.11 mile of the proposed ONT T4 Station.

6.3.2.1 Construction Impacts

As discussed in Section 3.3.1.1, the RTSs were designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards. In addition, the LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards. As shown in Table 6-1, the proposed Project maximum regional daily emissions of criteria pollutants would not exceed any applicable SCAQMD RTSs. In addition, as shown in Table 6-2, localized emissions of criteria pollutants per construction site are applicable LSTs, which focus on sensitive receptors specifically. As such, the criteria air pollutant emissions associated with the proposed Project would not expose sensitive receptors to substantial criteria pollutant concentrations.

Regarding TAC emissions, the primary source would be from diesel PM emissions from the temporary operation of construction equipment, including from tunneling activities, where a TBM would be used to construct the 4.2-mile tunnel 70 feet below ground surface, and transportation construction-related waste, which would require an anticipated over 200 haul truck trips daily. Further, as noted in Table 6-1 and Table 6-2, overall PM emissions are below RTS and LSTs. Construction equipment, in most cases, is mobile and will move around each construction site throughout the day and over the course of the construction period with less cumulative impact at any one receptor location as compared to stationary sources. In addition, equipment would not be operating during all hours of the day or even during every day of the construction period, and therefore substantial pollutant concentrations at specific sensitive receptors would be unlikely. As previously mentioned, sensitive receptors closest to the proposed Project footprint include commercial properties within 0.01 mile to 0.09 mile of all four construction locations (MSF, stations and vent shaft design option), an apartment community within 0.23 mile of the Cucamonga Metrolink Station site, a restaurant within 0.07 mile northwest of vent shaft design option 2, a restaurant within 0.11 mile southwest of vent shaft design option 4, airport terminals within 0.7 mile of the proposed ONT T2 Station and airport terminals within 0.11 mile of the proposed ONT T4 Station. Due to the

temporary and mobile nature of the main source of TAC emissions, it is expected that the proposed Project would not result in substantial TAC pollutant concentrations at sensitive receptors. However, given the temporary and mobile nature of insignificant emissions compared to RTSs and LSTs, no substantial pollutant concentration exposure to sensitive receptors would occur. Therefore, the proposed Project during construction would not result in substantial pollutant concentrations at an existing or reasonably foreseeable sensitive receptor, and impacts would be less than significant.

6.3.2.2 Operational Impacts

The proposed Project would not increase operational emissions. Due to the replacement of single occupancy vehicle VMT with transit trips made on the proposed underground electric vehicles, there will be an overall reduction in VMT through the corridor and region. Further, the shaft ventilation system would be electric, resulting in no air emissions and exceedances of either LSTs or RTSs during operation of the vent shaft design option. Therefore, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations and would have a less than significant impact.

6.4 WOULD THE PROJECT RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE?

6.4.1 No Project Alternative

6.4.1.1 Construction Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. Adherence to applicable local regulatory requirements would ensure that construction of the No Project Alternative would not result in adverse odor impacts. Construction of planned related projects is anticipated to utilize typical construction equipment and techniques, resulting in common odors like other common construction sites in the neighborhood. However, construction is temporary in nature. Therefore, no emissions, such as those leading to odors, would adversely affect a substantial number of people, and impacts would be less than significant.

6.4.1.2 Operational Impacts

Under the No Project Alternative, the proposed Project would not be built, meaning there would be no action, and the improvements associated with the proposed Project would not be constructed. Transportation and maintenance projects would typically generate odor emissions from the fuel-consumption process which is common in all neighborhoods. Adherence to applicable local regulatory requirements would ensure that the operational activities under the No Project Alternative would result in similar impacts to the existing condition. Therefore, no emissions, such as those leading to odors, would adversely affect a substantial number of people, and impacts would be less than significant.

6.4.2 Proposed Project

6.4.2.1 Construction Impacts

Construction activities associated with the proposed Project could result in short-term odor emissions from diesel exhaust associated with construction equipment. One major component of the proposed Project's construction is tunnel boring, which would require a TBM to build the 4.2-mile tunnel 70 feet below ground surface. As a result, construction would require over 200 daily truck trips to transport construction waste away from the site, which may produce odors. The proposed Project would utilize typical construction techniques, as well as TBMs from tunnel construction, and the odors would be typical of most construction sites and temporary in nature. In addition, the proposed Project is required to comply with SCAQMD Rule 402 (Nuisance). This rule requires that the proposed Project not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with this rule will limit construction emissions from fuel-combustion sources that may be considered to have an adverse impact on sensitive receptors. These compliance measures could include utilizing best available technology for reducing emissions such as applying diesel particulate filters and/or Tier 4 engines to construction equipment to the extent practicable. Therefore, the proposed Project during construction would not create significant emissions that would produce odors affecting a substantial number of people and would have a less than significant impact.

6.4.2.2 Operational Impacts

The occurrence and severity of other emissions, such as those leading to odor impacts, depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose individuals to emissions, such as those leading to odors, are deemed to have a significant impact. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical-manufacturing plants, and food-processing facilities. During operation, not only does compliance with SCAQMD Rule 402 apply, but the proposed electric vehicles and shaft ventilation system would have minimal to no odor emissions. Therefore, the proposed Project during operation would not create significant emissions that would produce odors affecting a substantial number of people and would have a less than significant impact.

7 MITIGATION MEASURES AND IMPACTS AFTER MITIGATION

7.1 MITIGATION MEASURES FOR AIR QUALITY

The following mitigation measure (MM) for dust control shall be implemented to further reduce potential impacts for PM_{10} and $PM_{2.5}$ fugitive emissions.

MM-AQ-1: Implement Basic Construction Emission Control Practices. The following construction measures to limit and reduce air emissions from the construction sites will be implemented:

(A) Control fugitive dust as required by South Coast Air Quality Management District Rule 403 and enforced by South Coast Air Quality Management District staff.

(B) Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

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

(D) Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.

(E) Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

(F) Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

(G) All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. In addition, building pads shall be laid as soon as possible after grading, unless seeding or soil binders are used.

(H) Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations). Provide clear signage that posts this requirement for workers at the entrances to the site.

(I) Provide current certificate(s) of compliance for California Air Resources Board's In-Use Off-Road Diesel-Fueled Fleets Regulation (California Code of Regulations, Title 13, sections 2449 and 2449.1).

(J) Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition prior to operation.

7.2 CEQA SIGNIFICANCE CONCLUSION

7.2.1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

7.2.1.1 No Project Alternative

Adherence to applicable regulatory requirements would ensure that the construction and operational activities associated with the No Project Alternative would not conflict with or obstruct the implementation of the 2016 and 2022 Air Quality Management Plans. The No Project Alternative would have a less than significant impact.

7.2.1.2 Proposed Project

While the 2016 and 2022 Air Quality Management Plans account for construction activity emissions, the proposed Project construction duration is short-term, which is not anticipated to conflict with those assumptions. SCAQMD rules and regulations developed to implement Air Quality Management Plan control measures would be implemented as part of construction activities. Therefore, the proposed Project would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

7.2.2 Would the project action result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

7.2.2.1 No Project Alternative

Adherence to applicable regulatory requirements would ensure that the construction and operational activities associated with the No Project Alternative would result in a less than significant impact.

7.2.2.2 Proposed Project

MM-AQ-1 would be implemented during construction to address potential impacts for PM_{10} and $PM_{2.5}$ fugitive emissions, and to implement dust control measures to reduce impacts. However, the construction of the proposed Project would include PM_{10}, $PM_{2.5}$, NO_x, and VOC emissions, and development of the cumulative projects would, in combination with the proposed Project, likely exceed the same significance thresholds. Therefore, the proposed Project's contribution during construction would be cumulatively considerable, and the cumulative impact would likely be significant and unavoidable.

Once construction of the proposed Project is complete, transit vehicles operating between Cucamonga Metrolink Station and ONT, as well as equipment and the ventilation system within the tunnel, will be

electric. Therefore, the proposed Project during operation would result in a cumulatively beneficial impact.

7.2.3 Would the project expose sensitive receptors to substantial pollutant concentrations?

7.2.3.1 No Project Alternative

Adherence to applicable regulatory requirements would ensure that the construction and operation of the No Project Alternative would result in a less than significant impact.

7.2.3.2 Proposed Project

As noted in Table 6-1 and Table 6-2, overall PM, a primary toxic air contaminant, and other pollutants emissions are below regional threshold of significance and localized significance thresholds. Due to the temporary and mobile nature of the main source of pollutant emissions, the insignificant pollutant emissions compared to regional threshold of significance and localized significance thresholds, it is expected that the proposed Project would not result in substantial pollutant concentrations at sensitive receptors during construction. Further, the proposed Project's operational activities would result in a net air quality benefit, as reduced vehicle miles travelled would result in reduced regional and local operational emissions. As such, the proposed Project would not expose sensitive receptors to substantial concentrations of pollutants during operations because the proposed Project does not include any land uses or operational emissions that would materially impact ambient air quality. Therefore, the proposed Project would not result in substantial pollutant concentrations at an existing or reasonably foreseeable sensitive receptor, and impacts would be less than significant.

7.2.4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

7.2.4.1 No Project Alternative

Adherence to applicable local regulatory requirements would ensure that the construction and operation of the No Project Alternative would have a less than significant impact.

7.2.4.2 Proposed Project

As discussed in Sections 6.3 and 6.4, the proposed Project is not expected to result in substantial toxic air contaminant pollutant concentrations nor odor impacts at sensitive receptors. Therefore, the proposed Project would not result in significant air quality impacts during operation and construction, and impacts would be less than significant.

8 REFERENCES

California Emissions Estimator Model (CalEEMod). 2021a. User's Guide for CalEEMod Version 2020.4.0. May. Appendix A – Calculation Details for CalEEMod.

_____. 2021b. User's Guide for CalEEMod Version 2020.4.0. June. Appendix D – Default Data Tables.

California Air Resources Board. 2016. Ambient Air Quality Standards. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. Accessed March 13, 2024.

California Department of Transportation (Caltrans). 2022. 2023 Federal Statewide Transportation Improvement Program (FSTIP). Available at: https://dot.ca.gov/-/media/dot-media/programs/financial-programming/documents/2023-fstip-final-a11y.pdf. Accessed March 13, 2024.

Federal Highway Administration (FHWA). 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. October. Available at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/. Accessed March 13, 2024.

National Centers for Environmental Information. 2022. US Climate Normals Quick Access. Available at: https://www.ncei.noaa.gov/access/us-climate-normals/. Accessed August 2022.

Ontario International Airport Authority (OIAA). 2019. Strategic Assessment Ontario International Airport Final Report.

_____. 2022. Ontario International Airport Calendar May YTD. Available at: https://www.flyontario.com/sites/default/files/ont_airport_statistics_-_may_2022.pdf. Accessed March 13, 2024.

San Bernardino Associated Governments (SANBAG). 2014. Ontario Airport Rail Access Study.

San Bernardino County Transportation Authority (SBCTA). 2024a. *SBCTA Ontario International Airport Connector Project. Cumulative Impacts Technical Report.*

_____. 2024b. *SBCTA Ontario International Airport Connector Project. Construction Methods Technical Report.*

_____. 2024c. *SBCTA Ontario International Airport Connector Project. Transportation Technical Report.*

Southern California Association of Governments (SCAG). 2020a. 2020–2045 Connect SoCal. Website: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176 (accessed June 2022).

South Coast Air Quality Management District (SCAQMD). 2008. Final Localized Significance Thresholds. June 2003, Revised July 2008. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed August 2022.

_____. 2017. Final 2016 Air Quality Management Plan. March. Available at: https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15. Accessed August 2022.

_____. 2016. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin. September. Available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=14. Accessed August 2022.

_____. 2022. Final 2022 Air Quality Management Plan. December 2, 2022. Available at: https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16. Accessed April 2024).

_____. 2023. South Coast AQMD Air Quality Significance Thresholds. Available at: https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25. Accessed April 2024.

_____. 2023. South Coast AQMD Air Quality Significance Thresholds. Available at: https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25. Accessed April 2024.

Environmental Protection Agency (EPA). 2024a. Greenbook. California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available at: https://www3.epa.gov/airquality/greenbook/anayo_ca.html. Accessed March 13, 2024.

_____. 2024b. Air Data: Air Quality Data Collected at Outdoor Monitors Across the US. Available at: https://www.epa.gov/outdoor-air-quality-data. Accessed March 13, 2024.

Western Governors' Association. 2006. WRAP Fugitive Dust Handbook. Prepared for Western Governors' Association by Countess Environmental. September.

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Ontario International Airport Connector Project

ONTCONNECTOR

APPENDIX C:
AIR QUALITY TECHNICAL REPORT (APPENDIX A)

October 2024

sbcta

Prepared for:

San Bernardino County Transportation Authority
1170 West Third Street, Second Floor
San Bernardino, California 92410-1715

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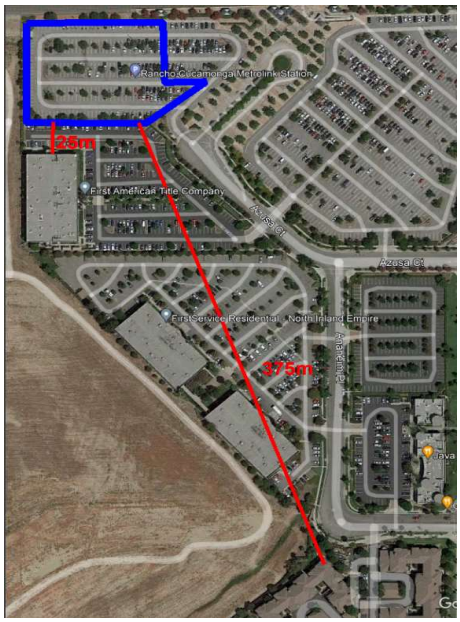
RC TBM - Off Road

Equipment Emissions Factors https://goo.gl/maps/BSVtDazZVQfuJxWk9

Equipment[8.]	Equipment Description	HP[1.]	Fuel Consumption (gal/hp-hr)	Load Factor[9.]	Usage Factor[10.]	Emission Factor[11.] (g/hp-hr)					
						NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Bobcat T650	Tractors/Loaders/Backhoes	74.3	0.019	0.37	0.70	4.4704	0.3682	0.3387	1.9126	0.5714	0.0018
CAT 200	Excavator	118	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 308 Excavator	Excavator	69.5	0.020	0.38	0.70	2.0430	0.2115	0.1945	1.6020	0.2778	0.0019
CAT 320	Excavator	172	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 350	Excavator	414	0.020	0.38	0.70	0.2602	0.0092	0.0085	0.3989	0.0437	0.0019
CAT 963D	Tractors/Loaders/Backhoes	189	0.019	0.37	0.70	0.4702	0.0184	0.0169	0.4494	0.0584	0.0018
CAT CS44B 1[2.]	Roller	100.6	0.019	0.38	0.70	0.9321	0.0434	0.0399	1.2798	0.0865	0.0018
CAT D4	Rubber Tired Dozer	130	0.019	0.40	0.70	0.5059	0.0264	0.0243	1.1915	0.0765	0.0018
CAT M322F Wheel Excavator	Excavator	169	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
Concrete Trucks[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Doosan XP825-HP750	Air Compressor	266	0.016	0.48	0.70	0.0731	0.0040	0.0036	0.3154	0.0258	0.0015
Generac MLT4060MV-STD 6kW[4.]	Generator Sets	12.2	0.042	0.74	0.70	2.5094	0.0599	0.0551	2.7725	0.2548	0.0054
Genie GTH-1056 Telehandler	Forklift	121	0.010	0.20	0.70	0.2884	0.0145	0.0133	0.6349	0.0386	0.0010
Genie GTH-5519 Telehandler	Forklift	74	0.010	0.20	0.70	2.6477	0.2079	0.1913	1.1120	0.3367	0.0010
Liebherr LB36	Bore/Drill Rig	523	0.026	0.50	0.70	0.3837	0.0136	0.0125	0.4935	0.0498	0.0024
Linkbelt LS248H	Crane	270	0.015	0.29	0.70	0.7233	0.0301	0.0277	0.4274	0.0720	0.0014
MQ Power Whisperwatt	Generator Sets	300	0.016	0.74	1	0.1631	0.0078	0.0072	0.3613	0.0505	0.0015
Muck Trucks[4.]	Other Construction Equipment	5.5	0.024	0.42	0.70	1.6966	0.0958	0.0881	1.9476	0.2829	0.0023
Skyjack SJ86T Manlift	Aerial Lift	74	0.016	0.31	0.70	0.4787	0.0094	0.0087	0.9746	0.0317	0.0015
Takeuchi TB235-2	Excavator	24.4	0.022	0.38	0.70	2.8902	0.4028	0.3706	4.2550	1.5152	0.0020
Trucks for material[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Volvo L50 Wheel Loader	Tractors/Loaders/Backhoes	90	0.019	0.37	0.70	0.6945	0.0234	0.0215	1.2827	0.0678	0.0018
Yanmar ViO55	Excavator	48.4	0.022	0.38	0.70	1.3011	0.0377	0.0346	1.6119	0.1502	0.0021

Site Details		
Site Size (acres)[5.]	NOx/CO Receptor Distance (meters)[6.]	PM_{10}/$PM_{2.5}$ Receptor Distance (meters)[6.]
1.977	25	375



LST Allowable Emissions (lbs/day)[7.]	
NO_X	170
PM_{10}	66
$PM_{2.5}$	36
CO	1232

Fugitive Dust

PM10 (Tons) / Month	PM2.5 (Tons) / Month
0.42	0.04

Fugitive Dust Formula

PM10 (Tons) / Month = Site Size * .21 (Acre to PM10 monthly conversion)

PM2.5 (Tons) / Month = PM10 (Tons) / Month * .1 (PM10 to PM2.5 conversion)

Notes:

1. Horsepowers are gathered through an internet search as well as emails with clients
2. Horsepower bin of 100 was used due to the horsepower of the equipment being fractionally over 100.
3. Assumed to be one vehicle
4. Lower hp bin unavailable since no hourly data, went with closest available bin
5. From client produced map - VENT SHAFT Combined 082422.pdf
6. See map
7. In correlation with the table "Site Details" these thresholds were taken from Appendix C for Southwest San Bernardino Valley http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2
8. Equipment data is found from APPENDIX 2 of "DRAFT Air Quality Exercise Concept Const Sup Memo 090722"
9. Load factor is gathered from Appendix A of EPA's "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling
10. Usage factor was assigned to represent the amount of hours that equipment would run for. ".7" represents 7 hours of the 10 hour shift, "1" represents the full 10 hours.
11. Emission Factors were dictated by EMFAC's Off Road Emissions https://arb.ca.gov/emfac/emissions-inventory/915f433fca11ec6a58e135c2eba4f2020312a4d2

Equipment Schedule

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Bobcat T650																							0.5	1	1	1	1	0.5																		1	1	1	4	4	4	4	4	4						
CAT 200																																														1	1	0.5												
CAT 308 Excavator																									0.5	1	1	0.5																																
CAT 320																											1.5	3	3	3	3	3	1.5																											
CAT 350																																																							1	0.5				
CAT 963D																											0.5	1	1	1	1	1	0.5																											
CAT CS44B 1																																														1	1	0.5							1	0.5				
CAT D4																																																												
CAT M322F Wheel Excavator																							0.5	1	1	1	1	0.5																																
Concrete Trucks																															1	2	2	2	2	2	2	2	2	2	2	2	2	2					2	2	2	2	2	2						
Doosan XP825-HP750																															1	2	2	2	2	2	2	2	2	2	2	2	2	2					2	2	2	2	2	2						
Generac MLT4060MV-STD 6kW																															3	6	6	6	6	6	6	6	6	6	6	6	6	6					10	10	10	10	10	10						
GenieGTH-1056 Telehandler																							0.5	1	0.5																								2	2	2	2	2	2						
Genie GTH-5519 Telehandler																															1	2	2	2	2	2	2	2	2	2	2	2	2	2																
Liebherr LB36																									0.5	1	1	0.5																																
Linkbelt LS248H																											0.5	1	1	1	2	3	2.5	2	2	2	2	2	2	2	2	2	2	2					2	2	2	2	2	2						
MQ Power Whisperwatt																															1	2	2	2	2	2	2	2	2	2	2	2	2	2					2	2	2	2	2	2						
Muck Trucks																																																												
Skyjack SJ86T Manlift																									0.5	1	1	0.5																																
Takeuchi TB235-2																											1	2	2	2	2	2	1																											
Trucks for material																							0.5	1	1	1	1.5	1.5	1	1	2	3	2.5	2	2	2	2	2	2	2	2	2	2	2		1	1	1	2	2	2	2	2	2	1	0.5				
Volvo L50 Wheel Loader																							0.5	1	0.5																					1	1	0.5	2	2	2	2	2	2	1	0.5				
Yanmar ViO55																							0.5	1	0.5																					1	1	1							1	0.5				

Pollution based on Schedule (tons/month)

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pollution based on Schedule (lbs/day)

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.0	4.9	5.7	7.9	7.1	4.3	4.3	9.6	14.8	12.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	0.0	4.3	4.3	3.8	19.3	19.3	19.3	19.3	19.3	19.3	2.8	1.4	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.3	32.4	32.5	32.5	32.7	32.6	32.4	32.4	32.7	32.9	32.8	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	0.0	32.4	32.4	32.4	33.2	33.2	33.2	33.2	33.2	33.2	32.3	32.2	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.4	3.5	3.5	3.7	3.6	3.5	3.5	3.7	3.9	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	0.0	3.4	3.4	3.4	4.2	4.2	4.2	4.2	4.2	4.2	3.3	3.3	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	4.4	5.2	6.0	9.4	9.8	6.8	6.8	13.3	19.7	16.3	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	0.0	4.6	4.6	3.4	18.9	18.9	18.9	18.9	18.9	18.9	3.9	1.9	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.7	0.8	1.2	1.3	0.9	0.9	1.8	2.7	2.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.0	0.6	0.6	0.5	2.8	2.8	2.8	2.8	2.8	2.8	0.4	0.2	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Cells with this contain equipment in a double shift.

Formula

1. Pollution based on schedule (tons/ month) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to tons conversion
2. Pollution based on schedule (lbs/ day) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to lbs conversion / 28 (month to day conversion)
3. For PM 10 and PM2.5 the Fugitive Dust emissions are also added each month

RC TBM - On Road

Vehicle Emissions Factors https://goo.gl/maps/BSVtDazZVQfuJxWk9

Vehicle Type[2.]	Fuel Type	Miles Driven[2.]	Emission Factor[1.] (tons/VMT)[a]					
			NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	Mix	14.7	4.84E-08	1.97E-08	6.95E-09	8.68E-07	1.14E-08	3.03E-09
Construction Trucks - T7 Single Dump Class 8	Mix	20	1.53E-06	1.47E-07	6.00E-08	8.75E-08	1.57E-08	1.68E-08
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	Mix	20	1.09E-06	1.97E-09	9.00E-10	1.44E-09	3.05E-10	2.48E-10

Vehicle Type[2.]	Emission Factor[1.] (ton/trip)[b]					
	NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	2.58E-07	2.28E-09	2.10E-09	3.13E-06	3.16E-07	7.37E-10
Construction Trucks - T7 Single Dump Class 8	3.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	6.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

a. Emissions includes: g/mile for RUNEX, PMBW and PMTW

b. Emissions includes: g/trip for STREX. Assume 2 trips per vehicle per day for STREX.

Notes:

1. Emission factors in units of tons/mile and tons/trip were provided by EMFAC https://arb.ca.gov/emfac/emissions-inventory/6dde440e3ce4f7e51faa86b7085eaa7b4bb418e2

2. From SBCTA_TunneltoONT_DRAFT_TechStudy_Traffic_110222_RLSO.docx

3. Assumed that the trips are split evenly between both sites per Scenario

Quantity Schedule

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Worker Vehicles																							230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230		230	230	230	230	230	230	230	230	230	230	230				
Construction Trucks - T7 Single Dump Class 8																							100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100	100	100	100	100	100				
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8																							10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		10	10	10	10	10	10	10	10	10	10	10				

Pollution based on Schedule (tons/month)

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0

Pollution based on Schedule (lbs/day)

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	0	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	0	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0	0	0	0

Formulas:

1. Pollutantion (tons/month) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2))
2. Pollutantion (lbs/day) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2)) * tons to lbs conversion / 28 (month to day conversion)

Vent Shaft - Off Road

Equipment Emissions Factors https://goo.gl/maps/99ETThasr2tBhu7A6

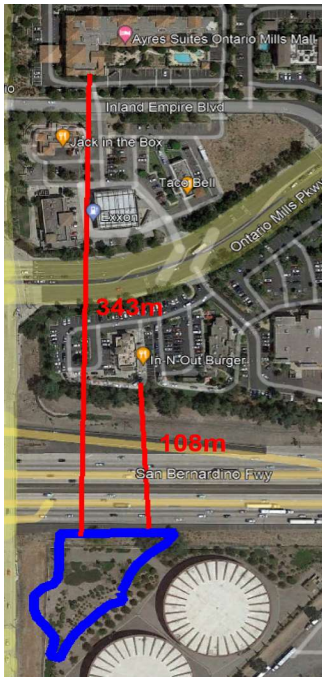
Equipment[8.]	Equipment Description	HP[1.]	Fuel Consumption (gal/hp-hr)	Load Factor[9.]	Usage Factor[10.]	Emission Factor[11.] (g/hp-hr)					
						NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Bobcat T650	Tractors/Loaders/Backhoes	74.3	0.019	0.37	0.70	4.4704	0.3682	0.3387	1.9126	0.5714	0.0018
CAT 200	Excavator	118	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 308 Excavator	Excavator	69.5	0.020	0.38	0.70	2.0430	0.2115	0.1945	1.6020	0.2778	0.0019
CAT 320	Excavator	172	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 350	Excavator	414	0.020	0.38	0.70	0.2602	0.0092	0.0085	0.3989	0.0437	0.0019
CAT 963D	Tractors/Loaders/Backhoes	189	0.019	0.37	0.70	0.4702	0.0184	0.0169	0.4494	0.0584	0.0018
CAT CS44B 1[2.]	Roller	100.6	0.019	0.38	0.70	0.9321	0.0434	0.0399	1.2798	0.0865	0.0018
CAT D4	Rubber Tired Dozer	130	0.019	0.40	0.70	0.5059	0.0264	0.0243	1.1915	0.0765	0.0018
CAT M322F Wheel Excavator	Excavator	169	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
Concrete Trucks[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Doosan XP825-HP750	Air Compressor	266	0.016	0.48	0.70	0.0731	0.0040	0.0036	0.3154	0.0258	0.0015
Generac MLT4060MV-STD 6kW[4.]	Generator Sets	12.2	0.042	0.74	0.70	2.5094	0.0599	0.0551	2.7725	0.2548	0.0054
Genie GTH-1056 Telehandler	Forklift	121	0.010	0.20	0.70	0.2884	0.0145	0.0133	0.6349	0.0386	0.0010
Genie GTH-5519 Telehandler	Forklift	74	0.010	0.20	0.70	2.6477	0.2079	0.1913	1.1120	0.3367	0.0010
Liebherr LB36	Bore/Drill Rig	523	0.026	0.50	0.70	0.3837	0.0136	0.0125	0.4935	0.0498	0.0024
Linkbelt LS248H	Crane	270	0.015	0.29	0.70	0.7233	0.0301	0.0277	0.4274	0.0720	0.0014
MQ Power Whisperwatt	Generator Sets	300	0.016	0.74	1	0.1631	0.0078	0.0072	0.3613	0.0505	0.0015
Muck Trucks[4.]	Other Construction Equipment	5.5	0.024	0.42	0.70	1.6966	0.0958	0.0881	1.9476	0.2829	0.0023
Skyjack SJ86T Manlift	Aerial Lift	74	0.016	0.31	0.70	0.4787	0.0094	0.0087	0.9746	0.0317	0.0015
Takeuchi TB235-2	Excavator	24.4	0.022	0.38	0.70	2.8902	0.4028	0.3706	4.2550	1.5152	0.0020
Trucks for material[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Volvo L50 Wheel Loader	Tractors/Loaders/Backhoes	90	0.019	0.37	0.70	0.6945	0.0234	0.0215	1.2827	0.0678	0.0018
Yanmar ViO55	Excavator	48.4	0.022	0.38	0.70	1.3011	0.0377	0.0346	1.6119	0.1502	0.0021

Site Details		
Site Size (acres)[5.]	NOx/CO Receptor Distance (meters)[6.]	PM_{10}/$PM_{2.5}$ Receptor Distance (meters)[6.]
0.988	122	248

LST Allowable Emissions (lbs/day)[7.]	
NO_X	211
PM_{10}	103
$PM_{2.5}$	32
CO	2423

Fugitive Dust

PM10 (Tons) / Month	PM2.5 (Tons) / Month
0.21	**0.02**



Fugitive Dust Formula

PM10 (Tons) / Month = Site Size * .21 (Acre to PM10 monthly conversion)

PM2.5 (Tons) / Month = PM10 (Tons) / Month * .1 (PM10 to PM2.5 conversion)

Notes:

1. Horsepowers are gathered through an internet search as well as emails with clients
2. Horsepower bin of 100 was used due to the horsepower of the equipment being fractionally over 100.
3. Assumed to be one vehicle
4. Lower hp bin unavailable since no hourly data, went with closest available bin
5. From client produced map - VENT SHAFT Combined 082422.pdf
6. See map
7. In correlation with the table "Site Details" these thresholds were taken from Appendix C for Southwest San Bernardino Valley http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2
8. Equipment data is found from APPENDIX 2 of "DRAFT Air Quality Exercise Concept Const Sup Memo 090722"
9. Load factor is gathered from Appendix A of EPA's "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling
10. Usage factor was assigned to represent the amount of hours that equipment would run for. ".7" represents
7 hours of the 10 hour shift, "1" represents the full 10 hours.
11. Emission Factors were dictated by EMFAC's Off Road Emissions https://arb.ca.gov/emfac/emissions-inventory/915f433fca11ec6a58e135c2eba4f2020312a4d2

Equipment Schedule

Month

Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Bobcat T650																													1	1	0.5		2	2	2																	2	2	2	1	0.5				
CAT 200																																																												
CAT 308 Excavator																														1	0.5																								1	0.5				
CAT 320																															1	2																												
CAT 350																													1																															
CAT 963D																															1	2																												
CAT CS44B 1																																																												
CAT D4																																																												
CAT M322F Wheel Excavator																													1	1	0.5		2	2	2																	2	2	2						
Concrete Trucks																																	2	2	2																	2	2	2						
Doosan XP825-HP750																																	2	2	2																	2	2	2						
Generac MLT4060MV-STD 6kW																																	10	10	10																	10	10	10						
GenieGTH-1056 Telehandler																													1				2	2	2																	2	2	2						
Genie GTH-5519 Telehandler																																																												
Liebherr LB36																														1	0.5																													
Linkbelt LS248H																															1	2	2	2	2																	2	2	2						
MQ Power Whisperwatt																																	2	2	2																	2	2	2						
Muck Trucks																																																												
Skyjack SJ86T Manlift																														1	0.5																													
Takeuchi TB235-2																															1	2																												
Trucks for material																													1	1	1.5	2	2	2	2																	2	2	2	1	0.5				
Volvo L50 Wheel Loader																													1				2	2	2																	2	2	2	1	0.5				
Yanmar ViO55																													1				2	2	2																	2	2	2	1	0.5				

Pollution based on Schedule (tons/month)

Month

Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pollution based on Schedule (lbs/day)

Month

Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	5.7	6.0	6.2	17.0	17.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	17.0	17.0	4.4	2.2	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.3	16.4	16.4	16.4	16.9	16.9	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9	16.9	16.9	16.4	16.2	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.9	1.9	1.9	2.3	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	2.3	1.9	1.7	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	6.0	6.9	7.7	20.6	20.6	20.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	20.6	20.6	3.6	1.8	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.8	1.0	1.2	2.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5	2.5	0.6	0.3	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Cells with this contain equipment in a double shift.

Formula

1. Pollution based on schedule (tons/ month) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to tons conversion
2. Pollution based on schedule (lbs/ day) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to lbs conversion / 28 (month to day conversion)
3. For PM 10 and PM2.5 the Fugitive Dust emissions are also added each month

Vent Shaft - On Road

Vehicle Emissions Factors https://goo.gl/maps/99ETThasr2tBhu7A6

Vehicle Type[2.]	Fuel Type	Miles Driven[2.]	Emission Factor[1.] (tons/VMT)[a]					
			NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	Mix	14.7	4.84E-08	1.97E-08	6.95E-09	8.68E-07	1.14E-08	3.03E-09
Construction Trucks - T7 Single Dump Class 8	Mix	20	1.53E-06	1.47E-07	6.00E-08	8.75E-08	1.57E-08	1.68E-08
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	Mix	20	1.09E-06	1.97E-09	9.00E-10	1.44E-09	3.05E-10	2.48E-10

Vehicle Type[2.]	Emission Factor[1.] (ton/trip)[b]					
	NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	2.58E-07	2.28E-09	2.10E-09	3.13E-06	3.16E-07	7.37E-10
Construction Trucks - T7 Single Dump Class 8	3.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	6.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

a. Emissions includes: g/mile for RUNEX, PMBW and PMTW

b. Emissions includes: g/trip for STREX. Assume 2 trips per vehicle per day for STREX.

Notes:

1. Emission factors in units of tons/mile and tons/trip were provided by EMFAC https://arb.ca.gov/emfac/emissions-inventory/6dde440e3ce4f7e51faa86b7085eaa7b4bb418e2
2. From SBCTA_TunneltoONT_DRAFT_TechStudy_Traffic_110222_RLSO.docx
3. Assumed that the trips are split evenly between both sites per Scenario

Quantity Schedule

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Worker Vehicles																													230	230	230	230	230	230	230																	230	230	230	230	230				
Construction Trucks - T7 Single Dump Class 8																													100	100	100	100	100	100	100																	100	100	100	100	100				
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8																													10	10	10	10	10	10	10																	10	10	10	10	10				

Pollution based on Schedule (tons/month)

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0.11	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0.12	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0

Pollution based on Schedule (lbs/day)

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	8.46	8.46	8.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	8.46	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0.73	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0.29	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	9.10	9.10	9.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	9.10	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0.43	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0.09	0	0	0	0

Formulas:

1. Pollutantion (tons/month) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2))
2. Pollutantion (lbs/day) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2)) * tons to lbs conversion / 28 (month to day conversion)

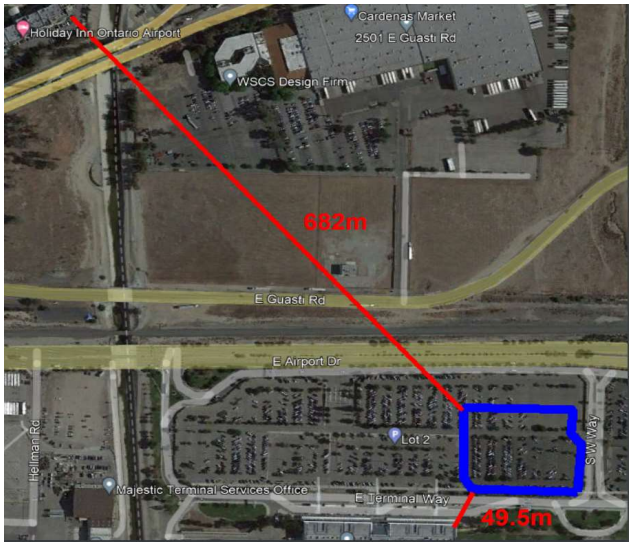
ONT T2 - Off Road

Equipment Emissions Factors https://goo.gl/maps/Jnmf9fKSYmd11xGf8

Equipment[8.]	Equipment Description	HP[1.]	Fuel Consumption (gal/hp-hr)	Load Factor[9.]	Usage Factor[10.]	Emission Factor[11.] (g/hp-hr)					
						NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Bobcat T650	Tractors/Loaders/Backhoes	74.3	0.019	0.37	0.70	4.4704	0.3682	0.3387	1.9126	0.5714	0.0018
CAT 200	Excavator	118	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 308 Excavator	Excavator	69.5	0.020	0.38	0.70	2.0430	0.2115	0.1945	1.6020	0.2778	0.0019
CAT 320	Excavator	172	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 350	Excavator	414	0.020	0.38	0.70	0.2602	0.0092	0.0085	0.3989	0.0437	0.0019
CAT 963D	Tractors/Loaders/Backhoes	189	0.019	0.37	0.70	0.4702	0.0184	0.0169	0.4494	0.0584	0.0018
CAT CS44B 1[2.]	Roller	100.6	0.019	0.38	0.70	0.9321	0.0434	0.0399	1.2798	0.0865	0.0018
CAT D4	Rubber Tired Dozer	130	0.019	0.40	0.70	0.5059	0.0264	0.0243	1.1915	0.0765	0.0018
CAT M322F Wheel Excavator	Excavator	169	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
Concrete Trucks[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Doosan XP825-HP750	Air Compressor	266	0.016	0.48	0.70	0.0731	0.0040	0.0036	0.3154	0.0258	0.0015
Generac MLT4060MV-STD 6kW[4.]	Generator Sets	12.2	0.042	0.74	0.70	2.5094	0.0599	0.0551	2.7725	0.2548	0.0054
Genie GTH-1056 Telehandler	Forklift	121	0.010	0.20	0.70	0.2884	0.0145	0.0133	0.6349	0.0386	0.0010
Genie GTH-5519 Telehandler	Forklift	74	0.010	0.20	0.70	2.6477	0.2079	0.1913	1.1120	0.3367	0.0010
Liebherr LB36	Bore/Drill Rig	523	0.026	0.50	0.70	0.3837	0.0136	0.0125	0.4935	0.0498	0.0024
Linkbelt LS248H	Crane	270	0.015	0.29	0.70	0.7233	0.0301	0.0277	0.4274	0.0720	0.0014
MQ Power Whisperwatt	Generator Sets	300	0.016	0.74	1	0.1631	0.0078	0.0072	0.3613	0.0505	0.0015
Muck Trucks[4.]	Other Construction Equipment	5.5	0.024	0.42	0.70	1.6966	0.0958	0.0881	1.9476	0.2829	0.0023
Skyjack SJ86T Manlift	Aerial Lift	74	0.016	0.31	0.70	0.4787	0.0094	0.0087	0.9746	0.0317	0.0015
Takeuchi TB235-2	Excavator	24.4	0.022	0.38	0.70	2.8902	0.4028	0.3706	4.2550	1.5152	0.0020
Trucks for material[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Volvo L50 Wheel Loader	Tractors/Loaders/Backhoes	90	0.019	0.37	0.70	0.6945	0.0234	0.0215	1.2827	0.0678	0.0018
Yanmar ViO55	Excavator	48.4	0.022	0.38	0.70	1.3011	0.0377	0.0346	1.6119	0.1502	0.0021

Site Details		
Site Size (acres)[5.]	NOx/CO Receptor Distance (meters)[6.]	PM_{10}/$PM_{2.5}$ Receptor Distance (meters)[6.]
1.977	49.5	738

LST Allowable Emissions (lbs/day)[7.]		
NO_X	170	2acres/25
PM_{10}	160	2acres/500
$PM_{2.5}$	150	2acres/500
CO	1232	2acres/25



Fugitive Dust

PM10 (Tons) / Month	PM2.5 (Tons) / Month
0.42	0.04

Fugitive Dust Formula

PM10 (Tons) / Month = Site Size * .21 (Acre to PM10 monthly conversion)

PM2.5 (Tons) / Month = PM10 (Tons) / Month * .1 (PM10 to PM2.5 conversion)

Notes:

1. Horsepowers are gathered through an internet search as well as emails with clients
2. Horsepower bin of 100 was used due to the horsepower of the equipment being fractionally over 100.
3. Assumed to be one vehicle
4. Lower hp bin unavailable since no hourly data, went with closest available bin
5. From client produced map - VENT SHAFT Combined 082422.pdf
6. See map
7. In correlation with the table "Site Details" these thresholds were taken from Appendix C for Southwest San Bernardino Valley http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2
8. Equipment data is found from APPENDIX 2 of "DRAFT Air Quality Exercise Concept Const Sup Memo 090722"
9. Load factor is gathered from Appendix A of EPA's "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling
10. Usage factor was assigned to represent the amount of hours that equipment would run for. ".7" represents
7 hours of the 10 hour shift, "1" represents the full 10 hours.
11. Emission Factors were dictated by EMFAC's Off Road Emissions https://arb.ca.gov/emfac/emissions-inventory/915f433fca11ec6a58e135c2eba4f2020312a4d2

Equipment Schedule

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Bobcat T650																							1	2	2	2	2	2																			1	1	1	0.5										
CAT 200																																															1	1	1											
CAT 308 Excavator																							1	2	2	2	2	2																																
CAT 320																							2	4	4	4	4	4																																
CAT 350																																																							1	0.5				
CAT 963D																							1	2	2	2	2	2																																
CAT CS44B 1																																															1	1	1						1	0.5				
CAT D4																																																							1	0.5				
CAT M322F Wheel Excavator																							1	2	2	2	2	2																																
Concrete Trucks																							1	2	2	2	2	2																								2	2	2						
Doosan XP825-HP750																							1	2	2	2	2	2																								2	2	2						
Generac MLT4060MV-STD 6kW																							8	16	16	16	16	16																								10	10	10						
GenieGTH-1056 Telehandler																							1	2	2	2	2	2																								2	2	2						
Genie GTH-5519 Telehandler																																																												
Liebherr LB36																							1	2	2	2	2	2																																
Linkbelt LS248H																							1	2	2	2	2	2																								2	2	2						
MQ Power Whisperwatt																							1	2	2	2	2	2																								2	2	2						
Muck Trucks																							1	2	2	2	2	2																																
Skyjack SJ86T Manlift																							1	2	2	2	2	2																																
Takeuchi TB235-2																							2	4	4	4	4	4																																
Trucks for material																							1	2	2	2	2	2																			1	1	1	0.5		2	2	2	1	0.5				
Volvo L50 Wheel Loader																							1	2	2	2	2	2																			1	1	1						1	0.5				
Yanmar ViO55																																															1	1	1	0.5					1	0.5				

Pollution based on Schedule (tons/month)

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pollution based on Schedule (lbs/day)

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9	27.8	27.8	27.8	27.8	27.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	4.3	4.3	1.6	0.0	11.0	11.0	11.0	3.2	1.6	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9	33.6	33.6	33.6	33.6	33.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.4	32.4	32.4	32.3	0.0	32.6	32.6	32.6	32.3	32.2	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	4.6	4.6	4.6	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	3.4	3.4	3.3	0.0	3.6	3.6	3.6	3.3	3.3	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.1	36.2	36.2	36.2	36.2	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	4.6	4.6	1.2	0.0	14.4	14.4	14.4	4.9	2.4	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	4.6	4.6	4.6	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.2	0.0	1.8	1.8	1.8	0.5	0.2	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Cells with this contain equipment in a double shift.

Formula

1. Pollution based on schedule (tons/ month) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to tons conversion
2. Pollution based on schedule (lbs/ day) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to lbs conversion / 28 (month to day conversion)
3. For PM 10 and PM2.5 the Fugitive Dust emissions are also added each month

ONT T2 - On Road

Vehicle Emissions Factors https://goo.gl/maps/Jnmf9fKSYmd11xGf8

Vehicle Type[2.]	Fuel Type	Miles Driven[2.]	Emission Factor[1.] (tons/VMT)[a]					
			NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	Mix	14.7	4.84E-08	1.97E-08	6.95E-09	8.68E-07	1.14E-08	3.03E-09
Construction Trucks - T7 Single Dump Class 8	Mix	20	1.53E-06	1.47E-07	6.00E-08	8.75E-08	1.57E-08	1.68E-08
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	Mix	20	1.09E-06	1.97E-09	9.00E-10	1.44E-09	3.05E-10	2.48E-10

Vehicle Type[2.]	Emission Factor[1.] (ton/trip)[b]					
	NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	2.58E-07	2.28E-09	2.10E-09	3.13E-06	3.16E-07	7.37E-10
Construction Trucks - T7 Single Dump Class 8	3.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	6.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

a. Emissions includes: g/mile for RUNEX, PMBW and PMTW

b. Emissions includes: g/trip for STREX. Assume 2 trips per vehicle per day for STREX.

Notes:

1. Emission factors in units of tons/mile and tons/trip were provided by EMFAC https://arb.ca.gov/emfac/emissions-inventory/6dde440e3ce4f7e51faa86b7085eaa7b4bb418e2
2. From SBCTA_TunneltoONT_DRAFT_TechStudy_Traffic_110222_RLSO.docx
3. Assumed that the trips are split evenly between both sites per Scenario

Quantity Schedule

	Month																													
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
Worker Vehicles																							230	230	230	230	230	230		
Construction Trucks - T7 Single																							100	100	100	100	100	100		
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8																							10	10	10	10	10	10		

	Month																													
Equipment	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Worker Vehicles																	230	230	230	230		230	230	230	230	230				
Construction Trucks - T7 Single																	100	100	100	100		100	100	100	100	100				
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8																	10	10	10	10		10	10	10	10	10				

Pollution based on Schedule (tons/month)

	Month																													
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0.11	0.11	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0.12	0.12	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0

	Month																													
Equipment	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0	0.11	0.11	0.11	0.11	0.11	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0	0.12	0.12	0.12	0.12	0.12	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0

Pollution based on Schedule (lbs/day)

	Month																													
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	8.46	8.46	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0.73	0.73	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0.29	0.29	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	9.10	9.10	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0.43	0.43	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0.09	0.09	0	0

	Month																													
Equipment	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	0	8.46	8.46	8.46	8.46	8.46	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0	0.73	0.73	0.73	0.73	0.73	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0	0.29	0.29	0.29	0.29	0.29	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	0	9.10	9.10	9.10	9.10	9.10	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0	0.43	0.43	0.43	0.43	0.43	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0	0.09	0.09	0.09	0.09	0.09	0	0	0	0

Formulas:

1. Pollutantion (tons/month) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2))
2. Pollutantion (lbs/day) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2)) * tons to lbs conversion / 28 (month to day conversion)

ONT T4 - Off Road

Equipment Emissions Factors https://goo.gl/maps/Wh7RuhJoetaHh1u88

Equipment[8.]	Equipment Description	HP[1.]	Fuel Consumption (gal/hp-hr)	Load Factor[9.]	Usage Factor[10.]	Emission Factor[11.] (g/hp-hr)					
						NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Bobcat T650	Tractors/Loaders/Backhoes	74.3	0.019	0.37	0.70	4.4704	0.3682	0.3387	1.9126	0.5714	0.0018
CAT 200	Excavator	118	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 308 Excavator	Excavator	69.5	0.020	0.38	0.70	2.0430	0.2115	0.1945	1.6020	0.2778	0.0019
CAT 320	Excavator	172	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
CAT 350	Excavator	414	0.020	0.38	0.70	0.2602	0.0092	0.0085	0.3989	0.0437	0.0019
CAT 963D	Tractors/Loaders/Backhoes	189	0.019	0.37	0.70	0.4702	0.0184	0.0169	0.4494	0.0584	0.0018
CAT CS44B 1[2.]	Roller	100.6	0.019	0.38	0.70	0.9321	0.0434	0.0399	1.2798	0.0865	0.0018
CAT D4	Rubber Tired Dozer	130	0.019	0.40	0.70	0.5059	0.0264	0.0243	1.1915	0.0765	0.0018
CAT M322F Wheel Excavator	Excavator	169	0.020	0.38	0.70	0.3857	0.0186	0.0171	1.1730	0.0562	0.0019
Concrete Trucks[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Doosan XP825-HP750	Air Compressor	266	0.016	0.48	0.70	0.0731	0.0040	0.0036	0.3154	0.0258	0.0015
Generac MLT4060MV-STD 6kW[4.]	Generator Sets	12.2	0.042	0.74	0.70	2.5094	0.0599	0.0551	2.7725	0.2548	0.0054
Genie GTH-1056 Telehandler	Forklift	121	0.010	0.20	0.70	0.2884	0.0145	0.0133	0.6349	0.0386	0.0010
Genie GTH-5519 Telehandler	Forklift	74	0.010	0.20	0.70	2.6477	0.2079	0.1913	1.1120	0.3367	0.0010
Liebherr LB36	Bore/Drill Rig	523	0.026	0.50	0.70	0.3837	0.0136	0.0125	0.4935	0.0498	0.0024
Linkbelt LS248H	Crane	270	0.015	0.29	0.70	0.7233	0.0301	0.0277	0.4274	0.0720	0.0014
MQ Power Whisperwatt	Generator Sets	300	0.016	0.74	1	0.1631	0.0078	0.0072	0.3613	0.0505	0.0015
Muck Trucks[4.]	Other Construction Equipment	5.5	0.024	0.42	0.70	1.6966	0.0958	0.0881	1.9476	0.2829	0.0023
Skyjack SJ86T Manlift	Aerial Lift	74	0.016	0.31	0.70	0.4787	0.0094	0.0087	0.9746	0.0317	0.0015
Takeuchi TB235-2	Excavator	24.4	0.022	0.38	0.70	2.8902	0.4028	0.3706	4.2550	1.5152	0.0020
Trucks for material[3.]	Off-Highway Trucks	400	0.020	0.38	0.70	0.3862	0.0136	0.0125	0.4500	0.0672	0.0019
Volvo L50 Wheel Loader	Tractors/Loaders/Backhoes	90	0.019	0.37	0.70	0.6945	0.0234	0.0215	1.2827	0.0678	0.0018
Yanmar ViO55	Excavator	48.4	0.022	0.38	0.70	1.3011	0.0377	0.0346	1.6119	0.1502	0.0021

Site Details		
Site Size (acres)[5.]	NOx/CO Receptor Distance (meters)[6.]	PM_{10}/$PM_{2.5}$ Receptor Distance (meters)[6.]
1.977	155	770

LST Allowable Emissions (lbs/day)[7.]	
NO_X	263
PM_{10}	160
$PM_{2.5}$	150
CO	3218

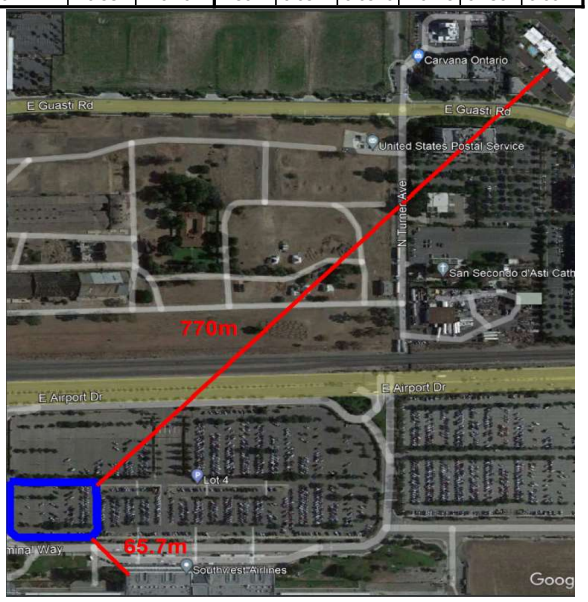
Fugitive Dust

PM10 (Tons) / Month	PM2.5 (Tons) / Month
0.42	0.04

Fugitive Dust Formula

PM10 (Tons) / Month = Site Size * .21 (Acre to PM10 monthly conversion)

PM2.5 (Tons) / Month = PM10 (Tons) / Month * .1 (PM10 to PM2.5 conversion)



Notes:

1. Horsepowers are gathered through an internet search as well as emails with clients
2. Horsepower bin of 100 was used due to the horsepower of the equipment being fractionally over 100.
3. Assumed to be one vehicle
4. Lower hp bin unavailable since no hourly data, went with closest available bin
5. From client produced map - VENT SHAFT Combined 082422.pdf
6. See map
7. In correlation with the table "Site Details" these thresholds were taken from Appendix C for Southwest San Bernardino Valley http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2
8. Equipment data is found from APPENDIX 2 of "DRAFT Air Quality Exercise Concept Const Sup Memo 090722"
9. Load factor is gathered from Appendix A of EPA's "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling
10. Usage factor was assigned to represent the amount of hours that equipment would run for. ".7" represents
7 hours of the 10 hour shift, "1" represents the full 10 hours.
11. Emission Factors were dictated by EMFAC's Off Road Emissions https://arb.ca.gov/emfac/emissions-inventory/915f433fca11ec6a58e135c2eba4f2020312a4d2

Equipment Schedule

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Bobcat T650																													1	1	1																			1	1	1	0.5							
CAT 200																																																												
CAT 308 Excavator																															1																													
CAT 320																																4	4																	4	4									
CAT 350																																																							1	0.5				
CAT 963D																																2	2																	2	2									
CAT CS44B 1																																																							1	0.5				
CAT D4																																																							1	0.5				
CAT M322F Wheel Excavator																													1	1	1																													
Concrete Trucks																																		2	2																	2	2	2						
Doosan XP825-HP750																																		2	2																	2	2	2						
Generac MLT4060MV-STD 6kW																																		10	10																	10	10	10						
GenieGTH-1056 Telehandler																													1	1				2	2																	2	2	2						
Genie GTH-5519 Telehandler																																																												
Liebherr LB36																															1																													
Linkbelt LS248H																																2	2	2	2															2	2	2	2	2						
MQ Power Whisperwatt																																		2	2																	2	2	2						
Muck Trucks																																																												
Skyjack SJ86T Manlift																															1																													
Takeuchi TB235-2																																4	4																	4	4									
Trucks for material																													1	1	1	2	2	2	2															3	3	3	2.5	2	1	0.5				
Volvo L50 Wheel Loader																													1	1																									1	0.5				
Yanmar ViO55																													1	1																				1	1	1	0.5		1	0.5				

Pollution based on Schedule (tons/month)

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pollution based on Schedule (lbs/day)

	Month																																																											
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0	5.7	7.8	7.8	11.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	11.0	14.1	12.6	11.0	3.2	1.6	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.4	32.4	32.5	32.7	32.7	32.6	32.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9	32.9	32.8	32.7	32.6	32.3	32.2	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	3.4	3.5	3.7	3.7	3.6	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8	3.8	3.7	3.6	3.3	3.3	0.0	0.0	0.0	0.0
CO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	4.4	6.0	11.3	11.3	14.4	14.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	13.6	16.7	15.5	14.4	4.9	2.4	0.0	0.0	0.0	0.0
VOC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.8	1.7	1.7	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.0	1.8	0.5	0.2	0.0	0.0	0.0	0.0
SO_X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Cells with this contain equipment in a double shift.

Formula

1. Pollution based on schedule (tons/ month) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to tons conversion
2. Pollution based on schedule (lbs/ day) = Equipment Quantity * Emission Factor * Usage Factor * Load Factor * Horsepower * gram to lbs conversion / 28 (month to day conversion)
3. For PM 10 and PM2.5 the Fugitive Dust emissions are also added each month

ONT T4 - On Road

Vehicle Emissions Factors https://goo.gl/maps/Wh7RuhJoetaHh1u88

Vehicle Type[2.]	Fuel Type	Miles Driven[2.]	Emission Factor[1.] (tons/VMT)[a]					
			NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	Mix	14.7	4.84E-08	1.97E-08	6.95E-09	8.68E-07	1.14E-08	3.03E-09
Construction Trucks - T7 Single Dump Class 8	Mix	20	1.53E-06	1.47E-07	6.00E-08	8.75E-08	1.57E-08	1.68E-08
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	Mix	20	1.09E-06	1.97E-09	9.00E-10	1.44E-09	3.05E-10	2.48E-10

Vehicle Type[2.]	Emission Factor[1.] (ton/trip)[b]					
	NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X
Worker Vehicles	2.58E-07	2.28E-09	2.10E-09	3.13E-06	3.16E-07	7.37E-10
Construction Trucks - T7 Single Dump Class 8	3.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8	6.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

a. Emissions includes: g/mile for RUNEX, PMBW and PMTW

b. Emissions includes: g/trip for STREX. Assume 2 trips per vehicle per day for STREX.

Notes:

1. Emission factors in units of tons/mile and tons/trip were provided by EMFAC https://arb.ca.gov/emfac/emissions-inventory/6dde440e3ce4f7e51faa86b7085eaa7b4bb418e2
2. From SBCTA_TunneltoONT_DRAFT_TechStudy_Traffic_110222_RLSO.docx
3. Assumed that the trips are split evenly between both sites per Scenario

Quantity Schedule

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
Worker Vehicles																													230	230	230	230	230	230	230															230	230	230	230	230	230	230				
Construction Trucks - T7 Single Dump Class 8																													100	100	100	100	100	100	100															100	100	100	100	100	100	100				
Ancillary Delivery Trucks -T6 Instate Delivery/T7 Tractor Class 8																													10	10	10	10	10	10	10															10	10	10	10	10	10	10				

Pollution based on Schedule (tons/month)

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0

Pollution based on Schedule (lbs/day)

	Month																																																										
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	8.46	8.46	8.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.46	8.46	8.46	8.46	8.46	8.46	8.46	0	0	0	0
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0	0	0	0
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0	0	0	0
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	9.10	9.10	9.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.10	9.10	9.10	9.10	9.10	9.10	9.10	0	0	0	0
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0	0	0	0
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0	0	0	0

Formulas:

1. Pollutantion (tons/month) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2))
2. Pollutantion (lbs/day) = ((Emission Factor (tons/VMT) * Quantity of Vehicle * Miles Driven) + (Emission Factor (ton/trip) * Quantity of Vehicle * 2)) * tons to lbs conversion / 28 (month to day conversion)

Localized Significance Thresholds

Construction Area	Maximum Daily Localized Construction Emissions (lb/day)			
	NO_x	PM_{10}	$PM_{2.5}$	CO
Rancho Cucamonga Metrolink Station and TBM Retrieval	19.27	33.22	4.17	19.68
SCAQMD Threshold (2 acres, 25m/200m)	170	66	36	1232
Exceed Threshold?	**N**	**N**	**N**	**N**
Vent Shaft	16.98	16.86	2.33	20.55
SCAQMD Threshold (1 acre, 100m/200m)	211	103	32	2423
Exceed Threshold?	**N**	**N**	**N**	**N**
Ontario Airport T4 Station	14.14	32.86	3.84	16.70
SCAQMD Threshold (2 acres, 50m/500m)	263	160	150	3218
Exceed Threshold?	**N**	**N**	**N**	**N**
Ontario Airport T2 Station	27.78	33.63	4.55	36.21
SCAQMD Threshold (2 acres, 25m/500m)	170	160	150	1232
Exceed Threshold?	**N**	**N**	**N**	**N**

Total of each Project

Construction Area	Construction Emissions (tons)					
	NO_x	PM_{10}	$PM_{2.5}$	CO	VOC	SO_x
Rancho Cucamonga Metrolink Station and TBM Retrieval	7.8	14.2	1.7	8.7	0.9	0.05
Vent Shaft	3.0	2.7	0.4	3.4	0.3	0.02
Ontario Airport T4 Station	3.0	6.0	0.7	3.5	0.3	0.02
Ontario Airport T2 Station	4.3	6.5	0.8	5.2	0.5	0.03
Total Emissions from Project Construction (tons)	**18.1**	**29.4**	**3.6**	**20.8**	**2.0**	**0.12**

Rancho Cucamonga Metrolink Station and TBM Retrieval (tons/month)

	Month																																																												
Pollutant	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Total
NO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.16	0.17	0.18	0.21	0.20	0.16	0.16	0.23	0.30	0.27	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.17	0.17	0.16	0.36	0.36	0.36	0.36	0.36	0.36	0.15	0.13	0.00	0.00	0.00	0.00	7.80
PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.00	0.43	0.43	0.43	0.44	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.00	0.00	0.00	0.00	14.22
$PM_{2.5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.00	0.00	0.00	0.00	1.68
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.17	0.18	0.20	0.24	0.24	0.21	0.21	0.29	0.37	0.33	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.00	0.18	0.18	0.16	0.36	0.36	0.36	0.36	0.36	0.36	0.17	0.14	0.00	0.00	0.00	0.00	8.69
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.01	0.01	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.85
SO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05

Vent Shaft (tons/month)

	Month																																																											
Pollutant	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Total
NO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.18	0.19	0.19	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.17	0.14	0.00	0.00	0.00	0.00	3.00
PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.22	0.22	0.00	0.00	0.00	0.00	2.68
$PM_{2.5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.37
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.20	0.21	0.22	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.38	0.38	0.16	0.14	0.00	0.00	0.00	0.00	3.40
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.32
SO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Ontario Airport T4 Station (tons/month)

	Month																																																										
Pollutant	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Total
NO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.18	0.21	0.21	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.29	0.27	0.25	0.15	0.13	0.00	0.00	0.00	0.00	3.02
PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	6.02
$PM_{2.5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.70
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.20	0.26	0.26	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.29	0.33	0.32	0.30	0.18	0.15	0.00	0.00	0.00	0.00	3.54
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.33
SO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Ontario Airport T2 Station (tons/month)

	Month																																																										
Pollutant	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Total
NO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.47	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17	0.13	0.00	0.25	0.25	0.25	0.15	0.13	0.00	0.00	0.00	0.00	4.28
PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.44	0.44	0.44	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.00	0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	6.50
$PM_{2.5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.80
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.58	0.58	0.58	0.58	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.18	0.13	0.00	0.30	0.30	0.30	0.18	0.15	0.00	0.00	0.00	0.00	5.17
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.03	0.03	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.51
SO_X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03

Regional Emission Threshold

Construction Area	Maximum Daily Regional Construction Emissions (lb/day)					
	NO_x	PM_{10}	$PM_{2.5}$	CO	VOC	SO_x
Rancho Cucamonga Metrolink Station and TBM Retrieval	27.7	33.9	4.5	28.8	3.3	0.1
Vent Shaft	25.4	17.6	2.6	29.7	3.0	0.1
Ontario Airport T4 Station	22.6	33.6	4.1	25.8	2.7	0.1
Ontario Airport T2 Station	36.2	34.4	4.8	45.3	5.0	0.2
Maximum Daily Regional Construction Emissions	**95.2**	**118.3**	**15.0**	**107.0**	**11.1**	**0.6**
SCAQMD Threshold	100	150	55	550	75	150
Exceed Threshold?	**N**	**N**	**N**	**N**	**N**	**N**

All sites combined (tons/month)

	Month																																																											Max	
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Value	Month
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.42	0.63	0.64	0.65	0.68	0.67	0.49	0.51	0.60	0.70	0.81	0.82	0.82	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.17	0.33	0.32	0.52	0.74	0.61	1.23	1.21	1.19	0.61	0.52	0	0	0	0	1.23	M52
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.86	0.87	0.87	0.87	0.87	0.87	1.08	1.08	1.08	1.09	1.09	1.09	1.09	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.00	0.43	0.86	0.86	0.87	1.30	0.87	1.53	1.53	1.52	1.50	1.49	0	0	0	0	1.53	M52
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10	0.11	0.11	0.11	0.11	0.11	0.12	0.13	0.13	0.13	0.14	0.13	0.13	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.05	0.10	0.10	0.11	0.16	0.11	0.19	0.19	0.19	0.17	0.16	0	0	0	0	0.19	M52
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0.76	0.77	0.78	0.82	0.83	0.57	0.57	0.69	0.85	0.97	0.97	0.97	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.00	0.18	0.35	0.34	0.54	0.79	0.65	1.38	1.36	1.35	0.69	0.58	0	0	0	0	1.38	M52
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04	0.08	0.08	0.08	0.09	0.09	0.04	0.05	0.06	0.09	0.10	0.10	0.10	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.01	0.03	0.02	0.05	0.08	0.08	0.14	0.14	0.14	0.05	0.03	0	0	0	0	0.14	M52
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0	0	0	0	0.01	M52

All sites combined (lbs/day)

	Month																																																											Max	
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Value	Month
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	49	50	50	53	52	38	39	47	54	63	64	64	19	19	19	19	19	19	19	19	19	0	13	26	25	41	57	47	95	94	92	47	41	0	0	0	0	95.18	M52
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66.66	67.5	67.56	67.62	67.75	67.7	83.38	83.47	83.8	84.14	84.46	84.23	84.23	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	0	33.16	66.317	66.292	67.103	100.54	67.534	118.32	118.23	118.13	116.18	115.86	0	0	0	0	118.32	M52
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.79	8.565	8.619	8.672	8.791	8.749	9.604	9.69	9.988	10.3	10.6	10.39	10.39	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	0	3.737	7.4738	7.4506	8.1968	12.193	8.5935	14.985	14.893	14.802	13.016	12.718	0	0	0	0	14.98	M52
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38.5	58.8	59.61	60.43	63.84	64.25	43.86	44.53	53.44	65.97	75.41	75.09	75.09	22	22	22	22	22	22	22	22	22	0	13.65	27.303	26.19	41.688	61.008	50.744	106.96	105.8	104.64	53.641	45.023	0	0	0	0	106.96	M52
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.412	5.963	6.08	6.197	6.652	6.718	3.405	3.532	4.84	6.842	7.76	7.379	7.379	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	0	0.998	1.9963	1.9339	4.2526	6.4891	5.837	11.093	10.872	10.651	3.6132	2.6682	0	0	0	0	11.09	M52
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.23	0.283	0.287	0.292	0.299	0.297	0.302	0.307	0.341	0.372	0.403	0.421	0.421	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0	0.098	0.1951	0.1935	0.2411	0.354	0.2625	0.5736	0.5707	0.5679	0.3989	0.3765	0	0	0	0	0.57	M52

Rancho Cucamonga Metrolink Station and TBM Retrieval (lbs/day)

	Month																																																											Max	
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Value	Month
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	12	13	14	16	16	13	13	18	23	21	19	19	19	19	19	19	19	19	19	19	19	0	13	13	12	28	28	28	28	28	28	11	10	0	0	0	0	27.72	M49
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.03	33.14	33.2	33.26	33.39	33.34	33.17	33.17	33.39	33.61	33.48	33.35	33.35	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	0	33.16	33.159	33.133	33.944	33.944	33.944	33.944	33.944	33.944	33.012	32.961	0	0	0	0	33.94	M49
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.615	3.723	3.777	3.83	3.95	3.908	3.746	3.746	3.947	4.148	4.029	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.91	0	3.737	3.7369	3.7137	4.4599	4.4599	4.4599	4.4599	4.4599	4.4599	3.602	3.5548	0	0	0	0	4.46	M49
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11.29	13.48	14.3	15.12	18.53	18.93	15.93	15.93	22.36	28.79	25.37	21.96	21.96	22	22	22	22	22	22	22	22	22	0	13.65	13.651	12.539	28.037	28.037	28.037	28.037	28.037	28.037	12.997	11.049	0	0	0	0	28.79	M32
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.705	0.978	1.095	1.212	1.667	1.733	1.342	1.342	2.226	3.109	2.654	2.198	2.198	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	0	0.998	0.9982	0.9358	3.2544	3.2544	3.2544	3.2544	3.2544	3.2544	0.823	0.6269	0	0	0	0	3.25	M49
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.093	0.097	0.102	0.107	0.114	0.112	0.103	0.103	0.126	0.15	0.142	0.135	0.135	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0	0.098	0.0976	0.0959	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1	0.0943	0	0	0	0	0.15	M32

Vent Shaft (lbs/day)

	Month																																																											Max	
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Value	Month
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	14	14	15	25	25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	25	13	11	0	0	0	0	25.43	M33
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17.07	17.16	17.15	17.14	17.59	17.59	17.59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17.59	17.59	17.59	17.106	16.958	0	0	0	0	17.59	M33
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.134	2.22	2.21	2.2	2.616	2.616	2.616	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.616	2.616	2.616	2.1708	2.0342	0	0	0	0	2.62	M33
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14.45	15.12	15.96	16.8	29.65	29.65	29.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29.654	29.654	29.654	12.738	10.919	0	0	0	0	29.65	M33
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.084	1.212	1.402	1.593	2.966	2.966	2.966	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9662	2.9662	2.9662	1.0215	0.7261	0	0	0	0	2.97	M33
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.102	0.107	0.108	0.109	0.147	0.147	0.147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1469	0.1469	0.1469	0.096	0.0923	0	0	0	0	0.15	M33

Ontario Airport T4 Station (lbs/day)

	Month																																																											Max	
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Value	Month
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	14	16	16	19	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	23	21	19	12	10	0	0	0	0	22.60	M52
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.14	33.14	33.26	33.39	33.39	33.3	33.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.59	33.59	33.494	33.395	33.296	33.033	32.971	0	0	0	0	33.59	M50
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.723	3.723	3.83	3.951	3.951	3.863	3.863	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.1336	4.1336	4.0458	3.9544	3.8629	3.6214	3.5645	0	0	0	0	4.13	M50
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.48	13.48	15.12	20.38	20.38	23.47	23.47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.707	22.707	25.797	24.635	23.473	13.953	11.527	0	0	0	0	25.80	M52
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.978	0.978	1.212	2.14	2.14	2.215	2.215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.5825	2.5825	2.6576	2.4363	2.2151	0.8844	0.6576	0	0	0	0	2.66	M52
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.097	0.097	0.107	0.113	0.113	0.139	0.139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.119	0.119	0.1444	0.1415	0.1387	0.1014	0.095	0	0	0	0	0.14	M52

Ontario Airport T2 Station (lbs/day)

	Month																																																											Max	
Equipment	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36	M37	M38	M39	M40	M41	M42	M43	M44	M45	M46	M47	M48	M49	M50	M51	M52	M53	M54	M55	M56	M57	M58	M59	M60	Value	Month
NO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	36	36	36	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13	10	0	19	19	19	12	10	0	0	0	0	36.24	M24
PM_{10}	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.63	34.36	34.36	34.36	34.36	34.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.159	33.159	33.159	33.009	0	33.296	33.296	33.296	33.033	32.971	0	0	0	0	34.36	M24
$PM_{2.5}$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.175	4.842	4.842	4.842	4.842	4.842	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.7369	3.7369	3.7369	3.599	0	3.8629	3.8629	3.8629	3.6214	3.5645	0	0	0	0	4.84	M24
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.21	45.31	45.31	45.31	45.31	45.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.651	13.651	13.651	10.263	0	23.473	23.473	23.473	13.953	11.527	0	0	0	0	45.31	M24
VOC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.708	4.985	4.985	4.985	4.985	4.985	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9982	0.9982	0.9982	0.6521	0	2.2151	2.2151	2.2151	0.8844	0.6576	0	0	0	0	4.99	M24
SO_X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.137	0.185	0.185	0.185	0.185	0.185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0976	0.0976	0.0976	0.0914	0	0.1387	0.1387	0.1387	0.1014	0.095	0	0	0	0	0.19	M24

Regional Emission Threshold

Pollutant	(lbs/day)
NO_X	100
PM_{10}	150
$PM_{2.5}$	55
CO	550
VOC	75
SO_X	150