

# ***CHARCOT AVENUE EXTENSION PROJECT AIR QUALITY AND GREENHOUSE GAS EMISSIONS ASSESSMENT***

***San José, California***

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## **Introduction**

The City of San José proposes to construct a 2-lane extension of Charcot Avenue from Paragon Drive on the west to Oakland Road on the east, which would be approximately 0.6 miles. The extension includes the construction of an overcrossing across O'Toole Avenue and Interstate 880 (I-880). The extension would also construct bicycle/pedestrian facilities on Charcot Avenue, including sidewalks and Class IV bikeways<sup>1</sup>, between Paragon Drive and Oakland Road.

## Project Description

Charcot Avenue currently runs between its intersections with Orchard Parkway to the west and O'Toole Avenue at its eastern end on the west side of I-880. The proposed project would result in the extension of Charcot Avenue from its current termini west of I-880 to Oakland Road east of I-880. The proposed Charcot Avenue extension will provide an additional east/west connection across I-880 between Montague Expressway and Brokaw Road. The project area includes Charcot Avenue from its intersection with Paragon Drive on the west side of I-880 to its future intersection with Oakland Road on the east side of I-880. The extension is proposed to consist of a two-lane roadway, one travel lane in each direction with sidewalks and bike lanes on both sides of the roadway. The planned extension also includes the following roadway adjustments:

1. The existing Charcot Avenue/O'Toole Avenue intersection will be eliminated. Access to O'Toole Avenue from Charcot Avenue will be maintained via a new slip ramp along the south side of Charcot Avenue. Access to westbound Charcot Avenue from O'Toole Avenue will not be provided.
2. A new traffic signal will be installed at the existing unsignalized Charcot Avenue and Paragon Drive T-intersection.
3. Access to adjacent properties along Charcot Avenue between Paragon Drive and Silkwood Lane will not be provided.
4. The extension will follow the current alignment of Silkwood Lane between Oakland Road and Silkwood Lane.
5. A new pedestrian only signal or High-Intensity Activated crosswalk (HAWK) beacon will be installed along Charcot Avenue at Silkwood Lane. A median will be constructed along Charcot Avenue at Silkwood Lane to restrict turn-movements.
6. The existing unsignalized intersection of Silkwood Lane and Oakland Road will be replaced by a new signalized intersection. The proposed lane configurations at the intersection consist of one left-turn and one shared left-right turn lane on Charcot Avenue and two northbound left-turn lanes and six through lanes on Oakland Road

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<sup>1</sup> A Class IV Bikeway, which is also known as a protected bike lane or separated bikeway, is one that is physically separated from the vehicle travel lane by more than the white stripe. This can entail flexible bollards, permanent barriers, and/or vertical separation.

## Purpose of this Report

The purpose of this report is to address air quality and air quality community risk impacts associated with the proposed extension of Charcot Avenue. There are residences located to the north and east of the project and the Orchard School to the south.

The air quality assessment predicts construction and operational criteria pollutant emissions. Community risk impacts could occur due to temporary construction emissions affecting nearby sensitive receptors and the operation of the new roadway. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).

## **Air Quality Setting**

The project is located in the northern portion of Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM<sub>10</sub>), and fine particulate matter (PM<sub>2.5</sub>).

## **Air Pollutants**

### Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>). The main sources of ROG and NO<sub>x</sub>, often referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, shortness of breath, and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

### Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. While CO transport is limited, it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.

## Nitrogen Dioxide

NO<sub>2</sub> is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO<sub>2</sub>. Aside from its contribution to ozone formation, NO<sub>2</sub> also contribute to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO<sub>2</sub> may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO<sub>2</sub> decreases lung function and may reduce resistance to infection. On January 22, 2010 the EPA strengthened the health-based NAAQS for NO<sub>2</sub>.

## Sulfur Dioxide

Sulfur dioxide (SO<sub>2</sub>) is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO<sub>2</sub> levels in the region. SO<sub>2</sub> irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

## Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are larger than 2.5 microns but smaller than 10 microns (PM<sub>10</sub>). PM<sub>2.5</sub> refers to fine suspended particulate matter with an aerodynamic diameter of 2.5 microns or less that is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM<sub>10</sub> and PM<sub>2.5</sub>. These small particles can be directly emitted into the atmosphere as by-products of fuel combustion, through abrasion, such as tire or brake lining wear, or through fugitive dust (wind or mechanical erosion of soil). They can also be formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces and can enter the human body through the lungs.

## Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufactures.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

## Toxic Air Contaminants (TACs)

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the EPA and the CARB. Some examples of TACs include: benzene, butadiene, formaldehyde, and hydrogen sulfide. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants.

High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high volume transit centers, or schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

### *Sensitive Receptors*

Some groups of people are more affected by air pollution than others. The State has identified the following people who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools.

Health effects of criteria pollutants and their potential sources are described below and summarized in Table 1.

## **Regulatory Setting**

The U.S. Environmental Protection Agency (U.S. EPA) is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it, as well as the national ambient air quality standards (federal standards) that the U.S. EPA establishes. These standards identify levels of air quality for six criteria pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants are ozone (O<sub>3</sub>), carbon dioxide (CO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter with an aerodynamic diameter of 10 micrometers (PM<sub>10</sub>), fine particulate matter with an aerodynamic diameter of 2.5 micrometers (PM<sub>2.5</sub>), and lead (Pb). The U.S. EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf) and sources that are under the exclusive authority of the federal government, such as aircraft, train locomotives, and interstate trucking. As part of its enforcement responsibilities, the U.S. EPA requires each State with nonattainment areas (i.e., areas that do not meet national ambient air quality standards) to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

**Table 1. Health Effects of Air Pollutants**

<b>Pollutants</b>	<b>Sources</b>	<b>Primary Effects</b>
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust.</li> <li>• Natural events, such as decomposition of organic matter.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced tolerance for exercise.</li> <li>• Impairment of mental function.</li> <li>• Impairment of fetal development.</li> <li>• Death at high levels of exposure.</li> <li>• Aggravation of some heart diseases (angina).</li> </ul>
Nitrogen Dioxide (NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Motor vehicle exhaust.</li> <li>• High temperature stationary combustion.</li> <li>• Atmospheric reactions.</li> </ul>	<ul style="list-style-type: none"> <li>• Aggravation of respiratory illness.</li> <li>• Reduced visibility.</li> <li>• Reduced plant growth.</li> <li>• Formation of acid rain.</li> </ul>
Ozone (O <sub>3</sub> )	<ul style="list-style-type: none"> <li>• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.</li> </ul>	<ul style="list-style-type: none"> <li>• Aggravation of respiratory and cardiovascular diseases.</li> <li>• Irritation of eyes.</li> <li>• Impairment of cardiopulmonary function.</li> <li>• Plant leaf injury.</li> </ul>
Lead (Pb)	<ul style="list-style-type: none"> <li>• Contaminated soil.</li> </ul>	<ul style="list-style-type: none"> <li>• Impairment of blood functions and nerve construction.</li> <li>• Behavioral and hearing problems in children.</li> </ul>
Suspended Particulate Matter (PM <sub>2.5</sub> and PM <sub>10</sub> )	<ul style="list-style-type: none"> <li>• Stationary combustion of solid fuels.</li> <li>• Construction activities.</li> <li>• Industrial processes.</li> <li>• Atmospheric chemical reactions.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced lung function.</li> <li>• Aggravation of the effects of gaseous pollutants.</li> <li>• Aggravation of respiratory and cardiorespiratory diseases.</li> <li>• Increased cough and chest discomfort.</li> <li>• Soiling.</li> <li>• Reduced visibility.</li> </ul>
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Combustion of sulfur-containing fossil fuels.</li> <li>• Smelting of sulfur-bearing metal ores.</li> <li>• Industrial processes.</li> </ul>	<ul style="list-style-type: none"> <li>• Aggravation of respiratory diseases (asthma, emphysema).</li> <li>• Reduced lung function.</li> <li>• Irritation of eyes.</li> <li>• Reduced visibility.</li> <li>• Plant injury.</li> <li>• Deterioration of metals, textiles, leather, finishes, coatings, etc.</li> </ul>
Toxic Air Contaminants	<ul style="list-style-type: none"> <li>• Cars and trucks, especially diesels.</li> <li>• Industrial sources such as chrome platers.</li> <li>• Neighborhood businesses such as dry cleaners and service stations.</li> <li>• Building materials and product.</li> </ul>	<ul style="list-style-type: none"> <li>• Cancer.</li> <li>• Chronic eye, lung, or skin irritation.</li> <li>• Neurological and reproductive disorders.</li> </ul>

Source: CARB, 2008.

The California Air Resources Board (CARB), a department of the California EPA, oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal Clean Air Act Amendment requirements, and regulating emissions from motor vehicles and consumer products within the state. CARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions and develops airborne toxic control measures to reduce TACs identified under CARB regulations.

Both the U.S. EPA and CARB established ambient air quality standards for common air pollutants. These ambient air quality standards are prescribed levels of pollutants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called “criteria” pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and State ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, federal and State standards differ in some cases. In general, California standards are more stringent. This is particularly true for ozone and PM<sub>10</sub>. The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB oversees regional air district activities and regulates air quality at the State level. The BAAQMD has published the California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.<sup>2</sup>

### Air Quality Attainment Status

Air quality conditions in the Bay Area are compared against ambient air quality standards set at the Federal level (i.e., NAAQS) and at the State level (CAAQS). The attainment status is classified for each pollutant.

Under the NAAQS, the Bay Area is classified as nonattainment for ozone and PM<sub>2.5</sub>. Note that in 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour PM<sub>2.5</sub> national standard. Despite this EPA action, the Bay Area continues to be designated as “nonattainment” for the 24-hour PM<sub>2.5</sub> NAAQS standard until such time as BAAQMD submits a “redesignation request” and a “maintenance plan” to EPA, and EPA approves the proposed redesignation. For the pollutants NO<sub>2</sub>, CO and SO<sub>2</sub>, the area is designated as attainment. Note that the region is considered a “maintenance” area for CO since at one time the region was considered “nonattainment.” While monitoring data shows the region meets the PM<sub>10</sub> NAAQS, the area is technically designated “unclassified.”

At the State level, the area is considered nonattainment for ozone, PM<sub>2.5</sub> and PM<sub>10</sub> and considered “attainment” for all other criteria air pollutants.

### Regulatory Agencies

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has recently published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.

### *Federal Regulations*

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<sup>2</sup> Bay Area Air Quality Management District. 2017. BAAQMD CEQA Air Quality Guidelines. May.

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO<sub>x</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO<sub>x</sub> emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.<sup>3</sup>

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD), is currently required for use by all vehicles in the U.S.

All of the above federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

### *State Regulations*

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.<sup>4</sup> In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or

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<sup>3</sup> USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.

<sup>4</sup> California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.



replaced to meet 2010 or later engine standards that have much lower DPM and PM<sub>2.5</sub> emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO<sub>x</sub> emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO<sub>x</sub> exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO<sub>x</sub>.

#### *Bay Area Air Quality Management District (BAAQMD)*

BAAQMD has jurisdiction over an approximately 5,600-square mile area, commonly referred to as the San Francisco Bay Area (Bay Area). The District's boundary encompasses the nine San Francisco Bay Area counties, including Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, Napa County, southwestern Solano County, and southern Sonoma County.

BAAQMD is the lead agency in developing plans to address attainment and maintenance of the National Ambient Air Quality Standards and California Ambient Air Quality Standards. The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

The BAAQMD California Environmental Quality Act (CEQA) *Air Quality Guidelines*<sup>5</sup> were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions.

#### San José Envision 2040 General Plan

The San José Envision 2040 General Plan includes goals, policies, and actions to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants or TACs. The following goals, policies, and actions are applicable to the proposed project:

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<sup>5</sup> Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

*Applicable Goals – Air Pollutant Emission Reduction*

**Goal MS-10** Minimize air pollutant emissions from new and existing development.

*Applicable Policies – Air Pollutant Emission Reduction*

**MS-10.1** Assess projected air emissions from new development in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.

**MS-10.2** Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region’s Clean Air Plan and State law.

*Applicable Goals – Toxic Air Contaminants*

**Goal MS-11** Minimize exposure of people to air pollution and toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

*Applicable Policies – Toxic Air Contaminants*

**MS-11.1** Require completion of air quality modeling for sensitive land uses such as new residential developments that are located near sources of pollution such as freeways and industrial uses. Require new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs or be located an adequate distance from sources of toxic air contaminants (TACs) to avoid significant risks to health and safety.

**MS-11.2** For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

**MS-11.4** Encourage the installation of appropriate air filtration at existing schools, residences, and other sensitive receptor uses adversely affected by pollution sources.

*Actions – Toxic Air Contaminants*

**MS-11.7** Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.

*Applicable Goals – Construction Air Emissions*

**Goal MS-13** Minimize air pollutant emissions during demolition and construction activities

*Applicable Policies – Construction Air Emissions*

MS-13.1 Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At minimum, conditions shall conform to construction mitigation measures recommended in the current BAAQMD CEQA Guidelines for the relevant project size and type.

*Applicable Actions – Construction Air Emissions*

**MS-13.4** Adopt and periodically update dust, particulate, and exhaust control standard measures for demolition and grading activities to include on project plans as conditions of approval based upon construction mitigation measures in the BAAQMD CEQA Guidelines.

## Greenhouse Gas Emissions

This section provides a general discussion of global climate change and focuses on emissions from human activities that alter the chemical composition of the atmosphere. The discussion on global climate change and greenhouse gas (GHG) emissions is based in part upon the California Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32) and research, information and analysis completed by the International Panel on Climate Change (IPCC), the U.S. EPA, and CARB.

Global climate change refers to changes in weather including temperatures, precipitation, and wind patterns. Global temperatures are modulated by naturally occurring and anthropogenic (generated by mankind) atmospheric gases such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (NO<sub>x</sub>).<sup>6</sup> These gases allow sunlight into the earth's atmosphere but prevent heat from radiating back out into outer space and escaping from the earth's atmosphere, thus altering the earth's energy balance. This phenomenon is known as the greenhouse effect.

Naturally occurring GHGs include water vapor,<sup>7</sup> CO<sub>2</sub>, CH<sub>4</sub>, NO<sub>x</sub>, and ozone (O<sub>3</sub>). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also GHGs, but are for the most part solely a product of industrial activities.

Unlike emissions of criteria and toxic air pollutants, which have local or regional impacts, emissions of GHGs have a broader, global impact. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors.

Impacts to California from climate change include shifting precipitation patterns, increasing temperatures, increasing severity and duration of wildfires, earlier melting of snow pack and effects on habitats and biodiversity. Sea levels along the California coast have risen up to seven inches over the last century, and average annual temperatures have been increasing. These and other effects will likely intensify in the coming decades and significantly impact the State's public health, natural and manmade infrastructure, and ecosystems.<sup>8</sup>

Agencies at the international, national, state, and local levels are considering strategies to control emissions of gases that contribute to global warming. There is no comprehensive strategy that is being implemented on a global scale that addresses climate change; however, in California a multi-agency "Climate Action Team," has identified a range of strategies and the Air Resources Board,

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<sup>6</sup> IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: The Physical Science Bases*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at: <<http://ipcc.ch/>>. Accessed March 25, 2013

<sup>7</sup> Concentrations of water are highly variable in the atmosphere over time, with water occurring as vapor, cloud droplets and ice crystals. Changes in its concentration are also considered to be a result of climate feedbacks rather than a direct result of industrialization or other human activities. For this reason, water vapor is not discussed further as a greenhouse gas

<sup>8</sup> State of California Energy Commission. *2009 California Climate Adaptation Strategy Discussion Draft. Frequently Asked Questions*. August 3, 2009. <[www.climatechange.ca.gov/adaptation/documents/2009-07-31\\_Discussion\\_Draft-Adaptation\\_FAQs.pdf](http://www.climatechange.ca.gov/adaptation/documents/2009-07-31_Discussion_Draft-Adaptation_FAQs.pdf)>. Accessed March 25, 2013.

under AB 32, has approved the *Climate Change Scoping Plan* (Scoping Plan). AB 32 requires achievement by 2020 of a Statewide greenhouse gas emissions limit equivalent to 1990 emission levels, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions. The CARB and other State agencies are currently working on regulations and other initiatives to implement the Scoping Plan. By 2050, the State plans to reduce emissions to 80 percent below 1990 levels.

In April 2015, Governor Brown signed Executive Order B-30-15 which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed SB 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*. While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikable communities
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO<sub>2e</sub> per capita (statewide) by 2030 and no more than 2 metric tons CO<sub>2e</sub> per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

### Plan Bay Area

Senate Bill 375(SB 375) requires the Bay Area regional planning agencies to include a Sustainable Communities Strategy (SCS) in their regional transportation plan (RTP) updates to describe how the GHG emissions reductions set by CARB would be met through land-use and transportation planning. In 2010, the Metropolitan Transportation Commission (MTC) approved a set of "*Bay Area Principles for Establishing Regional Greenhouse Gas Reduction Targets*" (Resolution 3970) that proposed per-capita GHG emission reductions of 7 percent from 1990 by 2020 and 15 percent

by 2035. Subsequently, MTC, along with the Association of Bay Area Governments (ABAG), developed the SCS plans to meet state targets for reducing greenhouse gas emissions from light-duty vehicles. Plan Bay Area 2040 is the update to this plan, which includes implementation of transportation projects and Climate Initiatives Program that, together, would result in emissions from light-duty vehicles that meet the region's GHG reduction targets, per SB 375<sup>9</sup>.

#### Bay Area 2017 Clean Air Plan

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

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<sup>9</sup> MTC and ABAG. 2017. *Plan Bay Area 2040 Draft EIR SCH# 2016052041*. April.

## Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated 2011 and recently in May 2017). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 2.

**Table 2. Air Quality Significance Thresholds**

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO <sub>x</sub>	54	54	10
PM <sub>10</sub>	82 (Exhaust)	82	15
PM <sub>2.5</sub>	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
<b>Health Risks and Hazards</b>	<b>Single Sources Within 1,000-foot Zone of Influence</b>	<b>Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)</b>	
Excess Cancer Risk	>10.0 per one million	>100.0 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual PM <sub>2.5</sub>	>0.3 µg/m <sup>3</sup>	>0.8 µg/m <sup>3</sup>	
<b>Greenhouse Gas Emissions</b>			
GHG Annual Emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons or 4.6 metric tons per capita		
Note: ROG = reactive organic gases, NO <sub>x</sub> = nitrogen oxides, PM <sub>10</sub> = coarse particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM <sub>2.5</sub> = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.			
*BAAQMD does not have a recommended post-2020 GHG threshold.			

## IMPACTS AND RECOMMENDED MEASURES

### **Impact 1: Conflict with or obstruct implementation of the applicable air quality plan? *Less-than-significant.***

The most recent Clean Air Plan is the *2017 Bay Area Clean Air Plan* that was adopted by BAAQMD on April 19, 2017. The proposed project would not conflict with the latest Clean Air planning efforts since the project would have emissions below the BAAQMD criteria pollutant thresholds (see Impact 2). It is important to note that the extension of Charcot, as proposed, is included as part of the adopted *Envision San José 2040 General Plan* roadway network and planned roadway network of the North San Jose Area Development Policy.

### **Impact 2: 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? *Less-than-significant***

The Bay Area is considered a non-attainment area for ground-level ozone and PM<sub>2.5</sub> under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM<sub>10</sub> under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM<sub>10</sub>, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NO<sub>x</sub>), PM<sub>10</sub>, and PM<sub>2.5</sub> and apply to both construction period and operational period impacts.

#### Road Construction and Operational Modeling

Emissions of air pollutants that could affect both regional and local air quality were addressed by modeling emissions and comparing them to the significance thresholds identified in Table 2. This included emissions for both construction and operational periods.

#### *Construction Period Emissions*

Average daily construction exhaust emissions were predicted using the Roadway Construction Emissions Model (version 8.1.0). Inputs to the model included the construction year, total expected duration and proposed equipment usage. Other model inputs such as soil import and export, concrete truck trips, and asphalt truck trips were input to the model. The model predicts emissions of ozone precursor pollutants (i.e., ROG and NO<sub>x</sub>) and particulate matter (i.e., PM<sub>10</sub> and PM<sub>2.5</sub>). The model also computes emissions of CO<sub>2e</sub>. The provided project schedule and equipment usage assumptions are that the project would be built out over a period of approximately 10 months beginning in 2019, or an estimated 220 construction workdays (based on an average of 22 workdays per month). Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 3 shows average daily construction emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub> exhaust, and PM<sub>2.5</sub> exhaust during construction of the project. As indicated in



Table 3, predicted project emissions would not exceed the BAAQMD significance thresholds. *Attachment 1* includes the construction assumptions (schedule and equipment) and Roadway Construction Emissions Model output for construction emissions.

However, construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM<sub>10</sub> and PM<sub>2.5</sub>. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. Per Policy MS-13.1 in the *Envisions San José 2040 General Plan*, the project will implement the BAAQMD best management practices found in the current BAAQMD CEQA Guidelines.

**Table 3. Construction Period Emissions**

<b>Scenario</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub> Exhaust</b>	<b>PM<sub>2.5</sub> Exhaust</b>
Construction emissions (tons)	0.2 tons	4.88 tons	0.18 tons	0.14 tons
Average daily emissions (pounds/day) <sup>1</sup>	2.4 lbs./day	44.3 lbs./day	1.6 lbs./day	1.2 lbs./day
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs.	54 lbs.	82 lbs.	54 lbs.
<b>Exceed Threshold?</b>	No	No	No	No
Notes: <sup>1</sup> Assumes 220 workdays				

### Project Operational Period Emissions

Operational air pollutant emissions from the project would be generated by changes in traffic patterns and traffic conditions (e.g., speed). Predicted traffic conditions along with vehicle emission rates were combined to predict the daily change in traffic emissions.

#### *Traffic Modeling*

Hexagon Transportation Consultants used the City of San Jose’s travel demand forecasting (TDF) model prepared as part of the Envision San Jose 2040 General Plan to predict the effects of the proposed Charcot Avenue extension on the roadway system traffic conditions. The TDF model includes all major transportation infrastructure identified in the Envision San Jose 2040 Land Use/Transportation Diagram, including planned infrastructure that is not yet built and/or funded. The TDF model has the ability to project the diversion of traffic and change in travel patterns due to roadway network changes such as the proposed project. In addition to providing traffic volume projections, the model also provides information on vehicle-miles and vehicle-hours of travel as well as projected average speeds for the roadway network. The General Plan TDF model has been updated to reflect land use development and roadway projects that have been completed since the completion of the General Plan EIR. The TDF model predicted the daily vehicle miles travelled (VMT), vehicle hours travelled (VHT), and computed travel speed for roadways in the study area without and with the Charcot extension.

#### *Emissions Modeling*

The CT-EMFAC2014 Version 6.0 model was used to predict vehicle emission rates. CT-EMFAC2014 models on-road vehicle emissions for criteria pollutants, mobile source air toxics

(MSATs), and carbon dioxide (CO<sub>2</sub>). The tool's underlying data are based on CARB's EMFAC2014 on-road emissions model and CARB-supplied/EPA-supplied MSAT speciation factors. Inputs to the model include region (i.e., Santa Clara County), default traffic mix assigned by CT-EMFAC2014 for that county, year of analysis and season.

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC. This analysis was based on the existing year (using 2020 emission rates) the opening year (2025) and the horizon year (2040). Emission rates were predicted for annual conditions.

Emission processes modeled include running exhaust for all pollutants, running losses for organic compounds (e.g., ROG), tire wear and brake wear for PM<sub>10</sub> and PM<sub>2.5</sub>. CT-EMFAC2014 provides vehicles emissions for speeds in 5 mph increments, so emissions rates were interpolated to account for the predicted average speed.

### *Project Air Pollutant Emissions*

The predicted daily traffic conditions were combined with CT-EMFAC2014 emissions factors to predict emission in pounds per day. Table 4 reports the predicted air pollutant emission in terms of average daily emissions for both the No-Project and Project scenarios for the three analysis years (i.e., existing or 2020, 2025 and 2040). Table 4 shows the change in emissions in the area that would result from changes to in traffic patterns in the area caused by the project. *Attachment 2* to this report includes the traffic and CT-EMFAC model output files for the proposed project emission factors and modeling calculations.

The BAAQMD CEQA Air Quality Guidelines provide recommended emission thresholds for projects. These are intended to be applied to land-use type projects but provide an informative comparison in determining the magnitude of roadway project emissions and these operational emissions thresholds (contained in Table 2) are used to judge the significance of the project.

**Table 4. Area-Wide Daily Project Operational Emissions in pounds per day**

<b>Scenario</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM<sub>10</sub> Total*</b>	<b>PM<sub>2.5</sub> Total*</b>
Existing	752	2,249	8,505	1,660	377
Existing Plus Project	728	2,209	8,349	1,655	375
Increase	-25	-40	-156	-5	-2
2025 No Project	1,023	2,234	8,935	2,026	506
2025 Project	1,002	2,172	8,851	2,024	505
2025 Project Increase	-21	-61	-84	-2	-1
2040 No Project	1,102	3,365	8,065	2,553	567
2040 Project	1,088	3,302	8,030	2,558	568
2040 Project Increase	-14	-63	-35	+5	+1
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs.	54 lbs.	--	82 lbs.	54 lbs.
<b>Exceed Threshold?</b>	No	No	--	No	No

\*Includes entrained roadway dust

### **Impact 3: Expose sensitive receptors to substantial pollutant concentrations? *Less-than-significant***

Project impacts related to increased community risk can occur by introducing a source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. The BAAQMD recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new sensitive receptor or a new source of TACs. There are thresholds that address both the impact of single and cumulative TAC sources upon sensitive receptors (see Table 2). Construction activity would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors. Operation of the proposed roadway would generate an increase in traffic, which could be a source of substantial TACs or PM<sub>2.5</sub>.

Sensitive receptors potentially affected by the proposed road construction and subsequent road operation include residences adjacent to or near the proposed new road and the Orchard School (Kindergarten through 8<sup>th</sup> grade), which is adjacent of the new road construction area. This community risk assessment models concentrations of DPM and PM<sub>2.5</sub>, which are then used to evaluate potential cancer risk, non-cancer health hazards, and annual concentrations of PM<sub>2.5</sub> from both construction and operation of the project. *Attachment 3* includes the community risk impact evaluation methodology.

#### Project Construction Activity

Construction equipment and associated heavy-duty truck traffic for the proposed road construction would generate diesel exhaust, which is a known TAC.<sup>10</sup> Construction exhaust emissions may pose community risks for sensitive receptors in the vicinity of the construction activities. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM<sub>2.5</sub>. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors.

A community risk assessment of the project construction activities was conducted that evaluated potential health effects on sensitive receptors from construction emissions of DPM and PM<sub>2.5</sub>. Sensitive receptors potentially affected by the proposed road construction include residences adjacent to or near the proposed new road and the Orchard School (Kindergarten through 8<sup>th</sup> grade) on Fox Lane, which is the school adjacent to the new road construction area. A dispersion model was used to predict the off-site DPM concentrations resulting from project construction so that increased cancer risks could be predicted.

#### *Construction Period Emissions*

Construction period emissions were computed using the Roadway Construction Emissions Model along with projected construction activity, as described above. A one-mile trip length (i.e. two miles roundtrip) was used to calculate TAC concentrations from on- and near-site vehicle travel. The Roadway Construction Emissions Model provided total annual PM<sub>10</sub> exhaust emissions (assumed to be DPM) from the off-road construction equipment and worker, vendor and hauling

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<sup>10</sup>DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

trucks used for the proposed road construction (both the bridge and roadwork) of 0.1286 tons (257 pounds) over the construction period. Fugitive dust PM<sub>2.5</sub> emissions were also computed and included in this analysis. The model predicts emissions of 0.4464 tons (893 pounds) of fugitive PM<sub>2.5</sub> over the construction period. These emissions were used in modeling DPM and PM<sub>2.5</sub> concentrations at residences and sensitive receptors near the construction areas.

### *Dispersion Modeling*

The U.S. EPA AERMOD dispersion model was used to predict DPM and PM<sub>2.5</sub> concentrations at residential and sensitive receptor locations near the project construction areas. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling these types of emission activities for CEQA projects.<sup>11</sup> Emission sources for the roadway construction were grouped into two categories, exhaust emissions of DPM and fugitive PM<sub>2.5</sub> dust emissions.

The AERMOD modeling utilized area sources to represent all construction activities. For modeling both DPM and fugitive PM<sub>2.5</sub> dust emissions six area sources were used for modeling the road construction on either side of the proposed bridge, and for the bridge work. For exhaust emissions from construction equipment, an emission release height of 6 meters (20 feet) was used for the area sources. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive PM<sub>2.5</sub> emissions, a near-ground level release height of 2 meters (6.6 feet) was used for the area sources. Construction emissions were modeled as occurring daily between 7 a.m. and 4 p.m., when the majority of the construction activity involving equipment usage would occur.

The modeling used a five-year data set (2006 to 2010) of hourly meteorological data from the San Jose International Airport that was prepared for use with the AERMOD model by the BAAQMD. Annual DPM and PM<sub>2.5</sub> concentrations from construction activities during 2019 were calculated using the model. DPM and PM<sub>2.5</sub> concentrations were calculated at sensitive receptors in the vicinity of the road construction work areas at a receptor height of 1.5 meters (4.9 feet) and 1 meter (3.3 feet) to represent the breathing heights of residences living in the surrounding single-family homes and the breathing heights of the children attending Orchard School.

The maximum-modeled annual DPM and PM<sub>2.5</sub> concentrations from construction, which includes both the DPM and fugitive PM<sub>2.5</sub> concentrations, were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEIs). Using the maximum annual modeled DPM concentrations, the maximum increased cancer risks were calculated using BAAQMD recommended methods and exposure parameters described in *Attachment 3*. Non-cancer health hazards and maximum PM<sub>2.5</sub> concentrations were also calculated and identified.

Results of this assessment indicated that the residential MEI most impacted by *construction* of the project was located at a single-family home (1.5-meter breathing height) located north of the project site. The maximum excess residential cancer risks at this location would be 4.5 per million (assuming third trimester and infant exposure), which would not exceed the BAAQMD

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<sup>11</sup> Bay Area Air Quality Management District (BAAQMD), 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May.

significance threshold of 10 in one million. The risk impacts at the school, assuming child exposure would be 1.0 per million, which are also less than the BAAQMD single-source thresholds for cancer risks. Table 5 summarizes the maximum cancer risks, PM<sub>2.5</sub> concentrations, and health hazard indexes for project related construction activities affecting the residential and school MEI. *Attachment 4* includes the construction emission calculations used for the modeling and the cancer risk calculations.

**Figure 1. Project Construction Areas, Locations of Nearby Sensitive Receptors and Locations of Maximum TAC Impact**



**Table 5. Maximum Community Risks from Project Construction Activities**

Location and Exposure Type		Lifetime Cancer Risk (per million)	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> ) <sup>1</sup>	Chronic Hazard Index
<i>Maximum Residential</i>	Unmitigated	4.5 (Infant)	0.10	0.01
	<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>Orchard School (Child)</i>	Unmitigated	1.0	0.17	0.01
	<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>
<b><i>BAAQMD Single-Source Threshold</i></b>		<b><i>&gt;10.0</i></b>	<b><i>&gt;0.3</i></b>	<b><i>&gt;1.0</i></b>

Note: <sup>1</sup>The annual PM<sub>2.5</sub> concentration is the sum of the DPM and fugitive PM<sub>2.5</sub> concentrations.

Community Risk from Project Operation – Charcot Avenue and Oakland Road

The project would be constructed adjacent to existing sensitive receptors including residences and a school. Substantial sources of air pollution such as roadways can adversely affect nearby sensitive receptors as part of implementing new projects.

A refined analysis of the impacts of TACs and PM<sub>2.5</sub> to existing sensitive receptors was conducted to evaluate potential cancer risks and PM<sub>2.5</sub> concentrations from traffic on Charcot Avenue and Oakland Road once constructed. Refined modeling of local roadways provides more accurate results than screening procedures since project specific information is used in the modeling. This includes roadway orientation with respect to receptors (i.e., where existing residences and school receptors would be located with respect to traffic), emission estimates (i.e., based on traffic speeds and traffic mix), and meteorological conditions near the project.

This analysis involved the development of DPM, organic TACs, and PM<sub>2.5</sub> emissions for future traffic on Charcot Avenue and Oakland Road using the CARB CT-EMFAC emissions model and using an air quality dispersion model to calculate TAC and PM<sub>2.5</sub> concentrations at nearby sensitive receptors. Maximum increased lifetime cancer risks and annual PM<sub>2.5</sub> concentrations for sensitive receptors were then computed using modeled TAC and PM<sub>2.5</sub> concentrations and the methods and exposure parameters described in *Attachment 3*.

For this analysis, Charcot Avenue was assumed to be constructed and in use by 2020 or thereafter, and by this year traffic from Charcot Avenue would contribute to traffic on Oakland Road. In order to estimate TAC and PM<sub>2.5</sub> emissions for calculating increased cancer risks to sensitive receptors from future traffic on Charcot Avenue and Oakland Road the CT-EMFAC model was used to develop vehicle emission factors and emissions for the years 2020, 2025, and 2040 using the calculated mix of cars and trucks for Santa Clara County. Year 2040 emissions were conservatively assumed as being representative of future conditions beyond 2040 since overall vehicle emissions (and in particular diesel truck emissions) will decrease in the future. Default vehicle model fleet age distributions for Santa Clara County were assumed in calculating the emissions. Traffic for Charcot Avenue and Oakland Road was based on the traffic increase along Charcot Avenue (Project – No Project), as reported by Hexagon<sup>12</sup>. Average hourly traffic distributions for Santa

<sup>12</sup> Hexagon Transportation Consultants. 2018. Memorandum to Natalina Bernardi & Chiaming Chi, BKF Engineers from Robert Del Rio, November 12.

Clara County roadways were developed using the EMFAC model,<sup>13</sup> which were then applied to the average daily traffic volumes to obtain estimated hourly traffic volumes and emissions for Charcot Avenue and project traffic on Oakland Road.

For PM<sub>2.5</sub> emissions from vehicles traveling on Charcot Avenue and Oakland Road, all PM<sub>2.5</sub> emissions from all vehicles were used, rather than just the PM<sub>2.5</sub> fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce PM<sub>2.5</sub>. Additionally, PM<sub>2.5</sub> emissions from vehicle tire and brake wear and from re-entrained roadway dust, calculated using CARB emission calculation procedures were included in these emissions.<sup>14</sup>

Dispersion modeling of TAC and PM<sub>2.5</sub> emissions was conducted using the U.S. EPA AERMOD model, which is recommended by the BAAQMD for this type of analysis. North- and south-bound project traffic on Charcot Avenue and Oakland Road along a 0.4-mile length of roadway (2,112 feet) was evaluated with the model. This is the portion of the roadway closest to the sensitive receptors that would affect their exposure. A five-year data set (2006-2010) of hourly meteorological data from the San Jose Airport prepared by the BAAQMD for use with the AERMOD model was used. Vehicle traffic on the road segments were modeled as a series of adjacent volume sources along a line (line volume sources), with line segments used for each travel direction. Other inputs to the model included road geometry, volume source information, hourly traffic emissions, and receptor locations. The modeling used the same residential receptors and Orchard School receptors, as described above for evaluating construction impacts. Figure 2 shows the project site area, roadway segments modeled, and sensitive receptor locations used in the modeling.

The maximum-modeled annual TAC and PM<sub>2.5</sub> concentrations from future project traffic on Charcot Avenue and Oakland Road were identified at nearby sensitive receptors (as shown in Figure 2). Using the maximum annual modeled TAC concentrations, the maximum increased cancer risks were calculated using BAAQMD recommended methods and exposure parameters described in *Attachment 3*. Non-cancer health hazards and maximum PM<sub>2.5</sub> concentrations were also calculated and identified.

Results of this assessment indicated that the residential impact from traffic was located at a single-family home (1.5-meter breathing height) located at the corner of the proposed Charcot Avenue and Oakland Road as seen in Figure 2. The school impact from traffic would occur south of the proposed Charcot Avenue. The maximum excess residential cancer risks at this location would be below the BAAQMD significance threshold of 10 in one million. The risk impacts at the school, assuming child exposure, were less than the BAAQMD single-source thresholds. Table 6 summarizes the maximum cancer risks, PM<sub>2.5</sub> concentrations, and health hazard indexes from future traffic on Charcot Avenue and Oakland Road. *Attachment 5* includes the emission calculations used for the modeling and the cancer risk calculations.

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<sup>13</sup> The Burden output from EMFAC2007, a prior version of CARB's EMFAC model, was used for this since CT-EMFAC does not include Burden type output with hour by hour traffic volume information.

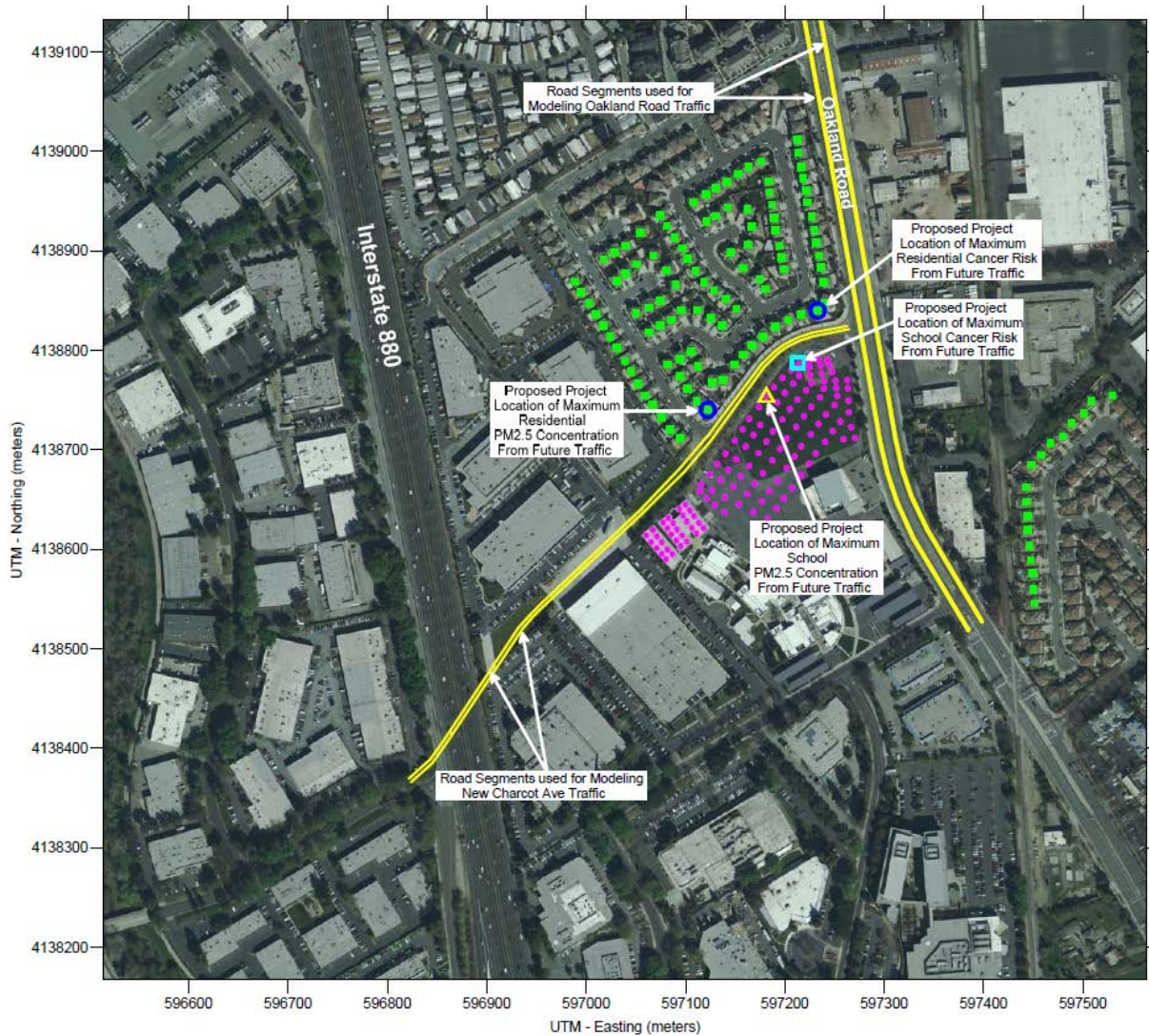
<sup>14</sup> CARB, 2014. *Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust*. Revised and updated, April 2014.

**Table 6. Lifetime Community Risks from Charcot Ave. and Oakland Rd. Traffic**

Location and Exposure Type	Lifetime Cancer Risk (per million)	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> ) <sup>1</sup>	Chronic Hazard Index
Residential Receptor	5.3	0.19	<0.1
<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>
Orchard School (Child)	1.0	0.26	<0.1
<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>
<b>BAAQMD Single-Source Threshold</b>	<b>&gt;10.0</b>	<b>&gt;0.3</b>	<b>&gt;1.0</b>

Note: <sup>1</sup>The annual PM<sub>2.5</sub> concentration is the sum of the DPM and fugitive PM<sub>2.5</sub> concentrations.

**Figure 2. Charcot Avenue and Oakland Road Segments Modeled and Locations of Nearby Sensitive Receptors and Locations of Maximum TAC Impact from Roadway Traffic**





## Combined Construction and Operation Cancer Risk – Project Impact

The cumulative risk impacts from a project is the combination of construction activity and roadway operation. This project impact is computed by adding the construction cancer risk for an infant to the lifetime cancer risk for the project operational conditions for the roadway at the MEI over a 30-year period. Note that the project MEI is identified as the sensitive receptor that is most impacted by the project's construction and operation. Therefore, the receptor may not be the same receptor identified within the separate construction or operation dispersion models. In the case of the project, one year of construction cancer risks and 29 years of operational roadway cancer risks were summed together. The residential and school project MEI would be located at the same locations identified in Figure 2 for both receptors. Under this condition, the maximum increased cancer residential risk would be 8.1 chances per million and the school risk would be 1.6 chances per million. This combined cancer risk would be below the significance threshold for a single project of 10.0 chances per million. Unlike, the increased maximum cancer risk, the annual PM<sub>2.5</sub> concentration and HI risks are not additive but based on an annual maximum risk for the entirety of the project. In the case of this project, the highest project PM<sub>2.5</sub> and HI risks are the same risk values are the same ones listed in Table 6. Figure 3 identifies the project MEI locations.

### Cumulative Impact at Project MEI

Cumulative community risk impacts were addressed through an evaluation of TAC sources located within 1,000 feet of the construction MEI. These sources include freeways or highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that Interstate 880 and Oakland Road are busy roadways that are sources of TACs. Other nearby streets are assumed to have less than 10,000 vehicles per day. A review of the BAAQMD's stationary source Google Earth map tool identified six stationary sources with the potential to affect the construction MEI. Figure 4 shows the sources within the 1,000 feet of the proposed project. Community risk impacts from these sources upon the project MEI are reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 6*.

Additionally, this analysis evaluated the overall community risk impacts to the project, based on the exposure that children of preschool to middle school age may have while attending the on-site preschool (Champions) and elementary/middle school (Orchard School). The preschool serves children aged three to four years old and elementary/middle school serves children who are five to 13 years old. Typically, cancer risk and annual PM<sub>2.5</sub> assessments assume almost continuous exposure to TAC sources. However, a school is different in that the sensitive receptors, children, do not reside at the project site. The predicted cancer risk accounted for the exposure duration that uses of a child care center would experience. Students attending the project are assumed to be exposed for up to 10 hours per day, 5 days per week, 252 days per year and 9 years during a lifetime<sup>15</sup> Since the students are only present at the school for a portion of their life, lifetime and annual exposures were adjusted.

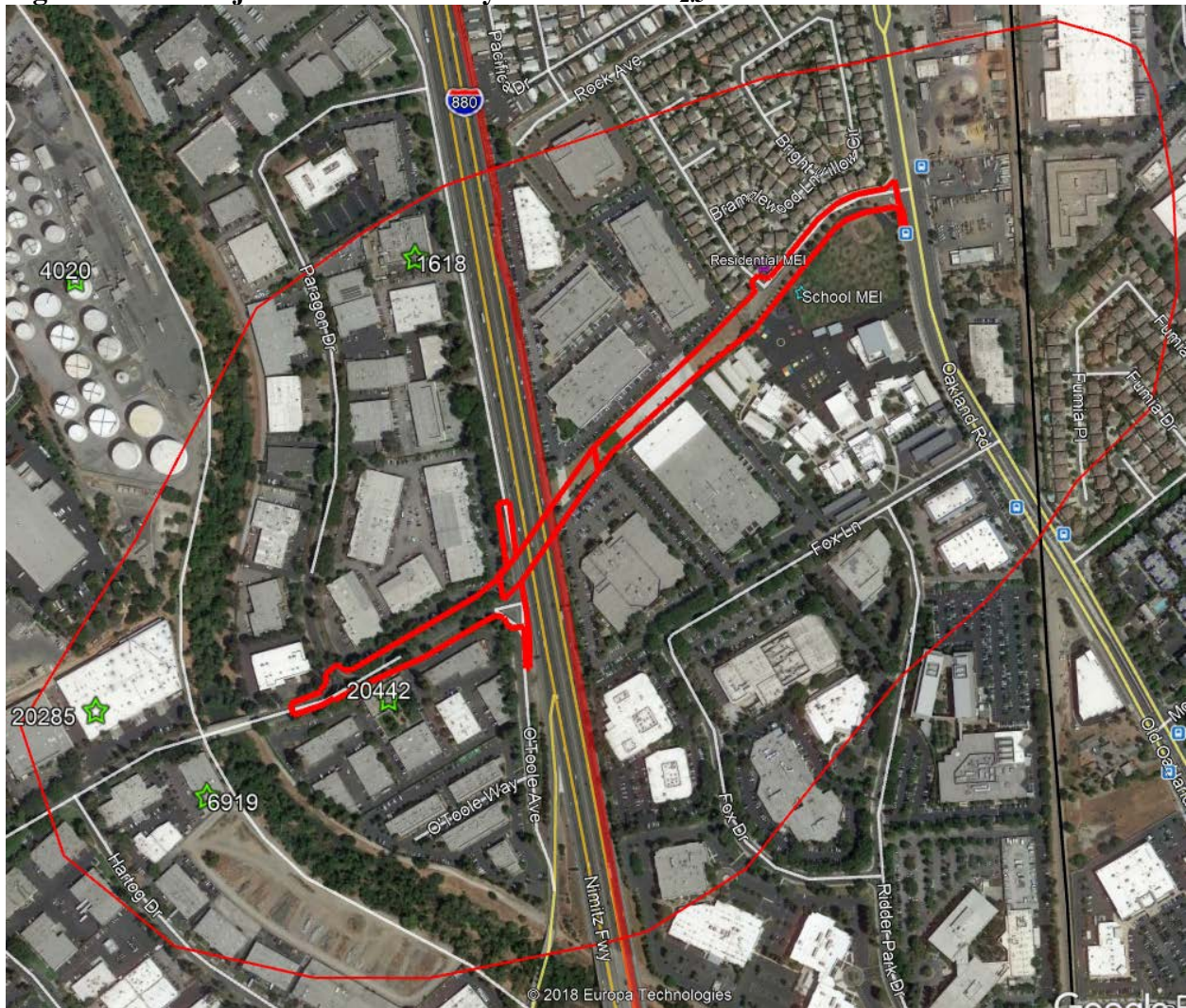
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<sup>15</sup> Cancer risk computations take into account these exposure parameters, along with a higher breathing rate for infants and children (based on weight) and an age sensitivity factor (ASF) based on 2 years at ASF of 10 and 4 years at an ASF of 3, rather than a lifetime average that is 1.7. ASF accounts for the greater sensitivity of infants and children to cancer causing TACs.

**Figure 3. Maximum Impacts from Combined Construction and Project Traffic on Charcot Avenue and Oakland Road Segments**



**Figure 4. Project Site and Nearby TAC and PM<sub>2.5</sub> Sources**



For children cancer risk, the screening level lifetime cancer risk was adjusted. This is based on the following adjustments:

1. Age sensitivity. BAAQMD screening data uses a factor of 1.7 for lifetime exposure. This was adjusted to a factor of 3.0 for child exposures.
2. Daily exposure. Health risk assessments assume 24-hour per day exposure. Children would be present for 10 hours per day.
3. Annual exposure. Health risk assessments assume 350 days of exposure per year and children would attend the child care center for 252 days per year. Children attending the Schools Out program would only be there for 100 days per year.

4. Lifetime exposure. Health risk assessments assume a 70-year exposure. Children would attend the school for a maximum of 9 years.
5. Breathing rates. BAAQMD predictions were assumed to use an overall breathing rate of 302 liters per kilogram body weight. New exposure parameters issued by the California Office of Environmental Health Hazards Assessment (OEHHA) include parameters that for different breathing rates of 631 liters per kilogram for child exposures.

No adjustments were made to the predicted annual PM<sub>2.5</sub> and Hazard Index, since those screening levels are quite low and would not result in any significant health effects at the child care center, even if one were to assume continuous exposure.

#### *Highways – Interstate 880*

BAAQMD provides a Google Earth *Highway Screening Analysis Tool* that can be used to identify screening level impacts from State highways. Interstate 880 (used Link 350, 6-ft impact height within the tool) risk impacts were screened using the BAAQMD *Highway Screening Analysis Tool*. The lifetime cancer risk, annual PM<sub>2.5</sub> exposure and non-cancer hazard index corresponding to the distance between the project and the site was used. The data were based on the residential and school MEI being 800 feet east of the highway. Cancer risk levels were adjusted for exposure duration, age, and new exposure guidance provided by OEHHA, as described in *Attachment 3*. The risk impacts from Interstate 880 are discussed in Table 7.

#### *Local Roadways – Oakland Road*

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect new Office of Environmental Health Hazard Assessment (OEHHA) guidance (see *Attachment 3*).

The calculator uses EMFAC2011 emission rates for the year 2014. In addition, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.

The average daily traffic (ADT) on Oakland Road for the year 2040 was estimated to be 41,450 vehicles. This ADT is the average volume on Oakland Road per the traffic consultants.<sup>16</sup>

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<sup>16</sup> Hexagon Transportation Consultants, Inc., *CEQA Traffic Analysis for the Charcot Avenue Extension Over I-880 Memorandum*. 12 November 2018.

The BAAQMD *Roadway Screening Analysis Calculator* for Santa Clara County was used for the roadway. Oakland road was identified as a north-south roadway with the residential and school MEIs being 500 and 400 feet west of the roadway, respectively. Estimated risk values for both MEIs are listed in Table 7. Note that BAAQMD has found that non-cancer hazards from all local roadways would be well below the BAAQMD thresholds. Chronic or acute HI for the roadway would be below 0.03.

### *Stationary Sources*

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth and identified the location of six stationary sources and their estimated risk and hazard impacts. A Stationary Source Information Form (SSIF) containing the six identified sources was prepared and submitted to BAAQMD. They provided updated risk levels, emissions and adjustments to account for new OEHHA guidance<sup>17</sup>. The agency noted that Plant #21487 (Micrus Endovascular, LLC) had shutdown. The risk impacts from the remaining five stationary sources (Plant #20285, 6919, 20442, 1618, and 4020) were either not adjusted for distance or screened further using refined modeling (e.g. distance adjustment or Beta Calculator).

Plants #20285, 20442, 1618 (e.g. Southwest Offsite Printing Co, Inc., Epiphotonics Corp, and Sanmina Corporation) are stationary sources whose risks values were not adjusted for distance. The risk values provided were used in the cumulative analysis.

The emissions file for Plant #6919 (Applied Anodize, Inc.) was provided by the District. Therefore, the BAAQMD *Risk and Hazards Emissions Screening Calculator (Beta Version)* was used to calculate the risk impacts from this source. The cancer risks were then adjusted with the OEHHA factor of 1.3744.

The risk values from Plant #4020 (SFPP, LP) were adjusted for distance using the BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facilities*. The stationary source is over 1,000-ft from the residential and school MEIs.

### Cumulative Community Health Risk at Project MEI

Cumulative TAC impacts are assessed by predicting the combined community risk impacts at the residential and school construction MEIs as per the BAAQMD methods for modeling local risks and hazards.<sup>18</sup> Table 7 reports both the construction and cumulative community risk impacts at both the residential and school MEIs. Based on the table results, the project would have a *less-than-significant* impact with respect to community risk caused by project activities since the maximum cancer risks, maximum PM<sub>2.5</sub> concentrations and the HIs for both MEIs do not exceed their respective single-source thresholds. Additionally, Table 7 shows that the combined cancer risk, PM<sub>2.5</sub> concentrations and Hazard risk values would not exceed the BAAQMD cumulative thresholds.

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<sup>17</sup> Correspondence with Areana Flores, BAAQMD, 14 January 2019.

<sup>18</sup> Bay Area Air Quality Management District, *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012.

**Table 7. Combined Community Risk Impacts at Project MEIs**

Source	Maximum Cancer Risk (per million)	Maximum Annual PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )	Maximum Hazard Index
<b>Project Impacts to Off-Site Receptors (at MEI)</b>			
<i>Residential</i>	8.1 (Infant)	0.19	<0.1
<i>Champions/Orchard School (Child)</i>	1.6 (Child)	0.26	<0.1
Oakland Road (ADT 41,450)			
At 500-ft West for Residential MEI	2.3	0.06	<0.03
At 400-ft West for School MEI	0.5	0.07	<0.03
Interstate 880 (Highway Screening Calculator)			
At 1,000-ft east for Residential MEI	19.9	0.12	0.01
800-ft east for School MEI	2.8	0.12	0.01
Plant #20285 (Southwest Offset Printing Co, Inc)	-	-	0.07
Plant #6919 (Applied Anodize, Inc)	<0.1	0.01	<0.01
Plant #20442 (Epiphotonics Corporation)	-	<0.01	<0.01
Plant #1618 (Sanmina Corporation)	-	-	0.20
Plant #4020 (SFPP, Oil & Natural Gas Source)	1.5	-	0.75
<b>Cumulative Total</b>			
<i>Residential MEI</i>	31.9	0.39	<1.18
<i>School MEI</i>	6.5	0.47	<1.18
<b>BAAQMD Threshold – Cumulative Sources</b>	<b>&gt;100</b>	<b>&gt;0.8</b>	<b>&gt;10.0</b>
<i>Significant?</i>	<i>No</i>	<i>No</i>	<i>No</i>

**Impact 4: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? *Less than significant.***

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic on the new roadway. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.<sup>19</sup>

Existing Conditions

Under existing conditions, there is no extended roadway and the potential for direct GHG emissions is inconsequential because the emissions from the street lighting and vehicles traveling on the current alignment are small. Therefore, existing GHG emissions are considered nonexistent. Indirect emissions are generated from the burning of fuel required for site maintenance (e.g., infrequent disking and/or mowing to control fire hazards, etc.).

Construction Greenhouse Gas Emissions (Temporary Emissions)

<sup>19</sup> BAAQMD, 2017. *Op cit.*

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Currently, neither City of San Jose nor BAAQMD have adopted GHG significance thresholds that apply to construction projects. For informational purposes, GHG emissions from project construction are estimated to be 1,410 metric tons of CO<sub>2e</sub> over the course of the entire construction project based on Roadway Construction Emissions Model modeling described above.

Operational Greenhouse Gas Emissions (Ongoing Emissions)

GHG emissions (e.g., carbon dioxide, methane, and nitrogen dioxide) from operation of the project will include fuel burned while traveling on the new roadway, there will be a shift in traffic from other congested routes which will increase the overall effectiveness of the transportation system and having a positive impact to the GHG emissions. These emissions were evaluated using CT-EMFAC2014, as described under Impact 2. The EMFAC 2014 emissions factors were developed using the latest version of the CT-EMFAC2014 model (Version 6.0, November 2015), developed by *Sonoma Technology, Inc.* CT-EMFAC2014 provides composite emission rates based on vehicle mix, speed, year, and area (i.e., County). The model was run using the procedures described in the UC Davis Methodology for the Santa Clara County. The CO<sub>2e</sub> emissions were computed for daily conditions. These were assumed to occur 365 days per year to compute annual emissions that are shown in Table 8.

**Table 8. CO<sub>2e</sub> Emissions in Metric Tons per Year**

Existing	Existing + Project	2025 No-Build	2025 Build	2040 No-Build	2040 Build
598,123	585,605	698,812	688,980	847,438	841,842
Project Difference	(12,518)		(9,832)		(5,596)
	-0.35%		-0.23%		-0.11%

## **Supplemental Analysis: Charcot Avenue Alternative Designs for Eastern Roadway**

In addition to the proposed roadway extension, the project includes three design alternatives for the eastern part of the roadway to reduce the number of turning lanes at the intersection of Charcot Avenue extension and Oakland Road. Alternative 1 proposes to eliminate the second northbound left lane from Oakland Road to Charcot Avenue and subsequently eliminate the need for a receiving lane along westbound Charcot Avenue. Alternative 1 would have one westbound and two eastbound lanes at the intersection of Charcot Avenue and Oakland Road. Alternative 2 proposes to eliminate eastbound Charcot Avenue left-turn lane to northbound Oakland Road and will have two westbound and one eastbound lane at the intersection of Charcot Avenue and Oakland Road. Both Alternatives 1 and 2 would have three lanes in the project's eastern segment. Alternative 3 proposes to eliminate both the 2<sup>nd</sup> northbound Oakland Road left turn lane and the Charcot Avenue left-turn lane. There would be two lanes with one going westbound and the other going eastbound. In total, Alternative 3 would have only two lanes in the project's eastern segment.

Traffic conditions and overall construction activity are anticipated to be similar to the proposed project for all three alternatives. Therefore, emissions of air pollutants and GHG associated with the alternatives is expected to be the same as those from the proposed project.

To compare the differences between the three alternatives, AERMOD was used in the same manner as described above in the Dispersion Modeling section to calculate the risk impacts from construction and operation of the roadway. The project applicant provided separate construction information for the western part of Charcot Avenue, for the bridge, and for the three alternative eastern roadway designs.

The traffic volumes and speed would not change under any of these alternatives compared to the proposed project. The construction and operational modeling that was performed for the proposed project was updated to include the impacts from these alternatives. The maximum impacts from the project only under these alternatives are compared and reported in Table 9. The combined levels from cumulative sources at the location of maximum impact are reported in Table 10.

The combined levels from cumulative sources at the location of maximum impact (i.e., the Residential Construction MEI) are reported in Table 10. The table shows the combined cancer risk impacts (i.e. the cancer risk impact from both construction and operation of the roadway), the maximum PM<sub>2.5</sub> concentration, and the maximum HI for the project and the Alternatives 1, 2 and 3. The overall cumulative risk impacts for all three scenarios is also presented in Table 10.

As seen in Table 10, the maximum impacts from construction and operation of the project would not exceed significance thresholds for single sources at either the maximum affected residential receptor nor the maximum affected school receptor in none of the scenarios. The cumulative risks for the scenarios at the residential and school combined would also not exceed the BAAQMD cumulative source threshold for cancer risks, PM<sub>2.5</sub>, and HI. Therefore, all three roadway designs would have a *less-than-significant* impact.



**Table 9. Comparison of Results from Charcot Avenue for Each Alternative**

Location	Exposure Type	Risk Type	Proposed Project	Alt 1	Alt 2	Alt 3	BAAQMD Threshold – Single Sources
Residential MEI	<i>Construction Impact</i>	Increased Cancer risk (per million) <sup>1</sup>	4.2	3.7	3.7	3.5	<b>&gt; 10.0 per million</b>
	<i>Operational Impact*</i>		3.9	3.9	3.9	4.0	
	<b>Combined Impact</b>		<b>8.1</b>	<b>7.6</b>	<b>7.6</b>	<b>7.5</b>	
	<b>Max Annual Impact</b>	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )	<b>0.19</b>	<b>0.20</b>	<b>0.19</b>	<b>0.20</b>	<b>&gt; 0.3 µg/m<sup>3</sup></b>
	<b>Max Annual Impact</b>	Chronic Hazard Index	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&gt; 1.0</b>
School MEI	<i>Construction Impact</i>	Increased Cancer risk (per million) <sup>1</sup>	1.0	0.7	0.7	0.8	<b>&gt; 10.0 per million</b>
	<i>Operational Impact</i>		0.6	0.8	0.8	0.8	
	<b>Combined Impact</b>		<b>1.6</b>	<b>1.5</b>	<b>1.5</b>	<b>1.6</b>	
	<b>Max Annual Impact</b>	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )	<b>0.26</b>	<b>0.23</b>	<b>0.25</b>	<b>0.23</b>	<b>&gt; 0.3 µg/m<sup>3</sup></b>
	<b>Max Annual Impact</b>	Chronic Hazard Index	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&gt; 1.0</b>
Notes:							
<sup>1</sup> The cancer risk at the residential construction MEI is calculated based on 29 years of exposure to road operation. The first year of exposure (2019) is assumed to be 0 from road when construction is occurring.							
*Operational impacts are from traffic on Charcot Avenue and Oakland Road							

**Table 10: Comparison of Cumulative Health Risks by Alternative**

	Maximum Cancer Risk (per million)								Maximum Annual PM <sub>2.5</sub> Concentration (µg/m <sup>3</sup> )								Maximum Hazard Index (unitless)							
	Proposed Project		Alt 1		Alt 2		Alt 3		Proposed Project		Alt 1		Alt 2		Alt 3		Proposed Project		Alt 1		Alt 2		Alt 3	
	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI	Res MEI	School MEI
<b>Project</b>																								
Project Impacts	8.1	1.6	7.6	1.5	7.6	1.5	7.5	1.6																
Maximum Risk									0.19	0.26	0.20	0.23	0.19	0.25	0.20	0.23	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Cumulative</b>																								
Oakland Road	2.3	0.5	2.3	0.5	2.3	0.5	2.3	0.5	0.06	0.07	0.06	0.07	0.06	0.07	0.06	0.07	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
I-880	19.9	2.8	19.9	2.8	19.9	2.8	19.9	2.8	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Plant #20285																	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Plant 6919	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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
Plant 20442										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
Plant 1618																	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Plant 4020	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5									0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
<b>Total for Project + Cumulative Sources</b>	<b>31.9</b>	<b>6.5</b>	<b>31.4</b>	<b>6.4</b>	<b>31.4</b>	<b>6.4</b>	<b>31.3</b>	<b>6.5</b>	<b>0.55</b>	<b>0.56</b>	<b>0.55</b>	<b>0.56</b>	<b>0.55</b>	<b>0.56</b>	<b>0.55</b>	<b>0.56</b>	<b>1.18</b>	<b>1.18</b>	<b>1.18</b>	<b>1.18</b>	<b>1.18</b>	<b>1.18</b>	<b>1.18</b>	<b>1.18</b>
BAAQMD Threshold for Cumulative Sources	<i>&gt;100 per million</i>								<i>&gt;0.8 µg/m<sup>3</sup></i>								<i>&gt;10.0</i>							
Significant?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Attachment 1: Construction Emissions (Roadway Construction Emissions Model) and Assumptions**

Project Name:		Charcot Avenue Overcrossing								<b>Complete ALL Portions in Yellow</b>
		<b>Bridge Construction</b>								
		See Equipment Types TAB for type, horsepower and load factor								
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg Hrs/Day	Annual Hours	Comments		
		<b>Start Date:</b>						<b>220 Working Days Assumed for Bridge Construction</b>		
		<b>End Date:</b>			<b>220</b>					
1	Tractors/Loaders/Backhoes	97	0.3685	8	80	2.9	640			
1	Cranes	231	0.2881	3	100	1.4	300			
1	Bore/Drill Rigs	221	0.5	8	40	1.5	320			
2	Generator Sets	84	0.4958	8	200	7.3	3200			
1	Welders	46	0.3015	4	20	0.4	80	<b>Soil Hauling Volume</b>		
2	Air Compressors	78	0.32	2	40	0.4	160	Export volume = <b>3,580</b> cubic yards?		
1	Aerial Lift	63	0.3	2	60	0.5	120	Import volume = <b>21,000</b> cubic yards?		
2	Trucks:Hauling tools, materials, equip	150	0.3	8	200	7.3	3200	Concrete Trucks? <b>530</b> Total Round-Trips		
2	Concrete Pumper	84	0.74	8	50	1.8	800			
2	Concrete Mixer Trucks (Diesel)	?	?	8	70	2.5	65			

Project Name: <b>Charcot Avenue (WEST) - Roadway (75 Work Days)</b>								Complete ALL Portions in Yellow
See Equipment Type TAB for type, horsepower and load factor								
Project Size		Dwelling Units		total project acres disturbed				
		s.f. residential						
		s.f. retail						
		s.f. office/commercial						
		s.f. other, specify:						
		s.f. parking garage		spaces				
		s.f. parking lot		spaces				
Construction Hours		am to		pm				
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
<b>Grading / Excavation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>17</b>			
		<b>End Date:</b>						<b>Soil Hauling Volume</b>
2	Excavators	162	0.38	6	8	2.82	96	Export volume = <b>5,500</b> cubic yards?
2	Graders	174	0.41	6	8	2.82	96	Import volume = ? cubic yards?
4	Rubber Tired Dozers	255	0.4	6	6	2.12	144	
4	Tractors/Loaders/Backhoes	97	0.37	6	6	2.12	144	
Other Equipment?								
<b>Trenching/Foundation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>13</b>			
Drainage		<b>End Date:</b>						
4	Tractor/Loader/Backhoe	97	0.37	8	7	4.31	224	
4	Excavators	162	0.38	8	7	4.31	224	
2	Forklifts	89	0.2	4	3	0.92	24	
2	Cement and Mortar Mixers	9	0.56	8	3	0.53	48	
Other Equipment?								
<b>Paving &amp; Roadway Items</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>45</b>			
		<b>Start Date:</b>	<b>5/6/2021</b>					
2	Cement and Mortar Mixers	9	0.56	4	6	0.53	48	Asphalt? <b>1700</b> cubic yards or ____ round trips?
2	Pavers	125	0.42	6	10	1.33	120	
2	Paving Equipment	130	0.36	6	10	1.33	120	
2	Rollers	80	0.38	6	10	1.33	120	
4	Tractors/Loaders/Backhoes	97	0.37	6	10	1.33	240	
10	Trucks: Hauling & Equipment	150	0.3	8	35	6.22	2800	
Other Equipment?								

Project Name: <b>Charcot Avenue (EAST Alt 1) - Roadway (55 Work Days)</b>								Complete ALL Portions in Yellow PROJECT
See Equipment Type TAB for type, horsepower and load factor								
<b>Project Size</b> _____ <b>Dwelling Units</b> _____ <b>total project acres disturbed</b> _____ _____ <b>s.f. residential</b> _____ _____ <b>s.f. retail</b> _____ _____ <b>s.f. office/commercial</b> _____ _____ <b>s.f. other, specify:</b> _____ _____ <b>s.f. parking garage</b> _____ <b>spaces</b> _____ _____ <b>s.f. parking lot</b> _____ <b>spaces</b> _____ <b>Construction Hours</b> _____ <b>am to</b> _____ <b>pm</b> _____								
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
<b>Grading / Excavation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>15</b>			
		<b>End Date:</b>						<b>Soil Hauling Volume</b>
2	Excavators	162	0.38	6	7	2.80	84	Export volume = <b>4,500</b> cubic yards?
2	Graders	174	0.41	6	7	2.80	84	Import volume = ? cubic yards?
4	Rubber Tired Dozers	255	0.4	6	5	2.00	120	
4	Tractors/Loaders/Backhoes	97	0.37	6	5	2.00	120	
<i>Other Equipment?</i>								
<b>Trenching/Foundation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>10</b>			
<b>Drainage</b>		<b>End Date:</b>						
4	Tractor/Loader/Backhoe	97	0.37	8	5	4.00	160	
4	Excavators	162	0.38	8	5	4.00	160	
2	Forklifts	89	0.2	4	2	0.80	16	
2	Cement and Mortar Mixers	9	0.56	8	2	0.53	32	
<i>Other Equipment?</i>								
<b>Paving &amp; Roadway Items</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>30</b>			
		<b>Start Date:</b>						
2	Cement and Mortar Mixers	9	0.56	4	4	0.53	32	Asphalt? <b>1300</b> cubic yards or ____ round trips?
2	Pavers	125	0.42	6	7	1.40	84	
2	Paving Equipment	130	0.36	6	7	1.40	84	
2	Rollers	80	0.38	6	7	1.40	84	
4	Tractors/Loaders/Backhoes	97	0.37	6	7	1.40	168	
10	Trucks: Hauling & Equipment	150	0.3	8	25	6.67	2000	
<i>Other Equipment?</i>								


Project Name: <b>Charcot Avenue (East Alt 2) - Roadway (50 Work Days)</b>								Complete ALL Portions in Yellow ALTERNATIVES 1 & 2
See Equipment Type TAB for type, horsepower and load factor								
<b>Project Size</b> _____ <b>Dwelling Units</b> _____ <b>total project acres disturbed</b> _____ _____ <b>s.f. residential</b> _____ _____ <b>s.f. retail</b> _____ _____ <b>s.f. office/commercial</b> _____ _____ <b>s.f. other, specify:</b> _____ _____ <b>s.f. parking garage</b> _____ <b>spaces</b> _____ _____ <b>s.f. parking lot</b> _____ <b>spaces</b> _____ <b>Construction Hours</b> _____ <b>am to</b> _____ <b>pm</b> _____								
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
<b>Grading / Excavation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>13</b>			
		<b>End Date:</b>						<b>Soil Hauling Volume</b>
2	Excavators	162	0.38	6	6	2.77	72	Export volume = <b>4,900</b> cubic yards?
2	Graders	174	0.41	6	6	2.77	72	Import volume = ? cubic yards?
4	Rubber Tired Dozers	255	0.4	6	4	1.85	96	
4	Tractors/Loaders/Backhoes	97	0.37	6	4	1.85	96	
<i>Other Equipment?</i>								
<b>Trenching/Foundation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>9</b>			
<b>Drainage</b>		<b>End Date:</b>						
4	Tractor/Loader/Backhoe	97	0.37	7	5	3.89	140	
4	Excavators	162	0.38	7	5	3.89	140	
2	Forklifts	89	0.2	4	2	0.89	16	
2	Cement and Mortar Mixers	9	0.56	8	2	0.57	32	
<i>Other Equipment?</i>								
<b>Paving &amp; Roadway Items</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>28</b>			
		<b>Start Date:</b>						
2	Cement and Mortar Mixers	9	0.56	4	4	0.57	32	Asphalt? <b>1500</b> cubic yards or ____ round trips?
2	Pavers	125	0.42	6	6	1.29	72	
2	Paving Equipment	130	0.36	6	6	1.29	72	
2	Rollers	80	0.38	6	6	1.29	72	
4	Tractors/Loaders/Backhoes	97	0.37	6	6	1.29	144	
10	Trucks: Hauling & Equipment	150	0.3	8	23	6.57	1840	
<i>Other Equipment?</i>								

<b>Project Name:</b>		<b>Charcot Avenue (East 2-lane) - Roadway (47 Work Days)</b>					<b>Complete ALL Portions in Yellow</b>		
See Equipment Type TAB for type, horsepower and load factor							<b>ALTERNATIVE 3</b>		
<b>Project Size</b>		<b>Dwelling Units</b>		<b>total project acres disturbed</b>					
		s.f. residential							
		s.f. retail							
		s.f. office/commercial							
		s.f. other, specify:							
		s.f. parking garage		spaces					
		s.f. parking lot		spaces					
<b>Construction Hours</b>		am to		pm					
Qty	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments	
<b>Grading / Excavation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>12</b>				
		<b>End Date:</b>						<b>Soil Hauling Volume</b>	
2	Excavators	162	0.38	6	5	2.50	60	Export volume = <b>4,200</b> cubic yards?	
2	Graders	174	0.41	6	5	2.50	60	Import volume = ? cubic yards?	
4	Rubber Tired Dozers	255	0.4	6	4	2.00	96		
4	Tractors/Loaders/Backhoes	97	0.37	6	4	2.00	96		
<i>Other Equipment?</i>									
<b>Trenching/Foundation</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>9</b>				
Drainage		<b>End Date:</b>							
4	Tractor/Loader/Backhoe	97	0.37	7	5	3.89	140		
4	Excavators	162	0.38	7	5	3.89	140		
2	Forklifts	89	0.2	4	2	0.89	16		
2	Cement and Mortar Mixers	9	0.56	8	2	0.62	32		
<i>Other Equipment?</i>									
<b>Paving &amp; Roadway Items</b>		<b>Start Date:</b>		<b>Total phase:</b>	<b>26</b>				
		<b>Start Date:</b>							
2	Cement and Mortar Mixers	9	0.56	4	4	0.62	32	<b>Asphalt? 1250 cubic yards or ____ round trips?</b>	
2	Pavers	125	0.42	6	5	1.15	60		
2	Paving Equipment	130	0.36	6	5	1.15	60		
2	Rollers	80	0.38	6	5	1.15	60		
4	Tractors/Loaders/Backhoes	97	0.37	6	6	1.38	144		
10	Trucks: Hauling & Equipment	150	0.3	8	22	6.77	1760		
<i>Other Equipment?</i>									



**Road Construction Emissions Model  
Data Entry Worksheet**

**Version 8.1.0**



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

**Input Type**

Project Name: Charcot Extension bridge

Construction Start Year: 2019  
Enter a Year between 2014 and 2025 (inclusive)

Project Type: 3  
1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway.  
2) Road Widening : Project to add a new lane to an existing roadway  
3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane.  
4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction

Project Construction Time Working Days per Month: 10.00 / 22.00  
months / days (assume 22 if unknown)

Predominant Soil/Site Type: Enter 1, 2, or 3  
(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)

Project Length: 0.09 miles

Total Project Area: 1.00 acre

Maximum Area Disturbed/Day: 1.00 acre

Water Trucks Used?: 2  
1. Yes  
2. No

	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)

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

[http://www.conservation.ca.gov/cgs/information/geologic\\_mapping/Pages/googlemaps.aspx#regionalseries](http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries)

**Material Hauling Quantity Input**

Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20 if unknown)	Import Volume (yd <sup>3</sup> /day)	Export Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		17.00
	Drainage/Utilities/Sub-Grade		100.00	
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	4240.00	

**Mitigation Options**

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer.
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure ( <a href="http://www.airquality.org/ceqa/mitigation.shtml">http://www.airquality.org/ceqa/mitigation.shtml</a> ). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		1.00		1/1/2019
Grading/Excavation		4.50		2/1/2019
Drainage/Utilities/Sub-Grade		3.00		6/18/2019
Paving		1.50		9/18/2019
<b>Totals (Months)</b>		10		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
<b>User Input</b>											
Miles/round trip: Grubbing/Land Clearing		20.00	30.00		0	0.00					
Miles/round trip: Grading/Excavation		20.00	30.00		1	20.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		20.00	30.00		0	0.00					
Miles/round trip: Paving		20.00	30.00		0	0.00					
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Hauling Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.02	0.22	0.01	0.00	0.00	72.63	0.00	0.00	73.37
Tons per const. Period - Grading/Excavation		0.00	0.00	0.01	0.00	0.00	0.00	3.60	0.00	0.00	3.63
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.01	0.00	0.00	0.00	3.60	0.00	0.00	3.63

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
<b>User Input</b>											
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00					
Miles/round trip: Grading/Excavation			30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00					
Miles/round trip: Paving			30.00		212	6360.00					
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		1.88	7.34	69.67	1.83	0.94	0.22	23,097.31	0.09	0.78	23,331.98
Tons per const. Period - Paving		0.03	0.12	1.15	0.03	0.02	0.00	381.11	0.00	0.01	384.98
Total tons per construction project		0.03	0.12	1.15	0.03	0.02	0.00	381.11	0.00	0.01	384.98

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated Daily Trips		Calculated Daily VMT			
<b>User Input</b>											
Miles/ one-way trip			20								
One-way trips/day			2								
No. of employees: Grubbing/Land Clearing			5			10		200.00			
No. of employees: Grading/Excavation			28			56		1,120.00			
No. of employees: Drainage/Utilities/Sub-Grade			18			36		720.00			
No. of employees: Paving			8			16		320.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grading/Excavation (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Draining/Utilities/Sub-Grade (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Paving (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grubbing/Land Clearing (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Grading/Excavation (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Draining/Utilities/Sub-Grade (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Paving (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.03	0.59	0.06	0.02	0.01	0.00	170.20	0.00	0.00	171.07
Tons per const. Period - Grubbing/Land Clearing		0.00	0.01	0.00	0.00	0.00	0.00	1.87	0.00	0.00	1.88
Pounds per day - Grading/Excavation		0.19	3.29	0.34	0.12	0.05	0.01	953.12	0.03	0.01	958.01
Tons per const. Period - Grading/Excavation		0.01	0.16	0.02	0.01	0.00	0.00	47.18	0.00	0.00	47.42
Pounds per day - Drainage/Utilities/Sub-Grade		0.12	2.12	0.22	0.07	0.03	0.01	612.72	0.02	0.01	615.86
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.07	0.01	0.00	0.00	0.00	20.22	0.00	0.00	20.32
Pounds per day - Paving		0.06	0.94	0.10	0.03	0.01	0.00	272.32	0.01	0.00	273.72
Tons per const. Period - Paving		0.00	0.02	0.00	0.00	0.00	0.00	4.49	0.00	0.00	4.52
Total tons per construction project		0.01	0.25	0.03	0.01	0.00	0.00	73.76	0.00	0.00	74.14

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Program Estimate of		User Override of Truck		Default Values		Calculated			
<b>User Input</b>		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT				
Grubbing/Land Clearing - Exhaust			0			40.00		0.00			
Grading/Excavation - Exhaust			0			40.00		0.00			
Drainage/Utilities/Subgrade			0			40.00		0.00			
Paving			0			40.00		0.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
		Acreage Disturbed/Day	Maximum Acreage/Day	Maximum Acreage/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing			1.00			20.00	0.22	4.16	0.05
Fugitive Dust - Grading/Excavation			1.00			20.00	0.99	4.16	0.21
Fugitive Dust - Drainage/Utilities/Subgrade			1.00			20.00	0.66	4.16	0.14

Off-Road Equipment Emissions																
Grubbing/Land Clearing		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Override of Default Number of Vehicles	Program-estimate					pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	2			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Tractors/Loaders/Backhoes	0.09	0.87	0.89	0.06	0.05	0.00	116.52	0.04	0.00	117.74	
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment						ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab					pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00				N/A	Type	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Grubbing/Land Clearing				pounds per day	0.09	0.87	0.89	0.06	0.05	0.00	116.52	0.04	0.00	117.74	
	Grubbing/Land Clearing				tons per phase	0.00	0.01	0.01	0.00	0.00	0.00	1.28	0.00	0.00	1.30	

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default	Equipment Tier										
Override of Default Number of Vehicles	Program-estimate		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Cranes	0.49	2.24	5.88	0.25	0.23	0.01	558.85	0.18	0.00	564.74
0.00	2		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3		Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>	<b>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation			pounds per day	0.49	2.24	5.88	0.25	0.23	0.01	558.85	0.18	0.00	564.74
	Grading/Excavation			tons per phase	0.02	0.11	0.29	0.01	0.01	0.00	27.66	0.01	0.00	27.95

Drainage/Utilities/Subgrade	Default	Mitigation Option	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)												Equipment Tier
Override of Default Number of Vehicles	Program-estimate		Equipment Tier	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
1.00			Model Default Tier	Aerial Lifts	0.01	0.14	0.09	0.00	0.00	0.00	20.78	0.01	0.00	21.00
2.00	1		Model Default Tier	Air Compressors	0.09	0.61	0.61	0.04	0.04	0.00	93.82	0.01	0.00	94.22
1.00			Model Default Tier	Bore/Drill Rigs	0.07	0.49	0.86	0.02	0.02	0.00	216.98	0.07	0.00	218.37
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Cranes	0.49	2.24	5.88	0.25	0.23	0.01	558.85	0.18	0.00	564.74
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Generator Sets	0.78	6.52	6.61	0.40	0.40	0.01	1,090.31	0.07	0.01	1,094.48
0.00	2		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.14	2.30	1.85	0.08	0.08	0.00	340.97	0.11	0.00	344.56
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Welders	0.05	0.23	0.20	0.01	0.01	0.00	25.93	0.00	0.00	26.11
<b>User-Defined Off-road Equipment</b>	<b>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade			pounds per day	1.62	12.52	16.10	0.81	0.78	0.02	2,346.74	0.44	0.02	2,363.48
	Drainage/Utilities/Sub-Grade			tons per phase	0.05	0.41	0.53	0.03	0.03	0.00	77.44	0.01	0.00	77.99

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Override of	Default										
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>														
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles			Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving			pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving			tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>					0.08	0.53	0.83	0.04	0.04	0.00	106.39	0.02	0.00	107.24

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63	1.00	8
Air Compressors		78	1.00	8
Bore/Drill Rigs		206	2.00	8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81	2.00	8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84	7.00	8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98	3.00	8
Trenchers		81		8
Welders		46	1.00	8

END OF DATA ENTRY SHEET



Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Charcot Extension bridge														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.12	1.46	0.95	20.08	0.08	20.00	4.22	0.06	4.16	0.00	286.72	0.04	0.00	288.82
Grading/Excavation	0.69	5.56	6.44	20.37	0.37	20.00	4.44	0.28	4.16	0.02	1,584.60	0.20	0.02	1,596.12
Drainage/Utilities/Sub-Grade	1.74	14.63	16.32	20.88	0.88	20.00	4.97	0.81	4.16	0.03	2,959.45	0.46	0.03	2,979.35
Paving	1.94	8.28	69.77	1.87	1.87	0.00	0.95	0.95	0.00	0.22	23,369.63	0.09	0.78	23,605.70
Maximum (pounds/day)	1.94	14.63	69.77	20.88	1.87	20.00	4.97	0.95	4.16	0.22	23,369.63	0.46	0.78	23,605.70
Total (tons/construction project)	0.13	0.91	2.02	1.95	0.08	1.87	0.45	0.06	0.39	0.01	564.85	0.03	0.01	570.00

Notes: Project Start Year -> 2019  
 Project Length (months) -> 10  
 Total Project Area (acres) -> 1  
 Maximum Area Disturbed/Day (acres) -> 1  
 Water Truck Used? -> No

Phase	Total Material Imported/Exported Volume (yd <sup>3</sup> /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	200	0
Grading/Excavation	17	0	20	0	1,120	0
Drainage/Utilities/Sub-Grade	100	0	0	0	720	0
Paving	0	4240	0	6,360	320	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.  
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.  
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Charcot Extension bridge														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.02	0.01	0.22	0.00	0.22	0.05	0.00	0.05	0.00	3.15	0.00	0.00	2.88
Grading/Excavation	0.03	0.28	0.32	1.01	0.02	0.99	0.22	0.01	0.21	0.00	78.44	0.01	0.00	71.68
Drainage/Utilities/Sub-Grade	0.06	0.48	0.54	0.69	0.03	0.66	0.16	0.03	0.14	0.00	97.66	0.02	0.00	89.19
Paving	0.03	0.14	1.15	0.03	0.03	0.00	0.02	0.02	0.00	0.00	385.60	0.00	0.01	353.35
Maximum (tons/phase)	0.06	0.48	1.15	1.01	0.03	0.99	0.22	0.03	0.21	0.00	385.60	0.02	0.01	353.35
Total (tons/construction project)	0.13	0.91	2.02	1.95	0.08	1.87	0.45	0.06	0.39	0.01	564.85	0.03	0.01	517.10

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.  
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.  
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.  
 The CO2e emissions are reported as metric tons per phase.

### Road Construction Emissions Model Data Entry Worksheet

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

**Input Type**


Project Name	Charcot Extension ( WEST Roadway)		
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)	
Project Type	1	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway <input type="checkbox"/> 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane <input type="checkbox"/> 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction	
Project Construction Time	3.40	months	
Working Days per Month	22.00	days (assume 22 if unknown)	
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)	
Project Length	0.20	miles	
Total Project Area	2.16	acres	
Maximum Area Disturbed/Day	1.00	acre	
Water Trucks Used?	1	1. Yes 2. No	

**Material Hauling Quantity Input**

Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20 if unknown)	Import Volume (yd <sup>3</sup> /day)	Export Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		324.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	37.70	

**Mitigation Options**

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer <input type="checkbox"/>
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure ( <a href="http://www.airquality.org/ceqa/mitigation.shtml">http://www.airquality.org/ceqa/mitigation.shtml</a> ). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard



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

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

[http://www.conservation.ca.gov/cgs/information/geologic\\_mapping/Pages/googlemaps.aspx#regionalseries](http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries)

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.34		1/1/2019
Grading/Excavation	0.77	1.53		1/1/2019
Drainage/Utilities/Sub-Grade	0.59	1.02		1/25/2019
Paving	2.00	0.51		2/12/2019
<b>Totals (Months)</b>		3		

Please note: You have entered a different number of months than the project length shown in cell D16.

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
<b>User Input</b>										
Miles/round trip: Grubbing/Land Clearing		2.00	30.00		0	0.00				
Miles/round trip: Grading/Excavation		2.00	30.00		17	34.00				
Miles/round trip: Drainage/Utilities/Sub-Grade		2.00	30.00		0	0.00				
Miles/round trip: Paving		2.00	30.00		0	0.00				
<b>Emission Rates</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Drainage/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Hauling Emissions</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.04	0.37	0.01	0.01	0.00	123.48	0.00	0.00	124.73
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	1.06
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00	1.06

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
<b>User Input</b>										
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00				
Miles/round trip: Grading/Excavation			30.00		0	0.00				
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00				
Miles/round trip: Paving			30.00		2	60.00				
<b>Emission Rates</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Drainage/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.02	0.07	0.66	0.02	0.01	0.00	217.90	0.00	0.01	220.11
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	4.79	0.00	0.00	4.84
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	4.79	0.00	0.00	4.84

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated Daily Trips		Calculated Daily VMT			
<b>User Input</b>											
Miles/ one-way trip			20								
One-way trips/day			2								
No. of employees: Grubbing/Land Clearing			4			8		160.00			
No. of employees: Grading/Excavation			17			34		680.00			
No. of employees: Drainage/Utilities/Sub-Grade			14			28		560.00			
No. of employees: Paving			10			20		400.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Draining/Utilities/Sub-Grade (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Paving (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grubbing/Land Clearing (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Draining/Utilities/Sub-Grade (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Paving (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.12	2.00	0.21	0.07	0.03	0.01	578.68	0.02	0.01	581.65
Tons per const. Period - Grading/Excavation		0.00	0.02	0.00	0.00	0.00	0.00	4.90	0.00	0.00	4.93
Pounds per day - Drainage/Utilities/Sub-Grade		0.10	1.65	0.17	0.06	0.02	0.00	476.56	0.01	0.01	479.01
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.01	0.00	0.00	0.00	0.00	3.09	0.00	0.00	3.11
Pounds per day - Paving		0.07	1.18	0.12	0.04	0.02	0.00	340.40	0.01	0.01	342.15
Tons per const. Period - Paving		0.00	0.03	0.00	0.00	0.00	0.00	7.49	0.00	0.00	7.53
Total tons per construction project		0.00	0.05	0.01	0.00	0.00	0.00	15.48	0.00	0.00	15.56

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Program Estimate of		User Override of Truck		Default Values		Calculated			
<b>User Input</b>		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT	Daily VMT		
Grubbing/Land Clearing - Exhaust			1			40.00		40.00			
Grading/Excavation - Exhaust			1			40.00		40.00			
Drainage/Utilities/Subgrade			1			40.00		40.00			
Paving			1			40.00		40.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.00	1.24
Pounds per day - Drainage/Utilities/Sub-Grade		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.95
Pounds per day - Paving		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Paving		0.00	0.00	0.01	0.00	0.00	0.00	3.20	0.00	0.00	3.23
Total tons per construction project		0.00	0.00	0.02	0.00	0.00	0.00	5.37	0.00	0.00	5.42

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
		Acreage Disturbed/Day	Maximum Acreage/Day	Maximum Acreage/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing				0.00		0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation				1.00		10.00	0.08	2.08	0.02
Fugitive Dust - Drainage/Utilities/Subgrade				1.00		10.00	0.06	2.08	0.01

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default	Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>														
Number of Vehicles				If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab										
0.00			N/A	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default	Equipment Tier										
Override of Default Number of Vehicles	Program-estimate		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3		Model Default Tier	Excavators	0.29	3.63	2.98	0.14	0.13	0.01	568.17	0.18	0.01	574.16
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Graders	0.54	3.26	5.36	0.30	0.28	0.00	436.30	0.14	0.00	440.88
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Rubber Tired Dozers	1.09	9.04	11.71	0.54	0.50	0.01	935.12	0.30	0.01	944.94
0.00	1		Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	0.01	627.97
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>	<b>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation			pounds per day	2.39	20.59	24.78	1.30	1.19	0.03	2,561.01	0.81	0.02	2,587.96
	Grading/Excavation			tons per phase	0.02	0.17	0.21	0.01	0.01	0.00	21.69	0.01	0.00	21.92

Drainage/Utilities/Subgrade	Default	Mitigation Option	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)												Equipment Tier
Override of Default Number of Vehicles	Program-estimate		Equipment Tier	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00	1		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00			Model Default Tier	Cement and Mortar Mixers	0.01	0.04	0.05	0.00	0.00	0.00	6.69	0.00	6.73	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4.00			Model Default Tier	Excavators	0.58	7.25	5.96	0.29	0.26	0.01	1,136.33	0.36	1,148.32	
2.00			Model Default Tier	Forklifts	0.04	0.27	0.33	0.03	0.02	0.00	34.80	0.01	35.17	
0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	627.97	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>	<b>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade			pounds per day	1.09	12.22	11.06	0.63	0.58	0.02	1,799.26	0.57	0.02	1,818.19
	Drainage/Utilities/Sub-Grade			tons per phase	0.01	0.08	0.07	0.00	0.00	0.00	11.68	0.00	0.00	11.80

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default	Default										
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00
	2.00		Model Default Tier	Cement and Mortar Mixers	0.01	0.04	0.05	0.00	0.00	0.00	6.69	0.00	0.00	6.73
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2.00	1	Model Default Tier	Pavers	0.09	0.94	1.01	0.05	0.05	0.00	150.02	0.05	0.00	151.60
	2.00	1	Model Default Tier	Paving Equipment	0.07	0.83	0.74	0.04	0.03	0.00	133.09	0.04	0.00	134.49
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2.00	3	Model Default Tier	Rollers	0.08	0.64	0.75	0.05	0.05	0.00	87.42	0.03	0.00	88.35
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4.00	2	Model Default Tier	Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	0.01	627.97
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>														
	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving			pounds per day	0.72	7.10	7.28	0.45	0.42	0.01	998.65	0.31	0.01	1,009.13
	Paving			tons per phase	0.02	0.16	0.16	0.01	0.01	0.00	21.97	0.01	0.00	22.20
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>					0.04	0.41	0.44	0.03	0.02	0.00	55.34	0.02	0.00	55.92



Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9	0.53	8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163	4.31	8
Forklifts		89	0.92	8
Generator Sets		84		8
Graders		175	2.82	8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126	1.33	8
Paving Equipment		131	1.33	8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81	1.33	8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255	2.12	8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98	4.00	8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

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

**Road Construction Emissions Model, Version 8.1.0**

Daily Emission Estimates for -> Charcot Extension ( WEST Roadway)														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	2.53	22.67	25.80	11.39	1.39	10.00	3.32	1.24	2.08	0.03	3,408.43	0.83	0.04	3,441.08
Drainage/Utilities/Sub-Grade	1.20	13.92	11.67	10.70	0.70	10.00	2.69	0.61	2.08	0.02	2,421.08	0.58	0.03	2,443.93
Paving	0.82	8.40	8.50	0.52	0.52	0.00	0.45	0.45	0.00	0.02	1,702.21	0.32	0.03	1,718.13
Maximum (pounds/day)	2.53	22.67	25.80	11.39	1.39	10.00	3.32	1.24	2.08	0.03	3,408.43	0.83	0.04	3,441.08
Total (tons/construction project)	0.05	0.47	0.48	0.18	0.03	0.15	0.06	0.02	0.03	0.00	82.03	0.02	0.00	82.81

Notes: Project Start Year -> 2019  
 Project Length (months) -> 3  
 Total Project Area (acres) -> 2  
 Maximum Area Disturbed/Day (acres) -> 1  
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd <sup>3</sup> /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	160	40
Grading/Excavation	324	0	34	0	680	40
Drainage/Utilities/Sub-Grade	0	0	0	0	560	40
Paving	0	38	0	60	400	40

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

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

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

Total Emission Estimates by Phase for -> Charcot Extension ( WEST Roadway)														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.02	0.19	0.22	0.10	0.01	0.08	0.03	0.01	0.02	0.00	28.87	0.01	0.00	26.44
Drainage/Utilities/Sub-Grade	0.01	0.09	0.08	0.07	0.00	0.06	0.02	0.00	0.01	0.00	15.71	0.00	0.00	14.39
Paving	0.02	0.18	0.19	0.01	0.01	0.00	0.01	0.01	0.00	0.00	37.45	0.01	0.00	34.29
Maximum (tons/phase)	0.02	0.19	0.22	0.10	0.01	0.08	0.03	0.01	0.02	0.00	37.45	0.01	0.00	34.29
Total (tons/construction project)	0.05	0.47	0.48	0.18	0.03	0.15	0.06	0.02	0.03	0.00	82.03	0.02	0.00	75.12

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

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

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

The CO2e emissions are reported as metric tons per phase.

### Road Construction Emissions Model Data Entry Worksheet

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

**Input Type**


Project Name	Charcot Extension (EAST 4 LANE Roadway)		
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)	
Project Type	1	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway. 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane. 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction	
Project Construction Time	2.50	months	
Working Days per Month	22.00	days (assume 22 if unknown)	
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murietta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murietta)	
Project Length	0.27	miles	
Total Project Area	2.45	acres	
Maximum Area Disturbed/Day	1.00	acre	
Water Trucks Used?	1	1. Yes 2. No	

**Material Hauling Quantity Input**

Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20 if unknown)	Import Volume (yd <sup>3</sup> /day)	Export Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		300.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	43.00	

**Mitigation Options**

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer.
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure ( <a href="http://www.airquality.org/ceqa/mitigation.shtml">http://www.airquality.org/ceqa/mitigation.shtml</a> ). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard



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

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

[http://www.conservation.ca.gov/cgs/information/geologic\\_mapping/Pages/googlemaps.aspx#regionalseries](http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries)

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.25		1/1/2019
Grading/Excavation	0.70	1.13		1/1/2019
Drainage/Utilities/Sub-Grade	0.45	0.75		1/23/2019
Paving	1.35	0.38		2/6/2019
<b>Totals (Months)</b>		3		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
<b>User Input</b>											
Miles/round trip: Grubbing/Land Clearing		2.00	30.00		0	0.00					
Miles/round trip: Grading/Excavation		2.00	30.00		15	30.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		2.00	30.00		0	0.00					
Miles/round trip: Paving		2.00	30.00		0	0.00					
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Drainage/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Hauling Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.03	0.33	0.01	0.00	0.00	108.95	0.00	0.00	110.06
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.85
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total tons per construction project</b>		0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.85

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
<b>User Input</b>											
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00					
Miles/round trip: Grading/Excavation			30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00					
Miles/round trip: Paving			30.00		3	90.00					
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Drainage/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.03	0.10	0.99	0.03	0.01	0.00	326.85	0.00	0.01	330.17
Tons per const. Period - Paving		0.00	0.00	0.01	0.00	0.00	0.00	4.85	0.00	0.00	4.90
<b>Total tons per construction project</b>		0.00	0.00	0.01	0.00	0.00	0.00	4.85	0.00	0.00	4.90

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated Daily Trips		Calculated Daily VMT			
<b>User Input</b>											
Miles/ one-way trip			20								
One-way trips/day			2								
No. of employees: Grubbing/Land Clearing			4			8		160.00			
No. of employees: Grading/Excavation			17			34		680.00			
No. of employees: Drainage/Utilities/Sub-Grade			14			28		560.00			
No. of employees: Paving			10			20		400.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Draining/Utilities/Sub-Grade (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Paving (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grubbing/Land Clearing (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Draining/Utilities/Sub-Grade (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Paving (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.12	2.00	0.21	0.07	0.03	0.01	578.68	0.02	0.01	581.65
Tons per const. Period - Grading/Excavation		0.00	0.02	0.00	0.00	0.00	0.00	4.46	0.00	0.00	4.48
Pounds per day - Drainage/Utilities/Sub-Grade		0.10	1.65	0.17	0.06	0.02	0.00	476.56	0.01	0.01	479.01
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.01	0.00	0.00	0.00	0.00	2.36	0.00	0.00	2.37
Pounds per day - Paving		0.07	1.18	0.12	0.04	0.02	0.00	340.40	0.01	0.01	342.15
Tons per const. Period - Paving		0.00	0.02	0.00	0.00	0.00	0.00	5.05	0.00	0.00	5.08
Total tons per construction project		0.00	0.04	0.00	0.00	0.00	0.00	11.87	0.00	0.00	11.93

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Program Estimate of		User Override of Truck		Default Values		Calculated			
<b>User Input</b>		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT	Daily VMT		
Grubbing/Land Clearing - Exhaust			1			40.00		40.00			
Grading/Excavation - Exhaust			1			40.00		40.00			
Drainage/Utilities/Subgrade			1			40.00		40.00			
Paving			1			40.00		40.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	1.13
Pounds per day - Drainage/Utilities/Sub-Grade		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.73
Pounds per day - Paving		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Paving		0.00	0.00	0.01	0.00	0.00	0.00	2.16	0.00	0.00	2.18
Total tons per construction project		0.00	0.00	0.01	0.00	0.00	0.00	3.99	0.00	0.00	4.04

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
		Acreage Disturbed/Day	Maximum Acreage/Day	Maximum Acreage/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing				0.00		0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation				1.00		10.00	0.08	2.08	0.02
Fugitive Dust - Drainage/Utilities/Subgrade				1.00		10.00	0.05	2.08	0.01

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default	Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>														
				If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab										
Number of Vehicles			Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	Default	Mitigation Option	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3		Model Default Tier	Excavators	0.27	3.37	2.77	0.13	0.12	0.01	527.30	0.17	0.00	532.86
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Graders	0.54	3.24	5.33	0.30	0.27	0.00	433.20	0.14	0.00	437.76
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Rubber Tired Dozers	1.03	8.53	11.05	0.51	0.47	0.01	882.19	0.28	0.01	891.46
0.00	1		Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	0.01	627.97
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>														
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles			Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation			pounds per day	2.31	19.79	23.87	1.26	1.16	0.02	2,464.11	0.78	0.02	2,490.05
	Grading/Excavation			tons per phase	0.02	0.15	0.18	0.01	0.01	0.00	18.97	0.01	0.00	19.17

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	0.00	1		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2.00			Cement and Mortar Mixers	0.01	0.04	0.05	0.00	0.00	0.00	6.69	0.00	0.00	6.73	
				Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	4.00			Excavators	0.54	6.73	5.53	0.27	0.25	0.01	1,054.60	0.33	0.01	1,065.73	
	2.00			Forklifts	0.03	0.24	0.29	0.02	0.02	0.00	30.26	0.01	0.00	30.58	
	0.00	1		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	2		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	4.00	2		Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	0.01	627.97	
				Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>					If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab										
Number of Vehicles		Equipment Tier		Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Drainage/Utilities/Sub-Grade					pounds per day	1.05	11.67	10.59	0.61	0.56	0.02	1,712.98	0.54	0.02	1,731.01
Drainage/Utilities/Sub-Grade					tons per phase	0.01	0.06	0.05	0.00	0.00	0.00	8.48	0.00	0.00	8.57



Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Override of	Default										
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cement and Mortar Mixers	0.01	0.04	0.05	0.00	0.00	0.00	6.69	0.00	0.00	6.73
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Pavers	0.10	0.98	1.06	0.05	0.05	0.00	157.91	0.05	0.00	159.58
2.00	1		Model Default Tier	Paving Equipment	0.07	0.88	0.78	0.04	0.04	0.00	140.09	0.04	0.00	141.57
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3		Model Default Tier	Rollers	0.08	0.68	0.79	0.05	0.05	0.00	92.03	0.03	0.00	93.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.47	4.65	4.72	0.32	0.29	0.01	621.43	0.20	0.01	627.97
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>														
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	0.73	7.23	7.41	0.46	0.42	0.01	1,018.15	0.32	0.01	1,028.84
		Paving		tons per phase	0.01	0.11	0.11	0.01	0.01	0.00	15.12	0.00	0.00	15.28
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>					0.03	0.32	0.35	0.02	0.02	0.00	42.57	0.01	0.00	43.02

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9	0.53	8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163	4.00	8
Forklifts		89	0.80	8
Generator Sets		84		8
Graders		175	2.80	8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126	1.40	8
Paving Equipment		131	1.40	8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81	1.40	8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255	2.00	8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98	4.00	8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

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

**Road Construction Emissions Model, Version 8.1.0**

Daily Emission Estimates for -> Charcot Extension (EAST 4 LANE Roadway)														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	2.45	21.87	24.84	11.35	1.35	10.00	3.28	1.20	2.08	0.03	3,297.01	0.80	0.04	3,328.49
Drainage/Utilities/Sub-Grade	1.16	13.36	11.20	10.68	0.68	10.00	2.67	0.59	2.08	0.02	2,334.81	0.55	0.03	2,356.75
Paving	0.84	8.56	8.96	0.54	0.54	0.00	0.46	0.46	0.00	0.02	1,830.66	0.33	0.03	1,847.90
Maximum (pounds/day)	2.45	21.87	24.84	11.35	1.35	10.00	3.28	1.20	2.08	0.03	3,297.01	0.80	0.04	3,328.49
Total (tons/construction project)	0.04	0.36	0.38	0.15	0.02	0.13	0.05	0.02	0.03	0.00	64.13	0.01	0.00	64.74

Notes: Project Start Year -> 2019  
 Project Length (months) -> 3  
 Total Project Area (acres) -> 2  
 Maximum Area Disturbed/Day (acres) -> 1  
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd <sup>3</sup> /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	160	40
Grading/Excavation	300	0	30	0	680	40
Drainage/Utilities/Sub-Grade	0	0	0	0	560	40
Paving	0	43	0	90	400	40


PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.  
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.  
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Charcot Extension (EAST 4 LANE Roadway)														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.02	0.17	0.19	0.09	0.01	0.08	0.03	0.01	0.02	0.00	25.39	0.01	0.00	23.25
Drainage/Utilities/Sub-Grade	0.01	0.07	0.06	0.05	0.00	0.05	0.01	0.00	0.01	0.00	11.56	0.00	0.00	10.58
Paving	0.01	0.13	0.13	0.01	0.01	0.00	0.01	0.01	0.00	0.00	27.19	0.00	0.00	24.89
Maximum (tons/phase)	0.02	0.17	0.19	0.09	0.01	0.08	0.03	0.01	0.02	0.00	27.19	0.01	0.00	24.89
Total (tons/construction project)	0.04	0.36	0.38	0.15	0.02	0.13	0.05	0.02	0.03	0.00	64.13	0.01	0.00	58.73

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.  
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.  
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.  
 The CO2e emissions are reported as metric tons per phase.

**Road Construction Emissions Model  
Data Entry Worksheet**

**Version 8.1.0**



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

**Input Type**

Project Name  
Charcot Extension (EAST 3 LANE Roadway)

Construction Start Year  
2019

Project Type  
1

Project Construction Time  
Working Days per Month  
2.27  
22.00

Predominant Soil/Site Type: Enter 1, 2, or 3  
(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)

Project Length  
0.27 miles

Total Project Area  
2.45 acres

Maximum Area Disturbed/Day  
1.00 acre

Water Trucks Used?  
1

Enter a Year between 2014 and 2025 (inclusive)

1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway  
 2) Road Widening : Project to add a new lane to an existing roadway  
 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane  
 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction

1) Sand Gravel : Use for quaternary deposits (Delta/West County)  
 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta)  
 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)

1. Yes  
2. No

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

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

[http://www.conservation.ca.gov/cgs/information/geologic\\_mapping/Pages/googlemaps.aspx#regionalseries](http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries)

**Material Hauling Quantity Input**

Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20 if unknown)	Import Volume (yd <sup>3</sup> /day)	Export Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		376.90
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	53.40	

**Mitigation Options**

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure ( <a href="http://www.airquality.org/ceqa/mitigation.shtml">http://www.airquality.org/ceqa/mitigation.shtml</a> ). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.23		1/1/2019
Grading/Excavation	0.59	1.02		1/1/2019
Drainage/Utilities/Sub-Grade	0.41	0.68		1/19/2019
Paving	1.27	0.34		2/1/2019
<b>Totals (Months)</b>		2		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
<b>User Input</b>										
Miles/round trip: Grubbing/Land Clearing		2.00	30.00		0	0.00				
Miles/round trip: Grading/Excavation		2.00	30.00		19	38.00				
Miles/round trip: Drainage/Utilities/Sub-Grade		2.00	30.00		0	0.00				
Miles/round trip: Paving		2.00	30.00		0	0.00				
<b>Emission Rates</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Drainage/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Hauling Emissions</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.04	0.42	0.01	0.01	0.00	138.00	0.00	0.00	139.40
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.90
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.90

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
<b>User Input</b>										
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00				
Miles/round trip: Grading/Excavation			30.00		0	0.00				
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00				
Miles/round trip: Paving			30.00		3	90.00				
<b>Emission Rates</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Drainage/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>										
	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.03	0.10	0.99	0.03	0.01	0.00	326.85	0.00	0.01	330.17
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	4.57	0.00	0.00	4.61
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	4.57	0.00	0.00	4.61

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated Daily Trips		Calculated Daily VMT			
<b>User Input</b>											
Miles/ one-way trip			20								
One-way trips/day			2								
No. of employees: Grubbing/Land Clearing			4			8		160.00			
No. of employees: Grading/Excavation			17			34		680.00			
No. of employees: Drainage/Utilities/Sub-Grade			14			28		560.00			
No. of employees: Paving			10			20		400.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Draining/Utilities/Sub-Grade (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Paving (grams/mile)		0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53
Grubbing/Land Clearing (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Draining/Utilities/Sub-Grade (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
Paving (grams/trip)		1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.12	2.00	0.21	0.07	0.03	0.01	578.68	0.02	0.01	581.65
Tons per const. Period - Grading/Excavation		0.00	0.01	0.00	0.00	0.00	0.00	3.76	0.00	0.00	3.77
Pounds per day - Drainage/Utilities/Sub-Grade		0.10	1.65	0.17	0.06	0.02	0.00	476.56	0.01	0.01	479.01
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.01	0.00	0.00	0.00	0.00	2.15	0.00	0.00	2.16
Pounds per day - Paving		0.07	1.18	0.12	0.04	0.02	0.00	340.40	0.01	0.01	342.15
Tons per const. Period - Paving		0.00	0.02	0.00	0.00	0.00	0.00	4.76	0.00	0.00	4.78
Total tons per construction project		0.00	0.04	0.00	0.00	0.00	0.00	10.66	0.00	0.00	10.72

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Program Estimate of		User Override of Truck		Default Values		Calculated			
<b>User Input</b>		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT	Daily VMT		
Grubbing/Land Clearing - Exhaust			1			40.00		40.00			
Grading/Excavation - Exhaust			1			40.00		40.00			
Drainage/Utilities/Subgrade			1			40.00		40.00			
Paving			1			40.00		40.00			
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.95
Pounds per day - Drainage/Utilities/Sub-Grade		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00	0.66
Pounds per day - Paving		0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74
Tons per const. Period - Paving		0.00	0.00	0.01	0.00	0.00	0.00	2.03	0.00	0.00	2.05
Total tons per construction project		0.00	0.00	0.01	0.00	0.00	0.00	3.63	0.00	0.00	3.66

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
		Acreage Disturbed/Day	Maximum Acreage/Day	Maximum Acreage/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing				0.00		0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation				1.00		10.00	0.06	2.08	0.01
Fugitive Dust - Drainage/Utilities/Subgrade				1.00		10.00	0.05	2.08	0.01

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default	Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>														
Number of Vehicles				If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab										
0.00			N/A	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)										
Override of Default Number of Vehicles	Program-estimate		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3		Model Default Tier	Excavators	0.26	3.27	2.69	0.13	0.12	0.01	512.80	0.16	0.00	518.21
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Graders	0.53	3.20	5.27	0.29	0.27	0.00	428.56	0.14	0.00	433.07
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Rubber Tired Dozers	0.95	7.89	10.22	0.47	0.43	0.01	816.02	0.26	0.01	824.60
0.00	1		Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.46	4.52	4.59	0.31	0.28	0.01	604.34	0.19	0.01	610.70
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>	<b>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation			pounds per day	2.20	18.90	22.78	1.20	1.11	0.02	2,361.72	0.75	0.02	2,386.57
	Grading/Excavation			tons per phase	0.01	0.12	0.15	0.01	0.01	0.00	15.33	0.00	0.00	15.49



Drainage/Utilities/Subgrade	Default	Mitigation Option	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)												Equipment Tier
Override of Default Number of Vehicles	Program-estimate		Equipment Tier	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00	1		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00			Model Default Tier	Cement and Mortar Mixers	0.01	0.04	0.05	0.00	0.00	0.00	7.20	0.00	7.24	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4.00			Model Default Tier	Excavators	0.52	6.55	5.38	0.26	0.24	0.01	1,025.60	0.32	1,036.42	
2.00			Model Default Tier	Forklifts	0.04	0.27	0.32	0.02	0.02	0.00	33.67	0.01	34.02	
0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.46	4.52	4.59	0.31	0.28	0.01	604.34	0.19	610.70	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>	<b>If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade			pounds per day	1.02	11.38	10.34	0.59	0.55	0.02	1,670.80	0.53	0.01	1,688.38
	Drainage/Utilities/Sub-Grade			tons per phase	0.00	0.05	0.05	0.00	0.00	0.00	7.54	0.00	0.00	7.61

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles		Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00			Model Default Tier	Cement and Mortar Mixers	0.01	0.04	0.05	0.00	0.00	0.00	7.20	0.00	0.00	7.24	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00	1		Model Default Tier	Pavers	0.09	0.91	0.98	0.05	0.04	0.00	145.50	0.05	0.00	147.04	
2.00	1		Model Default Tier	Paving Equipment	0.07	0.81	0.72	0.04	0.03	0.00	129.09	0.04	0.00	130.45	
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00	3		Model Default Tier	Rollers	0.07	0.62	0.73	0.05	0.04	0.00	84.79	0.03	0.00	85.69	
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.46	4.52	4.59	0.31	0.28	0.01	604.34	0.19	0.01	610.70	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles					pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab															
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Paving			pounds per day	0.70	6.91	7.08	0.44	0.41	0.01	970.92	0.31	0.01	981.11	
	Paving			tons per phase	0.01	0.10	0.10	0.01	0.01	0.00	13.56	0.00	0.00	13.71	
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>					0.03	0.27	0.29	0.02	0.02	0.00	36.43	0.01	0.00	36.81	

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9	0.57	8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163	3.89	8
Forklifts		89	0.89	8
Generator Sets		84		8
Graders		175	2.77	8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126	1.29	8
Paving Equipment		131	1.29	8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81	1.29	8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255	1.85	8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98	3.89	8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

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

**Road Construction Emissions Model, Version 8.1.0**

Daily Emission Estimates for -> Charcot Extension (EAST 3 LANE Roadway)														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	2.34	20.98	23.84	11.29	1.29	10.00	3.23	1.15	2.08	0.03	3,223.67	0.76	0.04	3,254.37
Drainage/Utilities/Sub-Grade	1.13	13.07	10.95	10.66	0.66	10.00	2.66	0.58	2.08	0.02	2,292.63	0.54	0.03	2,314.12
Paving	0.81	8.23	8.62	0.52	0.52	0.00	0.44	0.44	0.00	0.02	1,783.43	0.32	0.03	1,800.17
Maximum (pounds/day)	2.34	20.98	23.84	11.29	1.29	10.00	3.23	1.15	2.08	0.03	3,223.67	0.76	0.04	3,254.37
Total (tons/construction project)	0.03	0.31	0.32	0.13	0.02	0.11	0.04	0.02	0.02	0.00	56.18	0.01	0.00	56.71

Notes: Project Start Year -> 2019  
 Project Length (months) -> 2  
 Total Project Area (acres) -> 2  
 Maximum Area Disturbed/Day (acres) -> 1  
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd <sup>3</sup> /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	160	40
Grading/Excavation	377	0	38	0	680	40
Drainage/Utilities/Sub-Grade	0	0	0	0	560	40
Paving	0	53	0	90	400	40

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

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

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

Total Emission Estimates by Phase for -> Charcot Extension (EAST 3 LANE Roadway)														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.02	0.14	0.15	0.07	0.01	0.06	0.02	0.01	0.01	0.00	20.92	0.00	0.00	19.16
Drainage/Utilities/Sub-Grade	0.01	0.06	0.05	0.05	0.00	0.05	0.01	0.00	0.01	0.00	10.34	0.00	0.00	9.47
Paving	0.01	0.12	0.12	0.01	0.01	0.00	0.01	0.01	0.00	0.00	24.91	0.00	0.00	22.81
Maximum (tons/phase)	0.02	0.14	0.15	0.07	0.01	0.06	0.02	0.01	0.01	0.00	24.91	0.00	0.00	22.81
Total (tons/construction project)	0.03	0.31	0.32	0.13	0.02	0.11	0.04	0.02	0.02	0.00	56.18	0.01	0.00	51.44

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

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

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

The CO2e emissions are reported as metric tons per phase.

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

**Road Construction Emissions Model, Version 8.1.0**


Daily Emission Estimates for -> Charcot Extension (EAST 2 LANE Roadway)														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	2.37	21.31	24.13	11.30	1.30	10.00	3.24	1.16	2.08	0.03	3,240.79	0.77	0.04	3,271.68
Drainage/Utilities/Sub-Grade	1.13	13.08	10.96	10.66	0.66	10.00	2.66	0.58	2.08	0.02	2,293.26	0.54	0.03	2,314.76
Paving	0.78	7.98	8.36	0.51	0.51	0.00	0.43	0.43	0.00	0.02	1,745.06	0.30	0.03	1,761.39
Maximum (pounds/day)	2.37	21.31	24.13	11.30	1.30	10.00	3.24	1.16	2.08	0.03	3,240.79	0.77	0.04	3,271.68
Total (tons/construction project)	0.03	0.31	0.32	0.13	0.02	0.11	0.04	0.02	0.02	0.00	55.75	0.01	0.00	56.28

Notes:		Project Start Year ->	2019			
		Project Length (months) ->	2			
		Total Project Area (acres) ->	2			
		Maximum Area Disturbed/Day (acres) ->	1			
		Water Truck Used? ->	Yes			
		Total Material Imported/Exported Volume (yd <sup>3</sup> /day)	Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	160	40
Grading/Excavation	350	0	36	0	680	40
Drainage/Utilities/Sub-Grade	0	0	0	0	560	40
Paving	0	48	0	90	400	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.  
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.  
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Charcot Extension (EAST 2 LANE Roadway)														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.02	0.14	0.16	0.07	0.01	0.06	0.02	0.01	0.01	0.00	21.03	0.01	0.00	19.26
Drainage/Utilities/Sub-Grade	0.01	0.06	0.05	0.05	0.00	0.05	0.01	0.00	0.01	0.00	10.34	0.00	0.00	9.47
Paving	0.01	0.11	0.12	0.01	0.01	0.00	0.01	0.01	0.00	0.00	24.38	0.00	0.00	22.32
Maximum (tons/phase)	0.02	0.14	0.16	0.07	0.01	0.06	0.02	0.01	0.01	0.00	24.38	0.01	0.00	22.32
Total (tons/construction project)	0.03	0.31	0.32	0.13	0.02	0.11	0.04	0.02	0.02	0.00	55.75	0.01	0.00	51.06

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.  
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.  
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.  
 The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model Data Entry Worksheet		Version 8.1.0		
<p><b>Note:</b> Required data input sections have a yellow background. Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background. The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types. Please use "Clear Data Input &amp; User Overrides" button first before changing the Project Type or begin a new project.</p>		<p>To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.</p>		
				
<b>Input Type</b>				
Project Name	Charcot Extension (EAST 2 LANE Roadway)			
Construction Start Year	2019	Enter a Year between 2014 and 2025 (inclusive)		
Project Type	1	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway <input type="checkbox"/> 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane <input type="checkbox"/> 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction		
Project Construction Time	2.14	months		
Working Days per Month	22.00	days (assume 22 if unknown)		
Predominant Soil/Site Type: Enter 1, 2, or 3 <small>(for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</small>	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)		
Project Length	0.27	miles		
Total Project Area	1.51	acres		
Maximum Area Disturbed/Day	1.00	acre		
Water Trucks Used?	1	1. Yes 2. No		
<b>Material Hauling Quantity Input</b>				
Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20 if unknown)	Import Volume (yd <sup>3</sup> /day)	Export Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	20.00		350.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	48.00	
<b>Mitigation Options</b>				
On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer <input type="checkbox"/>		
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure ( <a href="http://www.airquality.org/ceqa/mitigation.shtml">http://www.airquality.org/ceqa/mitigation.shtml</a> ). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard		

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

[http://www.conservation.ca.gov/cgs/information/geologic\\_mapping/Pages/googlemaps.aspx#regionalseries](http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries)

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

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

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.21		1/1/2019
Grading/Excavation	0.59	0.96		1/1/2019
Drainage/Utilities/Sub-Grade	0.41	0.64		1/19/2019
Paving	1.27	0.32		2/1/2019
<b>Totals (Months)</b>		2		

Please note: You have entered a different number of months than the project length shown in cell D16.

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
<b>User Input</b>											
Miles/round trip: Grubbing/Land Clearing		2.00	30.00		0	0.00					
Miles/round trip: Grading/Excavation		2.00	30.00		18	36.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		2.00	30.00		0	0.00					
Miles/round trip: Paving		2.00	30.00		0	0.00					
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Hauling Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.04	0.39	0.01	0.01	0.00	130.74	0.00	0.00	132.07
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.86
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.86

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
<b>User Input</b>											
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00					
Miles/round trip: Grading/Excavation			30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00					
Miles/round trip: Paving			30.00		3	90.00					
<b>Emission Rates</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Draining/Utilities/Sub-Grade (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
Paving (grams/mile)		0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03
<b>Emissions</b>		<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.03	0.10	0.99	0.03	0.01	0.00	326.85	0.00	0.01	330.17
Tons per const. Period - Paving		0.00	0.00	0.01	0.00	0.00	0.00	4.57	0.00	0.00	4.61
Total tons per construction project		0.00	0.00	0.01	0.00	0.00	0.00	4.57	0.00	0.00	4.61

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values		Calculated	Calculated				
User Input						Daily Trips	Daily VMT				
Miles/ one-way trip			20								
One-way trips/day			2								
No. of employees: Grubbing/Land Clearing			4			8	160.00				
No. of employees: Grading/Excavation			17			34	680.00				
No. of employees: Drainage/Utilities/Sub-Grade			14			28	560.00				
No. of employees: Paving			10			20	400.00				
<b>Emission Rates</b>	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>	
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53	
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53	
Paving (grams/mile)	0.02	1.19	0.13	0.05	0.02	0.00	381.71	0.01	0.01	383.53	
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17	
Draining/Utilities/Sub-Grade (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17	
Paving (grams/trip)	1.08	2.86	0.23	0.00	0.00	0.00	85.97	0.01	0.01	89.17	
<b>Emissions</b>	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>	
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.12	2.00	0.21	0.07	0.03	0.01	578.68	0.02	0.01	581.65	
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	0.00	3.76	0.00	0.00	3.77	
Pounds per day - Drainage/Utilities/Sub-Grade	0.10	1.65	0.17	0.06	0.02	0.00	476.56	0.01	0.01	479.01	
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.00	0.00	0.00	0.00	2.15	0.00	0.00	2.16	
Pounds per day - Paving	0.07	1.18	0.12	0.04	0.02	0.00	340.40	0.01	0.01	342.15	
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	4.76	0.00	0.00	4.78	
Total tons per construction project	0.00	0.04	0.00	0.00	0.00	0.00	10.66	0.00	0.00	10.72	

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated					
User Input		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT					
Grubbing/Land Clearing - Exhaust			1		40.00	40.00					
Grading/Excavation - Exhaust			1		40.00	40.00					
Drainage/Utilities/Subgrade			1		40.00	40.00					
Paving			1		40.00	40.00					
<b>Emission Rates</b>	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>	
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03	
Draining/Utilities/Sub-Grade (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03	
Paving (grams/mile)	0.13	0.52	4.97	0.13	0.07	0.02	1,647.29	0.01	0.06	1,664.03	
<b>Emissions</b>	<b>ROG</b>	<b>CO</b>	<b>NOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>SOx</b>	<b>CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>	
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74	
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.95	
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74	
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00	0.66	
Pounds per day - Paving	0.01	0.05	0.44	0.01	0.01	0.00	145.27	0.00	0.00	146.74	
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	2.03	0.00	0.00	2.05	
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	3.63	0.00	0.00	3.66	

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
		Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing			0.00	0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation			1.00	10.00	0.06	2.08	0.01
Fugitive Dust - Drainage/Utilities/Subgrade			1.00	10.00	0.05	2.08	0.01



Off-Road Equipment Emissions															
Grubbing/Land Clearing		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
Override of Default Number of Vehicles	Program-estimate														
				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		1		Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Grubbing/Land Clearing		pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Grubbing/Land Clearing		tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Grading/Excavation		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
Override of Default Number of Vehicles	Program-estimate														
				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3			Model Default Tier	Excavators	0.26	3.27	2.69	0.13	0.12	0.01	512.80	0.16	0.00	518.21
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1			Model Default Tier	Graders	0.48	2.89	4.76	0.27	0.24	0.00	386.79	0.12	0.00	390.85
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00				Model Default Tier	Rubber Tired Dozers	1.03	8.53	11.05	0.51	0.47	0.01	882.19	0.28	0.01	891.46
0.00	1			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00	2			Model Default Tier	Tractors/Loaders/Backhoes	0.46	4.52	4.59	0.31	0.28	0.01	604.34	0.19	0.01	610.70
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>						<i>If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab</i>									
Number of Vehicles		Equipment Tier			Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A				0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Grading/Excavation			pounds per day	2.23	19.22	23.09	1.21	1.11	0.02	2,386.11	0.75	0.02	2,411.22
		Grading/Excavation			tons per phase	0.01	0.12	0.15	0.01	0.01	0.00	15.49	0.00	0.00	15.65

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	0.00	1		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2.00			Model Default Tier	Cement and Mortar Mixers	0.01	0.05	0.06	0.00	0.00	0.00	7.83	0.00	7.87	
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	4.00			Model Default Tier	Excavators	0.52	6.55	5.38	0.26	0.24	0.01	1,025.60	0.32	1,036.42	
	2.00			Model Default Tier	Forklifts	0.04	0.27	0.32	0.02	0.02	0.00	33.67	0.01	34.02	
	0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	2		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.46	4.52	4.59	0.31	0.28	0.01	604.34	0.19	610.70	
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>User-Defined Off-road Equipment</b>		<b>If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab</b>				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Drainage/Utilities/Sub-Grade		pounds per day	1.03	11.39	10.35	0.59	0.55	0.02	1,671.44	0.53	0.01	1,689.01	
		Drainage/Utilities/Sub-Grade		tons per phase	0.00	0.05	0.05	0.00	0.00	0.00	7.54	0.00	0.00	7.62	

Paving	Default	Mitigation Option	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cement and Mortar Mixers	0.01	0.05	0.06	0.00	0.00	0.00	7.83	0.00	0.00	7.87
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Pavers	0.08	0.81	0.87	0.04	0.04	0.00	129.71	0.04	0.00	131.08
2.00	1		Model Default Tier	Paving Equipment	0.06	0.72	0.64	0.03	0.03	0.00	115.08	0.04	0.00	116.29
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	3		Model Default Tier	Rollers	0.07	0.56	0.65	0.04	0.04	0.00	75.59	0.02	0.00	76.39
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.46	4.52	4.59	0.31	0.28	0.01	604.34	0.19	0.01	610.70
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>User-Defined Off-road Equipment</b>														
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab														
	Number of Vehicles		Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	0.67	6.66	6.82	0.43	0.39	0.01	932.55	0.29	0.01	942.33
		Paving		tons per phase	0.01	0.09	0.10	0.01	0.01	0.00	13.03	0.00	0.00	13.16
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>					0.03	0.27	0.29	0.02	0.02	0.00	36.05	0.01	0.00	36.43

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9	0.62	8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163	3.89	8
Forklifts		89	0.89	8
Generator Sets		84		8
Graders		175	2.50	8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126	1.15	8
Paving Equipment		131	1.15	8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81	1.15	8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255	2.00	8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98	3.89	8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

## Attachment 2: Operational Emissions Analysis – CT-Emfac2014

<b>Charcot Ave Emissions Modeling</b>								
<b>Roadway Only</b>								
			Emissions (in pounds per day)					
	Volume	Length	ROG	NOx	CO	PM10	PM2.5	CO2
NB 2015	700	0.12	0.01	0.05	0.18	0.04	0.01	67.77
	7600	0.18	0.11	0.78	2.96	0.58	0.13	1103.74
Build 2015	8700	0.39	0.27	1.91	7.23	1.43	0.32	2688.50
	16100	0.18	0.23	1.63	6.18	1.22	0.28	2296.28
			<i>0.38</i>	<i>2.72</i>	<i>10.27</i>	<i>2.04</i>	<i>0.46</i>	
NB 2025	700	0.12	0.01	0.04	0.16	0.04	0.01	74.03
	11300	0.18	0.19	0.95	3.79	0.86	0.21	1792.57
Build 2025	10700	0.39	0.37	1.89	7.72	1.76	0.44	3627.62
	21400	0.12	0.23	1.17	4.75	1.09	0.27	2232.38
			<i>0.41</i>	<i>2.07</i>	<i>8.51</i>	<i>1.95</i>	<i>0.49</i>	
NB 2040	700	0.12	0.01	0.05	0.11	0.04	0.01	70.71
	16800	0.18	0.28	1.64	3.99	1.27	0.28	2545.53
	13900	0.39	0.50	2.94	7.15	2.28	0.51	4524.63
	29400	0.18	0.49	2.87	6.98	2.22	0.49	4416.96
			<i>0.70</i>	<i>4.12</i>	<i>10.02</i>	<i>3.19</i>	<i>0.71</i>	
			Emissions (in tons/year)					
			ROG	NOx	CO	PM10	PM2.5	CO2
	2015	NoBuild	0.02	0.15	0.57	0.11	0.03	194
		Build	0.09	0.65	2.45	0.48	0.11	825
		Increase	<i>0.07</i>	<i>0.50</i>	<i>1.87</i>	<i>0.37</i>	<i>0.08</i>	<b>631</b>
	2025	NoBuild	0.04	0.18	0.72	0.16	0.04	341
		Build	0.11	0.56	2.27	0.52	0.13	1,069
		Increase	<i>0.07</i>	<i>0.35</i>	<i>1.41</i>	<i>0.32</i>	<i>0.08</i>	<b>662</b>
	2040	NoBuild	0.05	0.31	0.75	0.24	0.05	477
		Build	0.18	1.06	2.58	0.82	0.18	1,632
		Increase	<i>0.13</i>	<i>0.75</i>	<i>1.83</i>	<i>0.58</i>	<i>0.13</i>	<b>1,154</b>

Charcot Ave Emissions Modeling										
2020										
Measure	No-Project	Project	Change							
Daily VMT	3928408	3917065	-0.3%							
Daily VHT	121715	118124								
Average Speed	32.3	33.2								
Emissions in lbs/day										
Fleet Average Running Exhaust Emission Factors (grams/veh-mile)										
Pollutant Name			32.3	33.2	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph
ROG	319.65	307.86	0.0369	0.0357	0.215776	0.145257	0.09695	0.067707	0.050845	0.040161
TOG	424.39	408.70	0.0490	0.0474	0.288283	0.193285	0.12897	0.090082	0.067579	0.05333
CO	8505.32	8348.93	0.9829	0.9677	1.945847	1.666997	1.432675	1.257209	1.126225	1.021996
NOx	2249.08	2209.21	0.2599	0.2561	0.76228	0.629239	0.467985	0.363477	0.303325	0.269809
CO2	3169561.29	3103752.42	366.3013	359.7345	1096.26038	834.485718	645.3145	520.9053	438.8097	383.0829
CH4	87.23	84.02	0.0101	0.0097	0.060319	0.039633	0.026501	0.018598	0.013916	0.010959
PM10	27.92	27.15	0.0032	0.0031	0.015042	0.010333	0.00721	0.00527	0.004137	0.003433
PM2.5	26.15	25.43	0.0030	0.0029	0.013984	0.009628	0.006726	0.004921	0.003869	0.003214
Benzene	9.97	9.61	0.0012	0.0011	0.006706	0.004473	0.002996	0.002104	0.001582	0.001251
Acrolein	0.45	0.43	0.0001	0.0001	0.000297	0.000191	0.00013	0.000094	0.000071	0.000056
Acetaldehyde	6.83	6.53	0.0008	0.0008	0.004979	0.003751	0.002373	0.001533	0.00113	0.000874
Formaldehyde	16.87	16.15	0.0019	0.0019	0.012085	0.008875	0.005679	0.003734	0.002764	0.002148
Butadiene	2.09	2.01	0.0002	0.0002	0.001385	0.000908	0.000614	0.000436	0.000329	0.000261
Naphthalene	0.29	0.28	0.0000	0.0000	0.000192	0.000131	0.000087	0.00006	0.000045	0.000036
POM	0.41	0.40	0.0000	0.0000	0.000291	0.000199	0.00013	0.000089	0.000066	0.000052
Diesel PM	12.85	12.63	0.0015	0.0015	0.004038	0.003369	0.002563	0.002001	0.001712	0.001537
DEOG	72.71	69.27	0.0084	0.0080	0.054662	0.042553	0.026494	0.016681	0.012208	0.009362
Fleet Average Running Loss Emission Factors (grams/veh-hour)										
Pollutant Name					Emission Factor					
ROG	432.57	419.81			1.613495					
TOG	432.57	419.81			1.613495					
Benzene	4.33	4.20			0.016135					
Butadiene	0.00	0.00			0					
Naphthalene	0.61	0.59			0.002259					
Fleet Average Tire Wear Factors (grams/veh-mile)										
Pollutant Name					Emission Factor					
PM10	74.76	74.55			0.00864					
PM2.5	18.69	18.64			0.00216					
Fleet Average Brake Wear Factors (grams/veh-mile)										
Pollutant Name					Emission Factor					
PM10	352.66	351.64			0.040756					
PM2.5	151.14	150.70			0.017467					
Entrained Roadway Dust										
Pollutant Name					Emission Factor					
PM10	1204.79	1201.31			0.1392356 gm/mi					
PM2.5	180.77	180.25			0.02089143 gm/mi					
Total Emissions (lbs/day)										
Pollutant Name	No-Project	Project	Difference	GHG Metric Tons						
ROG	752	728	-25							
TOG	857	829	-28							
CO	8505	8349	-156							
NOx	2249	2209	-40							
CO2	3169561	3103752	-65809	524,765	513,870	(10,896)				
CH4	87	84	-3			-0.34%				
PM10	1660	1655	-5.49							
PM2.5	377	375	-1.73							
Benzene	14	14	-0.49							
Acrolein	0	0	-0.02							
Acetaldehyde	7	7	-0.30							
Formaldehyde	17	16	-0.72							
Butadiene	2	2	-0.07							
Naphthalene	0	0	-0.01							
POM	0	0	-0.02							
Diesel PM	13	13	-0.21							
DEOG	73	69	-3.45							

Charcot Ave Emissions Modeling										
2025										
Measure	No-Project	Project								
Daily VMT	4789277	4787047	0.0%							
Daily VHT	209093	205279								
Average Speed	22.9	23.32								
Emissions in lbs/day										
Fleet Average Running Exhaust Emission Factors (grams/veh-mile)										
Pollutant Name			22.9	23.3	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph
ROG	436.28	425.73	0.0414	0.0404	0.15528	0.103818	0.069361	0.048469	0.036207	0.028456
TOG	584.17	570.01	0.0554	0.0541	0.20865	0.139294	0.092978	0.064927	0.048461	0.038053
CO	8934.95	8851.43	0.8470	0.8395	1.391707	1.20065	1.029474	0.901557	0.807475	0.732249
NOx	2233.61	2172.37	0.2117	0.2060	0.704623	0.555651	0.373109	0.253122	0.181765	0.14648
CO2	4220799.65	4161412.51	400.1111	394.6653	918.843689	701.96234	543.536	439.5935	371.5204	325.3708
CH4	124.22	121.19	0.0118	0.0115	0.044859	0.029645	0.019769	0.013816	0.010297	0.008072
PM10	35.64	34.83	0.0034	0.0033	0.01228	0.008085	0.005497	0.003924	0.002983	0.002391
PM2.5	33.06	32.31	0.0031	0.0031	0.011358	0.007489	0.005095	0.003639	0.002768	0.002221
Benzene	13.76	13.43	0.0013	0.0013	0.004894	0.003251	0.002177	0.001527	0.001143	0.0009
Acrolein	0.62	0.61	0.0001	0.0001	0.000219	0.000141	0.000096	0.000068	0.000052	0.000041
Acetaldehyde	9.66	9.40	0.0009	0.0009	0.003466	0.002614	0.001671	0.001087	0.000791	0.000602
Formaldehyde	23.70	23.09	0.0022	0.0022	0.008495	0.006232	0.004022	0.00266	0.001947	0.001495
Butadiene	2.88	2.81	0.0003	0.0003	0.00102	0.000666	0.000449	0.000319	0.000239	0.000189
Naphthalene	0.40	0.39	0.0000	0.0000	0.00014	0.000095	0.000063	0.000044	0.000033	0.000026
POM	0.57	0.55	0.0001	0.0001	0.000209	0.000141	0.000092	0.000063	0.000047	0.000037
Diesel PM	7.88	7.76	0.0007	0.0007	0.001755	0.001447	0.001081	0.000826	0.00069	0.000601
DEOG	103.15	100.34	0.0098	0.0095	0.037289	0.029184	0.01839	0.011674	0.008405	0.006322
Fleet Average Running Loss Emission Factors (grams/veh-hour)										
Pollutant Name			Emission Factor							
ROG	586.80	576.10	1.274107							
TOG	586.80	576.10	1.274107							
Benzene	5.87	5.76	0.012741							
Butadiene	0.00	0.00	0							
Naphthalene	0.82	0.81	0.001784							
Fleet Average Tire Wear Factors (grams/veh-mile)										
Pollutant Name			Emission Factor							
PM10	91.83	91.79	0.008705							
PM2.5	22.95	22.94	0.002176							
Fleet Average Brake Wear Factors (grams/veh-mile)										
Pollutant Name			Emission Factor							
PM10	429.32	429.12	0.040697							
PM2.5	229.55	229.44	0.02176							
Entrained Roadway Dust										
Pollutant Name			Emission Factor							
PM10	1468.81	1468.12	0.1392356 gm/mi							
PM2.5	220.39	220.28	0.02089143 gm/mi							
Total Emissions (lbs/day)										
Pollutant Name	No-Project	Project	GHG Metric Tons							
ROG	1023	1002	-21							
TOG	1171	1146	-25							
CO	8935	8851	-84							
NOx	2234	2172	-61							
CO2	4220800	4161413	-59387	698,812	688,980	(9,832)				
CH4	124	121	-3							
PM10	2026	2024	-1.74							
PM2.5	505.9	505.0	-0.97							
Benzene	20	19	-0.44							
Acrolein	1	1	-0.01							
Acetaldehyde	10	9	-0.25							
Formaldehyde	24	23	-0.61							
Butadiene	3	3	-0.07							
Naphthalene	0	0	-0.01							
POM	1	1	-0.01							
Diesel PM	8	8	-0.12							
DEOG	103	100	-2.81							



Charcot Ave Emissions Modeling										
2040										
Measure	No-Project	Project								
Daily VMT	6080580	6092019	0.2%							
Daily VHT	340160	336012								
Average Speed	17.88	18.13								
Emissions in lbs/day										
Fleet Average Running Exhaust Emission Factors (grams/veh-mile)										
Pollutant Name			17.9	18.1	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph
ROG	571.15	563.74	0.0426	0.0420	0.115303	0.077866	0.051813	0.036005	0.026783	0.020944
TOG	755.74	745.91	0.0564	0.0556	0.152597	0.103134	0.068585	0.047622	0.035394	0.027647
CO	8065.00	8030.30	0.6022	0.5984	0.922666	0.785766	0.656057	0.563139	0.499347	0.449937
NOx	3365.08	3301.82	0.2513	0.2461	0.680336	0.522614	0.326449	0.196796	0.120842	0.085997
CO2	5118494.48	5084693.78	382.1669	378.9304	718.211975	552.74341	429.0969	348.1831	295.7672	260.4127
CH4	153.11	151.12	0.0114	0.0113	0.030999	0.020876	0.013888	0.009653	0.007165	0.005586
PM10	26.97	26.68	0.0020	0.0020	0.005225	0.003454	0.002388	0.001743	0.001344	0.00109
PM2.5	25.02	24.75	0.0019	0.0018	0.004829	0.003197	0.002214	0.001618	0.001249	0.001014
Benzene	18.09	17.86	0.0014	0.0013	0.003653	0.002452	0.001637	0.001143	0.000852	0.000668
Acrolein	0.76	0.75	0.0001	0.0001	0.000156	0.0001	0.000068	0.000049	0.000037	0.000029
Acetaldehyde	16.52	16.26	0.0012	0.0012	0.003167	0.002416	0.001546	0.001007	0.000727	0.000546
Formaldehyde	38.29	37.71	0.0029	0.0028	0.007415	0.005527	0.003563	0.002349	0.001706	0.001293
Butadiene	3.68	3.63	0.0003	0.0003	0.000748	0.000491	0.000331	0.000234	0.000175	0.000138
Naphthalene	0.57	0.56	0.0000	0.0000	0.000113	0.000078	0.000052	0.000036	0.000027	0.000021
POM	0.68	0.67	0.0001	0.0000	0.000137	0.000094	0.000062	0.000042	0.000031	0.000024
Diesel PM	5.72	5.70	0.0004	0.0004	0.000631	0.000562	0.000468	0.000398	0.00035	0.000315
DEOG	187.05	183.98	0.0140	0.0137	0.035411	0.027909	0.017668	0.011285	0.008062	0.005984
Fleet Average Running Loss Emission Factors (grams/veh-hour)										
Pollutant Name			Emission Factor							
ROG	530.65	524.18	0.708245							
TOG	530.65	524.18	0.708245							
Benzene	5.31	5.24	0.007082							
Butadiene	0.00	0.00	0							
Naphthalene	0.74	0.73	0.000992							
Fleet Average Tire Wear Factors (grams/veh-mile)										
Pollutant Name			Emission Factor							
PM10	117.53	117.75	0.008775							
PM2.5	29.39	29.44	0.002194							
Fleet Average Brake Wear Factors (grams/veh-mile)										
Pollutant Name			Emission Factor							
PM10	543.72	544.74	0.040596							
PM2.5	233.02	233.46	0.017398							
Entrained Roadway Dust										
Pollutant Name			Emission Factor							
PM10	1864.83	1868.34	0.1392356 gm/mi							
PM2.5	279.81	280.33	0.02089143 gm/mi							
Total Emissions (lbs/day)										
Pollutant Name	No-Project	Project	Difference	GHG Metric Tons						
ROG	1102	1088	-14							
TOG	1286	1270	-16							
CO	8065	8030	-35							
NOx	3365	3302	-63							
CO2	5118494	5084694	-33801	847,438	841,842	(5,596)				
CH4	153	151	-2	-0.11%						
PM10	2553	2558	4.46							
PM2.5	567	568	0.75							
Benzene	23	23	-0.30							
Acrolein	1	1	-0.01							
Acetaldehyde	17	16	-0.26							
Formaldehyde	38	38	-0.58							
Butadiene	4	4	-0.05							
Naphthalene	1	1	-0.01							
POM	1	1	-0.01							
Diesel PM	6	6	-0.03							
DEOG	187	184	-3.07							

### **Attachment 3: Health Risk Calculation Methodology**

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.<sup>20</sup> These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.<sup>21</sup> This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.<sup>22</sup> Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

#### Cancer Risk

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the BAAQMD for residential exposures, 95<sup>th</sup> percentile breathing rates are used for the third trimester and infant exposures, and 80<sup>th</sup> percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95<sup>th</sup> percentile breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

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<sup>20</sup> OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

<sup>21</sup> CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

<sup>22</sup> BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD.

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity that would have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

Functionally, cancer risk is calculated using the following parameters and formulas:

$$\text{Cancer Risk (per million)} = \text{CPF} \times \text{Inhalation Dose} \times \text{ASF} \times \text{ED/AT} \times \text{FAH} \times 10^6$$

Where:

CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

$$\text{Inhalation Dose} = C_{\text{air}} \times \text{DBR} \times A \times (\text{EF}/365) \times 10^{-6}$$

Where:

C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10<sup>-6</sup> = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

Parameter	Exposure Type →	Infant		Child		Adult
	Age Range →	3 <sup>rd</sup> Trimester	0<2	2 < 9	2 < 16	16 - 30
DPM Cancer Potency Factor (mg/kg-day) <sup>-1</sup>		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80 <sup>th</sup> Percentile Rate		273	758	631	572	261
Daily Breathing Rate (L/kg-day) 95 <sup>th</sup> Percentile Rate		361	1,090	861	745	335
Inhalation Absorption Factor		1	1	1	1	1
Averaging Time (years)		70	70	70	70	70
Exposure Duration (years)		0.25	2	14	14	14
Exposure Frequency (days/year)		350	350	350	350	350
Age Sensitivity Factor		10	10	3	3	1
Fraction of Time at Home		0.85-1.0	0.85-1.0	0.72-1.0	0.72-1.0	0.73

## Non-Cancer Hazards

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

## Annual PM<sub>2.5</sub> Concentrations

While not a TAC, fine particulate matter (PM<sub>2.5</sub>) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for PM<sub>2.5</sub> (project level and cumulative) are in terms of an increase in the annual average concentration. When considering PM<sub>2.5</sub> impacts, the contribution from all sources of PM<sub>2.5</sub> emissions should be included. For projects with potential impacts from nearby local roadways, the PM<sub>2.5</sub> impacts should include those from vehicle exhaust emissions, PM<sub>2.5</sub> generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

## Attachment 4: Construction Health Risk Analysis

### Emission Rates

#### Charcot Avenue Road Extension, San Jose, California

##### DPM Emissions and Modeling Emission Rates - Without Mitigation

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m <sup>2</sup> )	DPM Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
				<b>2019-2020</b>	Construction West Road	0.0278		
	Construction East Road	0.0217	DPM_EAST	43.4	0.01322	1.67E-03	9,922	<b>1.68E-07</b>
	Construction East Road Alternative 1 & 2	0.0186	DPM_EAST1_2	37.3	0.01135	1.43E-03	9,922	<b>1.44E-07</b>
	Construction Bridge	0.0791	DPM_BRIDGE	158.3	0.04818	6.07E-03	3,584	<b>1.69E-06</b>

*Operation Hours*

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

#### Charcot Avenue Road Extension, San Jose, California

##### PM2.5 Fugitive Dust Emissions for Modeling - Without Mitigation

Construction Year	Activity	Area Source	PM2.5 Emissions				Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate g/s/m <sup>2</sup>
			(ton/year)	(lb/yr)	(lb/hr)	(g/s)		
<b>2019-2020</b>	Construction West Road	FUG_WEST	0.0311	62.2	0.01894	2.39E-03	8,735	<b>2.73E-07</b>
	Construction East Road	FUG_EAST	0.0263	52.6	0.01602	2.02E-03	9,922	<b>2.03E-07</b>
	Construction East Road Alternative 1 & 2	FUG_EAST1_2	0.0229	45.8	0.01393	1.76E-03	9,922	<b>1.77E-07</b>
	Construction Bridge	FUG_BRIDGE	0.3890	777.9	0.23681	2.98E-02	3,584	<b>8.33E-06</b>

*Operation Hours*

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

**DPM Construction Emissions and Modeling Emission Rates - Without Mitigation**

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m <sup>2</sup> )	DPM Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
2019-2020	Construction Road, East Alt 3	0.0185	DPM_ROADA3	37.0	0.01126	1.42E-03	6,104	2.33E-07

*Construction Hours*

hr/day = 9 (7am - 4pm)  
 days/yr = 365  
 hours/year = 3285

**PM2.5 Fugitive Dust Construction Emissions for Modeling - Without Mitigation**

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions			Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate g/s/m <sup>2</sup>
				(lb/yr)	(lb/hr)	(g/s)		
2019-2020	Construction Road, East Alt 3	FUG_ROAD3	0.0229	45.8	0.01393	1.76E-03	6,104	2.88E-07

*Construction Hours*

hr/day = 9 (7am - 4pm)  
 days/yr = 365  
 hours/year = 3285

## Project

### **Charcot Avenue Road Extension, San Jose, California Proposed Roadway Design (Project)**

#### **Maximum Impacts at Construction MEI (Residential) - Unmitigated (2019 rev)**

<b>Emissions Year</b>	<b>Maximum Concentrations</b>		<b>Cancer Risk (per million)</b>		<b>Hazard Index (-)</b>	<b>Maximum Annual PM2.5 Concentration (<math>\mu\text{g}/\text{m}^3</math>)</b>
	<b>Exhaust PM10/DPM (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Fugitive PM2.5 (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Infant/Child</b>	<b>Adult</b>		
	2019-2020	0.0171	0.0484	3.0	0.0	0.003

#### **Maximum Impacts at Orchard School District**

<b>Construction Year</b>	<b>Unmitigated Emissions</b>				
	<b>Maximum Concentrations</b>		<b>Child Cancer Risk (per million)</b>	<b>Hazard Index (-)</b>	<b>Maximum Annual PM2.5 Concentration (<math>\mu\text{g}/\text{m}^3</math>)</b>
	<b>Exhaust PM2.5/DPM (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Fugitive PM2.5 (<math>\mu\text{g}/\text{m}^3</math>)</b>			
2019-2020	0.0178	0.1184	0.5	0.00	0.14

**Charcot Avenue Road Extension, San Jose, California**  
**Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 4 lane design (Project)**  
**Impacts at Off-Site MEI Location - 1.5 meter receptor height**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates for infants and 80th percentile for children and adults

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
			DPM Conc (ug/m3)				Modeled		Age Sensitivity Factor			
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	2019	0.0171	10	0.23	2019-2020	0.0171	-	-		
1	1	0 - 1	2019	0.0171	10	2.82	2019-2020	0.0171	1	0.05	0.0484	0.0656
2	1	1 - 2				0.00				0.00		
3	1	2 - 3				0.00				0.00		
4	1	3 - 4				0.00				0.00		
5	1	4 - 5				0.00				0.00		
6	1	5 - 6				0.00				0.00		
7	1	6 - 7				0.00				0.00		
8	1	7 - 8				0.00				0.00		
9	1	8 - 9				0.00				0.00		
10	1	9 - 10				0.00				0.00		
11	1	10 - 11				0.00				0.00		
12	1	11 - 12				0.00				0.00		
13	1	12 - 13				0.00				0.00		
14	1	13 - 14				0.00				0.00		
15	1	14 - 15				0.00				0.00		
16	1	15 - 16				0.00				0.00		
17	1	16-17				0.00				0.00		
18	1	17-18				0.00				0.00		
19	1	18-19				0.00				0.00		
20	1	19-20				0.00				0.00		
21	1	20-21				0.00				0.00		
22	1	21-22				0.00				0.00		
23	1	22-23				0.00				0.00		
24	1	23-24				0.00				0.00		
25	1	24-25				0.00				0.00		
26	1	25-26				0.00				0.00		
27	1	26-27				0.00				0.00		
28	1	27-28				0.00				0.00		
29	1	28-29				0.00				0.00		
30	1	29-30				0.00				0.00		
<b>Total Increased Cancer Risk</b>						<b>3.05</b>				<b>0.05</b>		

\* Third trimester of pregnancy



**Orchard School District, San Jose CA - Construction Impacts - Without Mitigation  
 Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 4 lane design (Pro  
 Daycare - 1.0 meters - Child Exposure**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates for infants and 80th percentile for children and adults

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Child - Exposure Information			Child Cancer Risk (per million)	Maximum	
		DPM Conc (ug/m3)		Age* Sensitivity Factor		Fugitive PM2.5	Total PM2.5
		Year	Annual				
1	1	2019-2020	0.0178	3	0.5	0.1184	0.1362

\* Children assumed to be from 3 to 13 years of age

**Alternatives 1 & 2**

**Charcot Avenue Road Extension, San Jose, California  
Alternative 1 & 2 Roadway Design (3 Lanes)**

**Maximum Impacts at Construction MEI (Residential) - Unmitigated (2019 rev)**

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM10/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )	Infant/Child	Adult		
	2019-2020	0.0149	0.0431	2.6	0.0	0.003

**Maximum Impacts at Orchard School District**

Construction Year	Unmitigated Emissions				
	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM2.5/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )			
2019-2020	0.0155	0.1041	0.4	0.00	0.15

**Charcot Avenue Road Extension, San Jose, California**  
**Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 3 lane design (Alt 1 & 2)**  
**Impacts at Off-Site MEI Location - 1.5 meter receptor height**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates for infants and 80th percentile for children and adults

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
			DPM Conc (ug/m3)				Modeled		Age Sensitivity Factor			
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	2019-2020	0.0149	10	0.20	2019-2020	0.0149	-	-		
1	1	0 - 1	2019-2020	0.0149	10	2.45	2019-2020	0.0149	1	0.04	0.0431	0.0580
2	1	1 - 2				0.00				0.00		
3	1	2 - 3				0.00				0.00		
4	1	3 - 4				0.00				0.00		
5	1	4 - 5				0.00				0.00		
6	1	5 - 6				0.00				0.00		
7	1	6 - 7				0.00				0.00		
8	1	7 - 8				0.00				0.00		
9	1	8 - 9				0.00				0.00		
10	1	9 - 10				0.00				0.00		
11	1	10 - 11				0.00				0.00		
12	1	11 - 12				0.00				0.00		
13	1	12 - 13				0.00				0.00		
14	1	13 - 14				0.00				0.00		
15	1	14 - 15				0.00				0.00		
16	1	15 - 16				0.00				0.00		
17	1	16-17				0.00				0.00		
18	1	17-18				0.00				0.00		
19	1	18-19				0.00				0.00		
20	1	19-20				0.00				0.00		
21	1	20-21				0.00				0.00		
22	1	21-22				0.00				0.00		
23	1	22-23				0.00				0.00		
24	1	23-24				0.00				0.00		
25	1	24-25				0.00				0.00		
26	1	25-26				0.00				0.00		
27	1	26-27				0.00				0.00		
28	1	27-28				0.00				0.00		
29	1	28-29				0.00				0.00		
30	1	29-30				0.00				0.00		
<b>Total Increased Cancer Risk</b>						<b>2.65</b>				<b>0.04</b>		

\* Third trimester of pregnancy

**Orchard School District, San Jose CA - Construction Impacts - Without Mitigation  
 Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 3 lane design (Alt 1 & 2)  
 Daycare - 1.0 meters - Child Exposure**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

Age -->	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates for infants and 80th percentile for children and adults

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Child - Exposure Information			Child Cancer Risk (per million)	Maximum	
		DPM Conc (ug/m3)		Age* Sensitivity Factor		Fugitive PM2.5	Total PM2.5
		Year	Annual				
1	1	2019-2020	0.0155	3	0.4	0.1041	0.1497

\* Children assumed to be from 5 to 13 years of age

### Alternative 3

#### Charcot Avenue Roadway Extension, San Jose, CA (Alternative 3, Two Lanes East Section)

##### Maximum Impacts at Construction MEI (Residential) - Unmitigated (2019 rev)

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM10/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )	Infant/Child	Adult		
	2019-2020	0.0139	0.0461	2.5	0.0	0.003

##### Maximum Impacts at Orchard School District

Construction Year	Unmitigated Emissions				
	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ( $\mu\text{g}/\text{m}^3$ )
	Exhaust PM2.5/DPM ( $\mu\text{g}/\text{m}^3$ )	Fugitive PM2.5 ( $\mu\text{g}/\text{m}^3$ )			
2019-2020	0.0171	0.0825	0.5	0.00	0.10

**Charcot Avenue Roadway Extension, San Jose, CA (Alternative 3, Two Lanes East Section)  
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction of 3 lane design  
Impacts at Off-Site MEI Location - 1.5 meter receptor height**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
ASF = Age sensitivity factor for specified age group  
ED = Exposure duration (years)  
AT = Averaging time for lifetime cancer risk (years)  
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
DBR = daily breathing rate (L/kg body weight-day)  
A = Inhalation absorption factor  
EF = Exposure frequency (days/year)  
10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates for infants and 80th percentile for children and adults

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information		Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
			DPM Conc (ug/m3)				Modeled		Age Sensitivity Factor			
			Year	Annual			Year	Annual				
0	0.25	-0.25 - 0*	2019-2020	0.0139	10	0.19	2019-2020	0.0139	-	-		
1	1	0 - 1	2019-2020	0.0139	10	2.29	2019-2020	0.0139	1	0.04	0.0461	0.0600
2	1	1 - 2				0.00				0.00		
3	1	2 - 3				0.00				0.00		
4	1	3 - 4				0.00				0.00		
5	1	4 - 5				0.00				0.00		
6	1	5 - 6				0.00				0.00		
7	1	6 - 7				0.00				0.00		
8	1	7 - 8				0.00				0.00		
9	1	8 - 9				0.00				0.00		
10	1	9 - 10				0.00				0.00		
11	1	10 - 11				0.00				0.00		
12	1	11 - 12				0.00				0.00		
13	1	12 - 13				0.00				0.00		
14	1	13 - 14				0.00				0.00		
15	1	14 - 15				0.00				0.00		
16	1	15 - 16				0.00				0.00		
17	1	16-17				0.00				0.00		
18	1	17-18				0.00				0.00		
19	1	18-19				0.00				0.00		
20	1	19-20				0.00				0.00		
21	1	20-21				0.00				0.00		
22	1	21-22				0.00				0.00		
23	1	22-23				0.00				0.00		
24	1	23-24				0.00				0.00		
25	1	24-25				0.00				0.00		
26	1	25-26				0.00				0.00		
27	1	26-27				0.00				0.00		
28	1	27-28				0.00				0.00		
29	1	28-29				0.00				0.00		
30	1	29-30				0.00				0.00		
<b>Total Increased Cancer Risk</b>						<b>2.48</b>				<b>0.04</b>		

\* Third trimester of pregnancy

**Orchard School District, San Jose CA - Construction Impacts - Without Mitigation  
Maximum DPM Cancer Risk Calculations From Construction of Two Lane Roadway Design  
Daycare - 1.0 meters - Child Exposure**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates for infants and 80th percentile for children and adults

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Child - Exposure Information			Child Cancer Risk (per million)	Maximum	
		DPM Conc (ug/m3)		Age* Sensitivity Factor		Fugitive PM2.5	Total PM2.5
		Year	Annual				
1	1	2019-2020	0.0171	3	0.0825	0.0996	

\* Children assumed to be from 3 to 13 years of age

# Attachment 5: Charcot Avenue and Oakland Road Traffic Community Risk Modeling Emissions and Health Risk Calculations

## Proposed Project – Charcot Avenue and Oakland Road Traffic Emissions

### Charcot Avenue Traffic Emissions

Santa Clara (SF) - 2020 - Annual.EC.txt

File Name: Santa Clara (SF) - 2020 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/21/2019 1:44:59 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2020  
 Season: Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction within Category
Truck 1	0.020	0.523
Truck 2	0.032	0.945
Non-Truck	0.948	0.012

---

Road Length: 0.4 miles  
 Volume: 770 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 3 minutes per vehicle  
 Tot. Idling Time: 128.33 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	0.00%
25	100.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

---

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire Wear (grams)	Brake Wear (grams)	Total (grams)	Total (US tons)
ROG	156.6	81.7	220.9	-	-	459.1	<0.001
TOG	208.1	110.8	220.9	-	-	539.8	<0.001
CO	3,468.8	768.6	-	-	-	4,237.4	0.005
NOx	934.2	300.9	-	-	-	1,235.1	0.001
CO2	1,351,333.8	351,770.2	-	-	-	1,703,104.0	1.875
CH4	42.9	24.7	-	-	-	67.6	<0.001
PM10	12.7	5.3	-	26.6	125.8	170.2	<0.001
PM2.5	11.9	5.0	-	6.7	31.8	55.4	<0.001
Benzene	4.9	2.5	2.2	-	-	9.6	<0.001
Acrolein	0.2	0.1	-	-	-	0.3	<0.001
Acetaldehyde	3.5	1.4	-	-	-	4.9	<0.001
Formaldehyde	8.5	3.6	-	-	-	12.1	<0.001
Butadiene	1.0	0.5	0.0	-	-	1.6	<0.001
Naphthalene	0.1	<0.1	0.3	-	-	0.5	<0.001
POM	0.2	0.1	-	-	-	0.3	<0.001
Diesel PM	5.3	1.8	-	-	-	7.1	<0.001
DEOG	37.6	13.8	-	-	-	51.4	<0.001

====END====



File Name: Santa Clara (SF) - 2020 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/22/2019 6:37:13 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2020  
 Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category
Truck 1	0.020	0.523
Truck 2	0.032	0.945
Non-Truck	0.948	0.012

Road Length: 0.4 miles  
 Volume: 800 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 1 minutes per vehicle  
 Tot. Idling Time: 133.33 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	0.00%
25	100.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire Wear (grams)	Brake Wear (grams)	Total (grams)	Total (US tons)
HC	192.1	103.6	214.6	-	-	510.3	<0.001
ROG	162.7	84.9	229.5	-	-	477.0	<0.001
TOG	216.3	115.1	229.5	-	-	560.9	<0.001
CO	3,603.9	798.6	-	-	-	4,402.5	0.005
NOX	970.6	312.6	-	-	-	1,283.2	0.001
CO2	1,404,190.9	365,475.5	-	-	-	1,769,666.4	1.951
CH4	44.5	25.7	-	-	-	70.2	<0.001
PM10	13.2	5.5	-	27.6	130.4	176.8	<0.001
PM2.5	12.4	5.2	-	6.9	55.9	80.3	<0.001
Benzene	5.1	2.6	2.3	-	-	10.0	<0.001
Acrolein	0.2	0.1	-	-	-	0.4	<0.001
Acetaldehyde	3.6	1.4	-	-	-	5.0	<0.001
Formaldehyde	8.8	3.8	-	-	-	12.6	<0.001
Butadiene	1.1	0.6	0.0	-	-	1.6	<0.001
Naphthalene	0.1	<0.1	0.3	-	-	0.5	<0.001
POM	0.2	0.1	-	-	-	0.3	<0.001
Diesel PM	5.5	1.9	-	-	-	7.4	<0.001
DEOG	39.1	14.3	-	-	-	53.4	<0.001

END

Santa Clara (SF) - 2020 - Annual.EC TOG.txt

File Name: Santa Clara (SF) - 2020 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/22/2019 5:30:19 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2020  
 Season: Annual

Vehicle Category	VMT Fraction	
	Across Category	Diesel VMT Fraction Within Category
Truck 1	0.000	0.523
Truck 2	0.000	0.945
Non-Truck	1.000	0.012

Road Length: 0.4 miles  
 Volume: 760 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 1 minutes per vehicle  
 Tot. Idling Time: 126.67 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	0.00%
25	100.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire Wear (grams)	Brake Wear (grams)	Total (grams)	Total (US tons)
TOG	177.5	79.3	212.1	-	-	468.9	<0.001
Benzene	4.3	1.9	2.1	-	-	8.3	<0.001
Acrolein	0.2	<0.1	-	-	-	0.3	<0.001
Acetaldehyde	1.1	0.6	-	-	-	1.6	<0.001
Formaldehyde	3.7	1.8	-	-	-	5.5	<0.001
Butadiene	1.0	0.4	0.0	-	-	1.4	<0.001
Naphthalene	0.1	<0.1	0.3	-	-	0.5	<0.001
POM	0.2	<0.1	-	-	-	0.2	<0.001
Diesel PM	1.6	0.6	-	-	-	2.1	<0.001
DEOG	4.3	3.3	-	-	-	7.6	<0.001

END

Santa Clara (SF) - 2025 - Annual.EC.txt

File Name: Santa Clara (SF) - 2025 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/21/2019 1:50:17 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2025  
 Season: Annual

Vehicle Category	VMT Fraction	
	Across Category	Diesel VMT Fraction Within Category
Truck 1	0.018	0.591
Truck 2	0.035	0.945
Non-Truck	0.947	0.013

Road Length: 0.4 miles  
 Volume: 1,000 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 1 minutes per vehicle  
 Tot. Idling Time: 166.67 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	0.00%
25	100.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire Wear (grams)	Brake Wear (grams)	Total (grams)	Total (US tons)
HC	173.1	94.4	211.9	-	-	479.3	<0.001
ROG	144.8	77.9	226.5	-	-	449.2	<0.001
TOG	193.8	105.1	226.5	-	-	525.4	<0.001
CO	3,229.9	721.5	-	-	-	3,951.4	0.004
NOx	727.1	271.3	-	-	-	998.4	0.001
CO2	1,486,081.8	381,917.7	-	-	-	1,867,999.5	2.059
CH4	41.2	22.9	-	-	-	64.1	<0.001
PM10	11.9	6.1	-	34.8	162.8	215.6	<0.001
PM2.5	11.1	5.6	-	8.7	69.8	95.2	<0.001
Benzene	4.6	2.4	2.3	-	-	9.3	<0.001
Acrolein	0.2	0.1	-	-	-	0.3	<0.001
Acetaldehyde	3.2	1.4	-	-	-	4.5	<0.001
Formaldehyde	7.8	3.6	-	-	-	11.4	<0.001
Butadiene	1.0	0.5	0.0	-	-	1.5	<0.001
Naphthalene	0.1	<0.1	0.3	-	-	0.5	<0.001
POM	0.2	0.1	-	-	-	0.3	<0.001
Diesel PM	2.6	1.7	-	-	-	4.5	<0.001
DEOG	33.6	14.1	-	-	-	47.7	<0.001

END

Non-Diesel Vehicle TOG Emissions

Santa Clara (SF) - 2025 - Annual.EC TOG.txt

File Name: Santa Clara (SF) - 2025 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/21/2019 1:54:27 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2025  
 Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category
Truck 1	0.000	0.591
Truck 2	0.000	0.945
Non-Truck	1.000	0.013

Road Length: 0.4 miles  
 Volume: 944 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 1 minutes per vehicle  
 Tot. Idling Time: 157.33 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	0.00%
25	100.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire Wear (grams)	Brake Wear (grams)	Total (grams)	Total (US tons)
TOG	160.7	72.8	209.1	-	-	442.6	<0.001
Benzene	3.9	1.8	2.1	-	-	7.7	<0.001
Acrolein	0.2	<0.1	-	-	-	0.3	<0.001
Acetaldehyde	0.9	0.5	-	-	-	1.5	<0.001
Formaldehyde	3.3	1.7	-	-	-	5.0	<0.001
Butadiene	0.9	0.4	0.0	-	-	1.3	<0.001
Naphthalene	0.1	<0.1	0.3	-	-	0.4	<0.001
PM	0.1	<0.1	-	-	-	0.2	<0.001
Diesel PM	1.1	0.4	-	-	-	1.5	<0.001
DEOG	3.5	2.9	-	-	-	6.4	<0.001

Santa Clara (SF) - 2040 - Annual.EC.txt

File Name: Santa Clara (SF) - 2040 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/21/2019 1:56:16 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2040  
 Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category
Truck 1	0.016	0.669
Truck 2	0.038	0.946
Non-Truck	0.946	0.014

Road Length: 0.4 miles  
 Volume: 1,320 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 1 minutes per vehicle  
 Tot. Idling Time: 220.00 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	100.00%
25	0.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire Wear (grams)	Brake Wear (grams)	Total (grams)	Total (US tons)
HC	222.2	84.0	199.9	-	-	506.1	<0.001
ROG	190.1	71.8	213.7	-	-	475.6	<0.001
TOG	293.4	94.4	213.7	-	-	599.5	<0.001
CO	2,973.4	637.2	-	-	-	3,610.6	0.004
NOx	1,039.1	250.1	-	-	-	1,289.2	0.001
CO2	1,838,407.0	392,194.2	-	-	-	2,230,601.1	2.459
CH4	51.0	18.7	-	-	-	69.7	<0.001
PM10	9.2	3.7	-	46.3	214.3	273.5	<0.001
PM2.5	8.5	3.4	-	11.6	91.9	115.4	<0.001
Benzene	6.0	2.2	2.1	-	-	10.4	<0.001
Acrolein	0.3	0.1	-	-	-	0.4	<0.001
Acetaldehyde	5.3	1.6	-	-	-	6.9	<0.001
Formaldehyde	12.4	3.9	-	-	-	16.3	<0.001
Butadiene	1.2	0.5	0.0	-	-	1.7	<0.001
Naphthalene	0.2	<0.1	0.3	-	-	0.6	<0.001
PM	0.2	<0.1	-	-	-	0.3	<0.001
Diesel PM	2.1	1.2	-	-	-	3.3	<0.001
DEOG	59.6	16.8	-	-	-	76.3	<0.001

Non-Diesel Vehicle TOG Emissions

Santa Clara (SF) - 2040 - Annual.EC TOG.txt

File Name: Santa Clara (SF) - 2040 - Annual.EC  
 CT-EMFAC Version: 6.0.0.18677  
 Run Date: 1/21/2019 2:01:44 PM  
 Area: Santa Clara (SF)  
 Analysis Year: 2040  
 Season: Annual

Vehicle Category	VMT Fraction	
	Across Category	Diesel VMT Fraction Within Category
Truck 1	0.000	0.669
Truck 2	0.000	0.946
Non-Truck	1.000	0.014

Road Length: 0.4 miles  
 Volume: 1,241 vehicles per hour  
 Number of Hours: 10 hours  
 Avg. Idling Time: 1 minutes per vehicle  
 Tot. Idling Time: 206.83 hours

VMT Distribution by Speed (mph):

5	0.00%
10	0.00%
15	0.00%
20	100.00%
25	0.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%
65	0.00%
70	0.00%
75	0.00%

Summary of Project Emissions

Pollutant Name	Running Exhaust (grams)	Idling Exhaust (grams)	Running Loss (grams)	Tire wear (grams)	Brake wear (grams)	Total (grams)	Total (US tons)
TOG	192.7	65.5	204.6	-	-	462.8	<0.001
Benzene	4.8	1.6	2.0	-	-	8.5	<0.001
Acrolein	0.3	<0.1	-	-	-	0.3	<0.001
Acetaldehyde	1.2	0.5	-	-	-	1.7	<0.001
Formaldehyde	4.1	1.5	-	-	-	5.7	<0.001
Butadiene	1.1	0.4	0.0	-	-	1.5	<0.001
Naphthalene	0.1	<0.1	0.3	-	-	0.5	<0.001
POM	0.2	<0.1	-	-	-	0.2	<0.001
Diesel PM	0.3	<0.1	-	-	-	0.3	<0.001
DEOG	3.8	2.1	-	-	-	5.9	<0.001

END

Charcot Ave, San Jose, CA

Operation - Proposed

DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions

Year = 2020

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles			
										Diesel Vehicles/Day	Non-Truck	MDT	HDT
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	186	42	12.7	3.4	25	4,000	208.3	46	42	121
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	3.4	25	4,000	208.3	46	42	121
Total									8,000	417	91	84	242
* Road segments north of Silk Wood Lane.									Fraction of Total Vehicles =		0.948	0.020	0.032
									Fraction Diesel in category =		0.012	0.523	0.945

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.40
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Diesel Traffic Volumes and DPM Emissions - Prop-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.16E-05	9	6.47%	1.91E-05	17	5.49%	11	1.62E-05
2	2.54%	5	7.51E-06	10	7.16%	2.12E-05	18	3.29%	7	9.73E-06
3	2.83%	6	8.36E-06	11	6.35%	1.88E-05	19	2.43%	5	7.17E-06
4	3.41%	7	1.01E-05	12	6.93%	2.05E-05	20	0.98%	2	2.90E-06
5	2.20%	5	6.49E-06	13	6.12%	1.81E-05	21	3.06%	6	9.05E-06
6	3.35%	7	9.90E-06	14	6.12%	1.81E-05	22	4.16%	9	1.23E-05
7	6.07%	13	1.79E-05	15	5.14%	1.52E-05	23	2.37%	5	7.00E-06
8	4.79%	10	1.42E-05	16	3.93%	1.16E-05	24	0.87%	2	2.56E-06
Total									208	

**2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Prop-SB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.16E-05	9	6.47%	1.91E-05	17	5.49%	11	1.62E-05
2	2.54%	5	7.51E-06	10	7.16%	2.12E-05	18	3.29%	7	9.73E-06
3	2.83%	6	8.36E-06	11	6.35%	1.88E-05	19	2.43%	5	7.17E-06
4	3.41%	7	1.01E-05	12	6.93%	2.05E-05	20	0.98%	2	2.90E-06
5	2.20%	5	6.49E-06	13	6.12%	1.81E-05	21	3.06%	6	9.05E-06
6	3.35%	7	9.90E-06	14	6.12%	1.81E-05	22	4.16%	9	1.23E-05
7	6.07%	13	1.79E-05	15	5.14%	1.52E-05	23	2.37%	5	7.00E-06
8	4.79%	10	1.42E-05	16	3.93%	1.16E-05	24	0.87%	2	2.56E-06
Total									208	

South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	4,000	208.3	46	42	121	
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	4,000	208.3	46	42	121	
									Total	8,000	417	91	84	242
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.948	0.020	0.032	
									Fraction Diesel in category =		0.012	0.523	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

2020 Hourly Diesel Traffic Volumes and DPM Emissions - Prop-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.75E-05	17	5.49%	11	4.03E-05
2	2.54%	5	1.87E-05	10	7.16%	5.26E-05	18	3.29%	7	2.42E-05
3	2.83%	6	2.08E-05	11	6.35%	4.67E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.09E-05	20	0.98%	2	7.21E-06
5	2.20%	5	1.61E-05	13	6.12%	4.50E-05	21	3.06%	6	2.25E-05
6	3.35%	7	2.46E-05	14	6.12%	4.50E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.45E-05	15	5.14%	3.78E-05	23	2.37%	5	1.74E-05
8	4.79%	10	3.52E-05	16	3.93%	2.88E-05	24	0.87%	2	6.36E-06
Total										208

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Prop-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.75E-05	17	5.49%	11	4.03E-05
2	2.54%	5	1.87E-05	10	7.16%	5.26E-05	18	3.29%	7	2.42E-05
3	2.83%	6	2.08E-05	11	6.35%	4.67E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.09E-05	20	0.98%	2	7.21E-06
5	2.20%	5	1.61E-05	13	6.12%	4.50E-05	21	3.06%	6	2.25E-05
6	3.35%	7	2.46E-05	14	6.12%	4.50E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.45E-05	15	5.14%	3.78E-05	23	2.37%	5	1.74E-05
8	4.79%	10	3.52E-05	16	3.93%	2.88E-05	24	0.87%	2	6.36E-06
Total										208

Charcot Ave, San Jose, CA  
 Operation - Proposed  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	186	42	12.7	1.3	25	4,000
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	4,000
								Total	8,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and PM2.5 Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	3.71E-05	9	7.11%	2.29E-04	17	7.38%	295	2.37E-04
2	0.42%	17	1.35E-05	10	4.39%	1.41E-04	18	8.17%	327	2.63E-04
3	0.41%	16	1.30E-05	11	4.67%	1.50E-04	19	5.70%	228	1.83E-04
4	0.27%	11	8.67E-06	12	5.89%	1.89E-04	20	4.27%	171	1.37E-04
5	0.50%	20	1.62E-05	13	6.15%	1.98E-04	21	3.26%	130	1.05E-04
6	0.91%	36	2.92E-05	14	6.03%	1.94E-04	22	3.30%	132	1.06E-04
7	3.80%	152	1.22E-04	15	7.01%	2.25E-04	23	2.46%	98	7.89E-05
8	7.76%	311	2.50E-04	16	7.13%	2.29E-04	24	1.87%	75	6.00E-05
Total									4,000	

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	3.71E-05	9	7.11%	2.29E-04	17	7.38%	295	2.37E-04
2	0.42%	17	1.35E-05	10	4.39%	1.41E-04	18	8.17%	327	2.63E-04
3	0.41%	16	1.30E-05	11	4.67%	1.50E-04	19	5.70%	228	1.83E-04
4	0.27%	11	8.67E-06	12	5.89%	1.89E-04	20	4.27%	171	1.37E-04
5	0.50%	20	1.62E-05	13	6.15%	1.98E-04	21	3.26%	130	1.05E-04
6	0.91%	36	2.92E-05	14	6.03%	1.94E-04	22	3.30%	132	1.06E-04
7	3.80%	152	1.22E-04	15	7.01%	2.25E-04	23	2.46%	98	7.89E-05
8	7.76%	311	2.50E-04	16	7.13%	2.29E-04	24	1.87%	75	6.00E-05
Total									4,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,000
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,000
								Total	8,000

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and PM2.5 Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	9.22E-05	9	7.11%	5.68E-04	17	7.38%	295	5.90E-04
2	0.42%	17	3.36E-05	10	4.39%	3.51E-04	18	8.17%	327	6.53E-04
3	0.41%	16	3.24E-05	11	4.67%	3.73E-04	19	5.70%	228	4.55E-04
4	0.27%	11	2.16E-05	12	5.89%	4.71E-04	20	4.27%	171	3.41E-04
5	0.50%	20	4.02E-05	13	6.15%	4.92E-04	21	3.26%	130	2.60E-04
6	0.91%	36	7.26E-05	14	6.03%	4.82E-04	22	3.30%	132	2.63E-04
7	3.80%	152	3.03E-04	15	7.01%	5.60E-04	23	2.46%	98	1.96E-04
8	7.76%	311	6.20E-04	16	7.13%	5.70E-04	24	1.87%	75	1.49E-04
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	9.22E-05	9	7.11%	5.68E-04	17	7.38%	295	5.90E-04
2	0.42%	17	3.36E-05	10	4.39%	3.51E-04	18	8.17%	327	6.53E-04
3	0.41%	16	3.24E-05	11	4.67%	3.73E-04	19	5.70%	228	4.55E-04
4	0.27%	11	2.16E-05	12	5.89%	4.71E-04	20	4.27%	171	3.41E-04
5	0.50%	20	4.02E-05	13	6.15%	4.92E-04	21	3.26%	130	2.60E-04
6	0.91%	36	7.26E-05	14	6.03%	4.82E-04	22	3.30%	132	2.63E-04
7	3.80%	152	3.03E-04	15	7.01%	5.60E-04	23	2.46%	98	1.96E-04
8	7.76%	311	6.20E-04	16	7.13%	5.70E-04	24	1.87%	75	1.49E-04
Total									4,000	



Charcot Ave, San Jose, CA  
 Operation - Proposed  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	186	42	12.7	1.3	25	3,800
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	3,800
								Total	7,600

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
Modeled Emission Rate (g/s) =	2.97E-03

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and TOG Exhaust Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	1.19E-04	9	7.11%	7.31E-04	17	7.38%	280	7.59E-04
2	0.42%	16	4.32E-05	10	4.39%	4.51E-04	18	8.17%	311	8.40E-04
3	0.41%	15	4.17E-05	11	4.67%	4.80E-04	19	5.70%	216	5.85E-04
4	0.27%	10	2.77E-05	12	5.89%	6.05E-04	20	4.27%	162	4.39E-04
5	0.50%	19	5.17E-05	13	6.15%	6.32E-04	21	3.26%	124	3.35E-04
6	0.91%	35	9.34E-05	14	6.03%	6.20E-04	22	3.30%	125	3.39E-04
7	3.80%	144	3.90E-04	15	7.01%	7.21E-04	23	2.46%	93	2.52E-04
8	7.76%	295	7.98E-04	16	7.13%	7.33E-04	24	1.87%	71	1.92E-04
Total									3,800	

2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	1.19E-04	9	7.11%	7.31E-04	17	7.38%	280	7.59E-04
2	0.42%	16	4.32E-05	10	4.39%	4.51E-04	18	8.17%	311	8.40E-04
3	0.41%	15	4.17E-05	11	4.67%	4.80E-04	19	5.70%	216	5.85E-04
4	0.27%	10	2.77E-05	12	5.89%	6.05E-04	20	4.27%	162	4.39E-04
5	0.50%	19	5.17E-05	13	6.15%	6.32E-04	21	3.26%	124	3.35E-04
6	0.91%	35	9.34E-05	14	6.03%	6.20E-04	22	3.30%	125	3.39E-04
7	3.80%	144	3.90E-04	15	7.01%	7.21E-04	23	2.46%	93	2.52E-04
8	7.76%	295	7.98E-04	16	7.13%	7.33E-04	24	1.87%	71	1.92E-04
Total									3,800	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	3,800
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
<b>Modeled Emission Rate (g/s) =</b>	<b>2.97E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.95E-04	9	7.11%	1.82E-03	17	7.38%	280	1.89E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.09E-03
3	0.41%	15	1.04E-04	11	4.67%	1.19E-03	19	5.70%	216	1.46E-03
4	0.27%	10	6.89E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.32E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.43E-04
7	3.80%	144	9.70E-04	15	7.01%	1.79E-03	23	2.46%	93	6.27E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.77E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.95E-04	9	7.11%	1.82E-03	17	7.38%	280	1.89E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.09E-03
3	0.41%	15	1.04E-04	11	4.67%	1.19E-03	19	5.70%	216	1.46E-03
4	0.27%	10	6.89E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.32E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.43E-04
7	3.80%	144	9.70E-04	15	7.01%	1.79E-03	23	2.46%	93	6.27E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.77E-04
Total									3,800	

Charcot Ave, San Jose, CA

Operation - Proposed

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2020

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	186	42	12.7	1.3	25	3,800
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	3,800
								Total	7,600

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Prop-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	9.79E-05	9	7.11%	6.04E-04	17	7.38%	280	6.27E-04
2	0.42%	16	3.57E-05	10	4.39%	3.73E-04	18	8.17%	311	6.94E-04
3	0.41%	15	3.45E-05	11	4.67%	3.96E-04	19	5.70%	216	4.84E-04
4	0.27%	10	2.29E-05	12	5.89%	5.00E-04	20	4.27%	162	3.63E-04
5	0.50%	19	4.27E-05	13	6.15%	5.22E-04	21	3.26%	124	2.76E-04
6	0.91%	35	7.71E-05	14	6.03%	5.12E-04	22	3.30%	125	2.80E-04
7	3.80%	144	3.22E-04	15	7.01%	5.95E-04	23	2.46%	93	2.08E-04
8	7.76%	295	6.59E-04	16	7.13%	6.06E-04	24	1.87%	71	1.58E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Prop-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	9.79E-05	9	7.11%	6.04E-04	17	7.38%	280	6.27E-04
2	0.42%	16	3.57E-05	10	4.39%	3.73E-04	18	8.17%	311	6.94E-04
3	0.41%	15	3.45E-05	11	4.67%	3.96E-04	19	5.70%	216	4.84E-04
4	0.27%	10	2.29E-05	12	5.89%	5.00E-04	20	4.27%	162	3.63E-04
5	0.50%	19	4.27E-05	13	6.15%	5.22E-04	21	3.26%	124	2.76E-04
6	0.91%	35	7.71E-05	14	6.03%	5.12E-04	22	3.30%	125	2.80E-04
7	3.80%	144	3.22E-04	15	7.01%	5.95E-04	23	2.46%	93	2.08E-04
8	7.76%	295	6.59E-04	16	7.13%	6.06E-04	24	1.87%	71	1.58E-04
Total									3,800	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	3,800
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.56E-03
2	0.42%	16	8.87E-05	10	4.39%	9.26E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.56E-05	11	4.67%	9.85E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.69E-05	12	5.89%	1.24E-03	20	4.27%	162	9.02E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.87E-04
6	0.91%	35	1.92E-04	14	6.03%	1.27E-03	22	3.30%	125	6.96E-04
7	3.80%	144	8.01E-04	15	7.01%	1.48E-03	23	2.46%	93	5.18E-04
8	7.76%	295	1.64E-03	16	7.13%	1.51E-03	24	1.87%	71	3.94E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.56E-03
2	0.42%	16	8.87E-05	10	4.39%	9.26E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.56E-05	11	4.67%	9.85E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.69E-05	12	5.89%	1.24E-03	20	4.27%	162	9.02E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.87E-04
6	0.91%	35	1.92E-04	14	6.03%	1.27E-03	22	3.30%	125	6.96E-04
7	3.80%	144	8.01E-04	15	7.01%	1.48E-03	23	2.46%	93	5.18E-04
8	7.76%	295	1.64E-03	16	7.13%	1.51E-03	24	1.87%	71	3.94E-04
Total									3,800	

Charcot Ave, San Jose, CA

Operation - Proposed

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	186	42	12.7	1.3	25	4,000
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	4,000
								Total	8,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>5.66E-04</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	2.26E-05	9	7.11%	1.39E-04	17	7.38%	295	1.44E-04
2	0.42%	17	8.22E-06	10	4.39%	8.59E-05	18	8.17%	327	1.60E-04
3	0.41%	16	7.94E-06	11	4.67%	9.13E-05	19	5.70%	228	1.11E-04
4	0.27%	11	5.28E-06	12	5.89%	1.15E-04	20	4.27%	171	8.36E-05
5	0.50%	20	9.84E-06	13	6.15%	1.20E-04	21	3.26%	130	6.37E-05
6	0.91%	36	1.78E-05	14	6.03%	1.18E-04	22	3.30%	132	6.45E-05
7	3.80%	152	7.43E-05	15	7.01%	1.37E-04	23	2.46%	98	4.81E-05
8	7.76%	311	1.52E-04	16	7.13%	1.40E-04	24	1.87%	75	3.65E-05
Total									4,000	

2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	2.26E-05	9	7.11%	1.39E-04	17	7.38%	295	1.44E-04
2	0.42%	17	8.22E-06	10	4.39%	8.59E-05	18	8.17%	327	1.60E-04
3	0.41%	16	7.94E-06	11	4.67%	9.13E-05	19	5.70%	228	1.11E-04
4	0.27%	11	5.28E-06	12	5.89%	1.15E-04	20	4.27%	171	8.36E-05
5	0.50%	20	9.84E-06	13	6.15%	1.20E-04	21	3.26%	130	6.37E-05
6	0.91%	36	1.78E-05	14	6.03%	1.18E-04	22	3.30%	132	6.45E-05
7	3.80%	152	7.43E-05	15	7.01%	1.37E-04	23	2.46%	98	4.81E-05
8	7.76%	311	1.52E-04	16	7.13%	1.40E-04	24	1.87%	75	3.65E-05
Total									4,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,000
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,000
								Total	8,000

\* Road segments south of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>5.66E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	5.61E-05	9	7.11%	3.46E-04	17	7.38%	295	3.59E-04
2	0.42%	17	2.04E-05	10	4.39%	2.14E-04	18	8.17%	327	3.98E-04
3	0.41%	16	1.97E-05	11	4.67%	2.27E-04	19	5.70%	228	2.77E-04
4	0.27%	11	1.31E-05	12	5.89%	2.87E-04	20	4.27%	171	2.08E-04
5	0.50%	20	2.45E-05	13	6.15%	2.99E-04	21	3.26%	130	1.58E-04
6	0.91%	36	4.42E-05	14	6.03%	2.94E-04	22	3.30%	132	1.60E-04
7	3.80%	152	1.85E-04	15	7.01%	3.41E-04	23	2.46%	98	1.19E-04
8	7.76%	311	3.78E-04	16	7.13%	3.47E-04	24	1.87%	75	9.08E-05
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	5.61E-05	9	7.11%	3.46E-04	17	7.38%	295	3.59E-04
2	0.42%	17	2.04E-05	10	4.39%	2.14E-04	18	8.17%	327	3.98E-04
3	0.41%	16	1.97E-05	11	4.67%	2.27E-04	19	5.70%	228	2.77E-04
4	0.27%	11	1.31E-05	12	5.89%	2.87E-04	20	4.27%	171	2.08E-04
5	0.50%	20	2.45E-05	13	6.15%	2.99E-04	21	3.26%	130	1.58E-04
6	0.91%	36	4.42E-05	14	6.03%	2.94E-04	22	3.30%	132	1.60E-04
7	3.80%	152	1.85E-04	15	7.01%	3.41E-04	23	2.46%	98	1.19E-04
8	7.76%	311	3.78E-04	16	7.13%	3.47E-04	24	1.87%	75	9.08E-05
Total									4,000	

**Charcot Ave, San Jose, CA**

**Operation - Proposed Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2020

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	8,000	0.40	48.9

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA

Operation - Proposed

DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions

Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	3.4	25	5,000	280.1	62	53	165	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	3.4	25	5,000	280.1	62	53	165	
Total									10,000	560	123	106	331	
* Road segments north of Silk Wood Lane.										Fraction of Total Vehicles =		0.947	0.018	0.035
										Fraction Diesel in category =		0.013	0.591	0.945

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	7.14E-06	9	6.41%	1.16E-05	17	5.55%	16	1.01E-05
2	2.62%	7	4.76E-06	10	7.36%	1.34E-05	18	3.16%	9	5.73E-06
3	2.85%	8	5.18E-06	11	6.34%	1.15E-05	19	2.36%	7	4.28E-06
4	3.31%	9	6.00E-06	12	6.92%	1.26E-05	20	0.87%	2	1.57E-06
5	2.17%	6	3.93E-06	13	6.29%	1.14E-05	21	3.09%	9	5.61E-06
6	3.36%	9	6.11E-06	14	6.23%	1.13E-05	22	4.12%	12	7.47E-06
7	6.00%	17	1.09E-05	15	5.15%	9.35E-06	23	2.58%	7	4.68E-06
8	4.58%	13	8.32E-06	16	3.84%	6.97E-06	24	0.92%	3	1.67E-06
Total									280	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	7.14E-06	9	6.41%	1.16E-05	17	5.55%	16	1.01E-05
2	2.62%	7	4.76E-06	10	7.36%	1.34E-05	18	3.16%	9	5.73E-06
3	2.85%	8	5.18E-06	11	6.34%	1.15E-05	19	2.36%	7	4.28E-06
4	3.31%	9	6.00E-06	12	6.92%	1.26E-05	20	0.87%	2	1.57E-06
5	2.17%	6	3.93E-06	13	6.29%	1.14E-05	21	3.09%	9	5.61E-06
6	3.36%	9	6.11E-06	14	6.23%	1.13E-05	22	4.12%	12	7.47E-06
7	6.00%	17	1.09E-05	15	5.15%	9.35E-06	23	2.58%	7	4.68E-06
8	4.58%	13	8.32E-06	16	3.84%	6.97E-06	24	0.92%	3	1.67E-06
Total									280	



South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles				
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	5,000	280.1	62	53	165
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	5,000	280.1	62	53	165
Total									10,000	560	123	106	331
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.947	0.018	0.035
									Fraction Diesel in category =		0.013	0.591	0.945

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Prop-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.87E-05	17	5.55%	16	2.49E-05
2	2.62%	7	1.17E-05	10	7.36%	3.30E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.28E-05	11	6.34%	2.84E-05	19	2.36%	7	1.06E-05
4	3.31%	9	1.48E-05	12	6.92%	3.10E-05	20	0.87%	2	3.87E-06
5	2.17%	6	9.70E-06	13	6.29%	2.82E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.51E-05	14	6.23%	2.79E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.31E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.13E-06
Total									280	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Prop-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.87E-05	17	5.55%	16	2.49E-05
2	2.62%	7	1.17E-05	10	7.36%	3.30E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.28E-05	11	6.34%	2.84E-05	19	2.36%	7	1.06E-05
4	3.31%	9	1.48E-05	12	6.92%	3.10E-05	20	0.87%	2	3.87E-06
5	2.17%	6	9.70E-06	13	6.29%	2.82E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.51E-05	14	6.23%	2.79E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.31E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.13E-06
Total									280	

Charcot Ave, San Jose, CA  
 Operation - Proposed  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	5,000	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	5,000	
									Total	10,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and PM2.5 Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.15%	57	4.42E-05	9	7.11%	2.73E-04	17	7.39%	369	2.84E-04	
2	0.42%	21	1.62E-05	10	4.39%	1.68E-04	18	8.18%	409	3.14E-04	
3	0.41%	20	1.57E-05	11	4.66%	1.79E-04	19	5.69%	285	2.19E-04	
4	0.26%	13	9.99E-06	12	5.89%	2.26E-04	20	4.28%	214	1.64E-04	
5	0.50%	25	1.91E-05	13	6.15%	2.36E-04	21	3.25%	163	1.25E-04	
6	0.91%	45	3.48E-05	14	6.04%	2.32E-04	22	3.30%	165	1.27E-04	
7	3.79%	189	1.45E-04	15	7.01%	2.69E-04	23	2.46%	123	9.45E-05	
8	7.77%	388	2.98E-04	16	7.14%	2.74E-04	24	1.86%	93	7.16E-05	
									Total	5,000	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.15%	57	4.42E-05	9	7.11%	2.73E-04	17	7.39%	369	2.84E-04	
2	0.42%	21	1.62E-05	10	4.39%	1.68E-04	18	8.18%	409	3.14E-04	
3	0.41%	20	1.57E-05	11	4.66%	1.79E-04	19	5.69%	285	2.19E-04	
4	0.26%	13	9.99E-06	12	5.89%	2.26E-04	20	4.28%	214	1.64E-04	
5	0.50%	25	1.91E-05	13	6.15%	2.36E-04	21	3.25%	163	1.25E-04	
6	0.91%	45	3.48E-05	14	6.04%	2.32E-04	22	3.30%	165	1.27E-04	
7	3.79%	189	1.45E-04	15	7.01%	2.69E-04	23	2.46%	123	9.45E-05	
8	7.77%	388	2.98E-04	16	7.14%	2.74E-04	24	1.86%	93	7.16E-05	
									Total	5,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	5,000
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	5,000
								Total	10,000

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and PM2.5 Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	1.09E-04	9	7.11%	6.74E-04	17	7.39%	369	7.00E-04
2	0.42%	21	3.99E-05	10	4.39%	4.16E-04	18	8.18%	409	7.74E-04
3	0.41%	20	3.87E-05	11	4.66%	4.42E-04	19	5.69%	285	5.39E-04
4	0.26%	13	2.46E-05	12	5.89%	5.58E-04	20	4.28%	214	4.05E-04
5	0.50%	25	4.71E-05	13	6.15%	5.83E-04	21	3.25%	163	3.08E-04
6	0.91%	45	8.59E-05	14	6.04%	5.72E-04	22	3.30%	165	3.12E-04
7	3.79%	189	3.59E-04	15	7.01%	6.64E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.36E-04	16	7.14%	6.76E-04	24	1.86%	93	1.77E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	1.09E-04	9	7.11%	6.74E-04	17	7.39%	369	7.00E-04
2	0.42%	21	3.99E-05	10	4.39%	4.16E-04	18	8.18%	409	7.74E-04
3	0.41%	20	3.87E-05	11	4.66%	4.42E-04	19	5.69%	285	5.39E-04
4	0.26%	13	2.46E-05	12	5.89%	5.58E-04	20	4.28%	214	4.05E-04
5	0.50%	25	4.71E-05	13	6.15%	5.83E-04	21	3.25%	163	3.08E-04
6	0.91%	45	8.59E-05	14	6.04%	5.72E-04	22	3.30%	165	3.12E-04
7	3.79%	189	3.59E-04	15	7.01%	6.64E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.36E-04	16	7.14%	6.76E-04	24	1.86%	93	1.77E-04
Total									5,000	

Charcot Ave, San Jose, CA  
 Operation - Proposed  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	4,720
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	4,720
								Total	9,440

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	1.08E-04	9	7.11%	6.70E-04	17	7.39%	349	6.96E-04
2	0.42%	20	3.97E-05	10	4.39%	4.13E-04	18	8.18%	386	7.70E-04
3	0.41%	19	3.85E-05	11	4.66%	4.39E-04	19	5.69%	269	5.36E-04
4	0.26%	12	2.45E-05	12	5.89%	5.55E-04	20	4.28%	202	4.03E-04
5	0.50%	23	4.68E-05	13	6.15%	5.79E-04	21	3.25%	154	3.07E-04
6	0.91%	43	8.54E-05	14	6.04%	5.69E-04	22	3.30%	156	3.11E-04
7	3.79%	179	3.57E-04	15	7.01%	6.61E-04	23	2.46%	116	2.32E-04
8	7.77%	367	7.32E-04	16	7.14%	6.73E-04	24	1.86%	88	1.76E-04
Total									4,720	

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	1.08E-04	9	7.11%	6.70E-04	17	7.39%	349	6.96E-04
2	0.42%	20	3.97E-05	10	4.39%	4.13E-04	18	8.18%	386	7.70E-04
3	0.41%	19	3.85E-05	11	4.66%	4.39E-04	19	5.69%	269	5.36E-04
4	0.26%	12	2.45E-05	12	5.89%	5.55E-04	20	4.28%	202	4.03E-04
5	0.50%	23	4.68E-05	13	6.15%	5.79E-04	21	3.25%	154	3.07E-04
6	0.91%	43	8.54E-05	14	6.04%	5.69E-04	22	3.30%	156	3.11E-04
7	3.79%	179	3.57E-04	15	7.01%	6.61E-04	23	2.46%	116	2.32E-04
8	7.77%	367	7.32E-04	16	7.14%	6.73E-04	24	1.86%	88	1.76E-04
Total									4,720	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,720
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.67E-04	9	7.11%	1.65E-03	17	7.39%	349	1.72E-03
2	0.42%	20	9.80E-05	10	4.39%	1.02E-03	18	8.18%	386	1.90E-03
3	0.41%	19	9.48E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.04E-05	12	5.89%	1.37E-03	20	4.28%	202	9.93E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.56E-04
6	0.91%	43	2.11E-04	14	6.04%	1.40E-03	22	3.30%	156	7.66E-04
7	3.79%	179	8.80E-04	15	7.01%	1.63E-03	23	2.46%	116	5.72E-04
8	7.77%	367	1.80E-03	16	7.14%	1.66E-03	24	1.86%	88	4.33E-04
Total									4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.67E-04	9	7.11%	1.65E-03	17	7.39%	349	1.72E-03
2	0.42%	20	9.80E-05	10	4.39%	1.02E-03	18	8.18%	386	1.90E-03
3	0.41%	19	9.48E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.04E-05	12	5.89%	1.37E-03	20	4.28%	202	9.93E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.56E-04
6	0.91%	43	2.11E-04	14	6.04%	1.40E-03	22	3.30%	156	7.66E-04
7	3.79%	179	8.80E-04	15	7.01%	1.63E-03	23	2.46%	116	5.72E-04
8	7.77%	367	1.80E-03	16	7.14%	1.66E-03	24	1.86%	88	4.33E-04
Total									4,720	

Charcot Ave, San Jose, CA

Operation - Proposed

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	4,720	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	4,720	
									Total	9,440

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	9.70E-05	9	7.11%	6.00E-04	17	7.39%	349	6.23E-04
2	0.42%	20	3.56E-05	10	4.39%	3.70E-04	18	8.18%	386	6.90E-04
3	0.41%	19	3.44E-05	11	4.66%	3.93E-04	19	5.69%	269	4.80E-04
4	0.26%	12	2.19E-05	12	5.89%	4.97E-04	20	4.28%	202	3.61E-04
5	0.50%	23	4.19E-05	13	6.15%	5.19E-04	21	3.25%	154	2.75E-04
6	0.91%	43	7.65E-05	14	6.04%	5.09E-04	22	3.30%	156	2.78E-04
7	3.79%	179	3.20E-04	15	7.01%	5.92E-04	23	2.46%	116	2.08E-04
8	7.77%	367	6.55E-04	16	7.14%	6.02E-04	24	1.86%	88	1.57E-04
									Total	4,720

2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	9.70E-05	9	7.11%	6.00E-04	17	7.39%	349	6.23E-04
2	0.42%	20	3.56E-05	10	4.39%	3.70E-04	18	8.18%	386	6.90E-04
3	0.41%	19	3.44E-05	11	4.66%	3.93E-04	19	5.69%	269	4.80E-04
4	0.26%	12	2.19E-05	12	5.89%	4.97E-04	20	4.28%	202	3.61E-04
5	0.50%	23	4.19E-05	13	6.15%	5.19E-04	21	3.25%	154	2.75E-04
6	0.91%	43	7.65E-05	14	6.04%	5.09E-04	22	3.30%	156	2.78E-04
7	3.79%	179	3.20E-04	15	7.01%	5.92E-04	23	2.46%	116	2.08E-04
8	7.77%	367	6.55E-04	16	7.14%	6.02E-04	24	1.86%	88	1.57E-04
									Total	4,720

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,720	
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,720	
									Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.54E-03
2	0.42%	20	8.77E-05	10	4.39%	9.13E-04	18	8.18%	386	1.70E-03
3	0.41%	19	8.49E-05	11	4.66%	9.70E-04	19	5.69%	269	1.18E-03
4	0.26%	12	5.41E-05	12	5.89%	1.22E-03	20	4.28%	202	8.89E-04
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.77E-04
6	0.91%	43	1.89E-04	14	6.04%	1.26E-03	22	3.30%	156	6.86E-04
7	3.79%	179	7.88E-04	15	7.01%	1.46E-03	23	2.46%	116	5.12E-04
8	7.77%	367	1.62E-03	16	7.14%	1.49E-03	24	1.86%	88	3.88E-04
									Total	4,720

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.54E-03
2	0.42%	20	8.77E-05	10	4.39%	9.13E-04	18	8.18%	386	1.70E-03
3	0.41%	19	8.49E-05	11	4.66%	9.70E-04	19	5.69%	269	1.18E-03
4	0.26%	12	5.41E-05	12	5.89%	1.22E-03	20	4.28%	202	8.89E-04
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.77E-04
6	0.91%	43	1.89E-04	14	6.04%	1.26E-03	22	3.30%	156	6.86E-04
7	3.79%	179	7.88E-04	15	7.01%	1.46E-03	23	2.46%	116	5.12E-04
8	7.77%	367	1.62E-03	16	7.14%	1.49E-03	24	1.86%	88	3.88E-04
									Total	4,720

Charcot Ave, San Jose, CA

Operation - Proposed

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	5,000	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	5,000	
									Total	10,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	2.83E-05	9	7.11%	1.75E-04	17	7.39%	369	1.82E-04
2	0.42%	21	1.04E-05	10	4.39%	1.08E-04	18	8.18%	409	2.02E-04
3	0.41%	20	1.01E-05	11	4.66%	1.15E-04	19	5.69%	285	1.40E-04
4	0.26%	13	6.41E-06	12	5.89%	1.45E-04	20	4.28%	214	1.05E-04
5	0.50%	25	1.23E-05	13	6.15%	1.52E-04	21	3.25%	163	8.03E-05
6	0.91%	45	2.24E-05	14	6.04%	1.49E-04	22	3.30%	165	8.13E-05
7	3.79%	189	9.34E-05	15	7.01%	1.73E-04	23	2.46%	123	6.07E-05
8	7.77%	388	1.92E-04	16	7.14%	1.76E-04	24	1.86%	93	4.60E-05
									Total	5,000

2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	2.83E-05	9	7.11%	1.75E-04	17	7.39%	369	1.82E-04
2	0.42%	21	1.04E-05	10	4.39%	1.08E-04	18	8.18%	409	2.02E-04
3	0.41%	20	1.01E-05	11	4.66%	1.15E-04	19	5.69%	285	1.40E-04
4	0.26%	13	6.41E-06	12	5.89%	1.45E-04	20	4.28%	214	1.05E-04
5	0.50%	25	1.23E-05	13	6.15%	1.52E-04	21	3.25%	163	8.03E-05
6	0.91%	45	2.24E-05	14	6.04%	1.49E-04	22	3.30%	165	8.13E-05
7	3.79%	189	9.34E-05	15	7.01%	1.73E-04	23	2.46%	123	6.07E-05
8	7.77%	388	1.92E-04	16	7.14%	1.76E-04	24	1.86%	93	4.60E-05
									Total	5,000



**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	5,000
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	5,000
								Total	10,000

\* Road segments south of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	6.99E-05	9	7.11%	4.33E-04	17	7.39%	369	4.49E-04
2	0.42%	21	2.56E-05	10	4.39%	2.67E-04	18	8.18%	409	4.97E-04
3	0.41%	20	2.48E-05	11	4.66%	2.84E-04	19	5.69%	285	3.46E-04
4	0.26%	13	1.58E-05	12	5.89%	3.58E-04	20	4.28%	214	2.60E-04
5	0.50%	25	3.02E-05	13	6.15%	3.74E-04	21	3.25%	163	1.98E-04
6	0.91%	45	5.52E-05	14	6.04%	3.67E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.26E-04	23	2.46%	123	1.50E-04
8	7.77%	388	4.72E-04	16	7.14%	4.34E-04	24	1.86%	93	1.13E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	6.99E-05	9	7.11%	4.33E-04	17	7.39%	369	4.49E-04
2	0.42%	21	2.56E-05	10	4.39%	2.67E-04	18	8.18%	409	4.97E-04
3	0.41%	20	2.48E-05	11	4.66%	2.84E-04	19	5.69%	285	3.46E-04
4	0.26%	13	1.58E-05	12	5.89%	3.58E-04	20	4.28%	214	2.60E-04
5	0.50%	25	3.02E-05	13	6.15%	3.74E-04	21	3.25%	163	1.98E-04
6	0.91%	45	5.52E-05	14	6.04%	3.67E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.26E-04	23	2.46%	123	1.50E-04
8	7.77%	388	4.72E-04	16	7.14%	4.34E-04	24	1.86%	93	1.13E-04
Total									5,000	

**Charcot Ave, San Jose, CA**

**Operation - Proposed Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2025

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	10,000	0.40	61.1

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA

Operation - Proposed

DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions

Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	3.4	25	6,600	395.3	87	71	237	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	3.4	25	6,600	395.3	87	71	237	
Total									13,200	791	175	141	475	
* Road segments north of Silk Wood Lane.										Fraction of Total Vehicles =		0.946	0.016	0.038
										Fraction Diesel in category =		0.014	0.669	0.946

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

2040 Hourly Diesel Traffic Volumes and DPM Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.48E-06	9	6.54%	8.71E-06	17	5.65%	22	7.52E-06
2	2.80%	11	3.72E-06	10	7.60%	1.01E-05	18	3.11%	12	4.15E-06
3	2.85%	11	3.79E-06	11	6.39%	8.50E-06	19	2.11%	8	2.81E-06
4	3.11%	12	4.15E-06	12	7.07%	9.41E-06	20	0.84%	3	1.12E-06
5	2.06%	8	2.74E-06	13	6.33%	8.43E-06	21	3.06%	12	4.08E-06
6	3.22%	13	4.29E-06	14	6.17%	8.22E-06	22	4.27%	17	5.69E-06
7	5.96%	24	7.94E-06	15	5.22%	6.96E-06	23	2.69%	11	3.58E-06
8	4.22%	17	5.62E-06	16	3.75%	4.99E-06	24	0.84%	3	1.12E-06
Total									395	

2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.48E-06	9	6.54%	8.71E-06	17	5.65%	22	7.52E-06
2	2.80%	11	3.72E-06	10	7.60%	1.01E-05	18	3.11%	12	4.15E-06
3	2.85%	11	3.79E-06	11	6.39%	8.50E-06	19	2.11%	8	2.81E-06
4	3.11%	12	4.15E-06	12	7.07%	9.41E-06	20	0.84%	3	1.12E-06
5	2.06%	8	2.74E-06	13	6.33%	8.43E-06	21	3.06%	12	4.08E-06
6	3.22%	13	4.29E-06	14	6.17%	8.22E-06	22	4.27%	17	5.69E-06
7	5.96%	24	7.94E-06	15	5.22%	6.96E-06	23	2.69%	11	3.58E-06
8	4.22%	17	5.62E-06	16	3.75%	4.99E-06	24	0.84%	3	1.12E-06
Total									395	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	6,600	395.3	87	71	237	
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	6,600	395.3	87	71	237	
									Total	13,200	791	175	141	475
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.946	0.016	0.038	
									Fraction Diesel in category =		0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Diesel Traffic Volumes and DPM Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	4.12%	16	1.35E-05	9	6.54%	2.15E-05	17	5.65%	22	1.85E-05	
2	2.80%	11	9.18E-06	10	7.60%	2.50E-05	18	3.11%	12	1.02E-05	
3	2.85%	11	9.36E-06	11	6.39%	2.10E-05	19	2.11%	8	6.93E-06	
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06	
5	2.06%	8	6.76E-06	13	6.33%	2.08E-05	21	3.06%	12	1.00E-05	
6	3.22%	13	1.06E-05	14	6.17%	2.03E-05	22	4.27%	17	1.40E-05	
7	5.96%	24	1.96E-05	15	5.22%	1.72E-05	23	2.69%	11	8.84E-06	
8	4.22%	17	1.39E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06	
									Total	395	

**2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	4.12%	16	1.35E-05	9	6.54%	2.15E-05	17	5.65%	22	1.85E-05	
2	2.80%	11	9.18E-06	10	7.60%	2.50E-05	18	3.11%	12	1.02E-05	
3	2.85%	11	9.36E-06	11	6.39%	2.10E-05	19	2.11%	8	6.93E-06	
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06	
5	2.06%	8	6.76E-06	13	6.33%	2.08E-05	21	3.06%	12	1.00E-05	
6	3.22%	13	1.06E-05	14	6.17%	2.03E-05	22	4.27%	17	1.40E-05	
7	5.96%	24	1.96E-05	15	5.22%	1.72E-05	23	2.69%	11	8.84E-06	
8	4.22%	17	1.39E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06	
									Total	395	

Charcot Ave, San Jose, CA  
 Operation - Proposed  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	6,600
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	6,600
								Total	13,200

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and PM2.5 Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	5.31E-05	9	7.12%	3.32E-04	17	7.40%	488	3.45E-04
2	0.42%	28	1.96E-05	10	4.38%	2.04E-04	18	8.19%	541	3.81E-04
3	0.40%	26	1.86E-05	11	4.66%	2.17E-04	19	5.71%	377	2.66E-04
4	0.24%	16	1.12E-05	12	5.89%	2.74E-04	20	4.28%	282	1.99E-04
5	0.49%	32	2.28E-05	13	6.16%	2.87E-04	21	3.25%	215	1.51E-04
6	0.89%	59	4.14E-05	14	6.03%	2.81E-04	22	3.30%	218	1.54E-04
7	3.78%	249	1.76E-04	15	7.02%	3.27E-04	23	2.46%	162	1.15E-04
8	7.77%	513	3.62E-04	16	7.15%	3.33E-04	24	1.87%	123	8.71E-05
Total									6,600	

2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	5.31E-05	9	7.12%	3.32E-04	17	7.40%	488	3.45E-04
2	0.42%	28	1.96E-05	10	4.38%	2.04E-04	18	8.19%	541	3.81E-04
3	0.40%	26	1.86E-05	11	4.66%	2.17E-04	19	5.71%	377	2.66E-04
4	0.24%	16	1.12E-05	12	5.89%	2.74E-04	20	4.28%	282	1.99E-04
5	0.49%	32	2.28E-05	13	6.16%	2.87E-04	21	3.25%	215	1.51E-04
6	0.89%	59	4.14E-05	14	6.03%	2.81E-04	22	3.30%	218	1.54E-04
7	3.78%	249	1.76E-04	15	7.02%	3.27E-04	23	2.46%	162	1.15E-04
8	7.77%	513	3.62E-04	16	7.15%	3.33E-04	24	1.87%	123	8.71E-05
Total									6,600	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,600
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,600
								Total	13,200

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and PM2.5 Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	1.31E-04	9	7.12%	8.18E-04	17	7.40%	488	8.50E-04
2	0.42%	28	4.82E-05	10	4.38%	5.03E-04	18	8.19%	541	9.40E-04
3	0.40%	26	4.59E-05	11	4.66%	5.35E-04	19	5.71%	377	6.56E-04
4	0.24%	16	2.76E-05	12	5.89%	6.76E-04	20	4.28%	282	4.91E-04
5	0.49%	32	5.63E-05	13	6.16%	7.07E-04	21	3.25%	215	3.73E-04
6	0.89%	59	1.02E-04	14	6.03%	6.92E-04	22	3.30%	218	3.79E-04
7	3.78%	249	4.34E-04	15	7.02%	8.06E-04	23	2.46%	162	2.82E-04
8	7.77%	513	8.92E-04	16	7.15%	8.21E-04	24	1.87%	123	2.15E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	1.31E-04	9	7.12%	8.18E-04	17	7.40%	488	8.50E-04
2	0.42%	28	4.82E-05	10	4.38%	5.03E-04	18	8.19%	541	9.40E-04
3	0.40%	26	4.59E-05	11	4.66%	5.35E-04	19	5.71%	377	6.56E-04
4	0.24%	16	2.76E-05	12	5.89%	6.76E-04	20	4.28%	282	4.91E-04
5	0.49%	32	5.63E-05	13	6.16%	7.07E-04	21	3.25%	215	3.73E-04
6	0.89%	59	1.02E-04	14	6.03%	6.92E-04	22	3.30%	218	3.79E-04
7	3.78%	249	4.34E-04	15	7.02%	8.06E-04	23	2.46%	162	2.82E-04
8	7.77%	513	8.92E-04	16	7.15%	8.21E-04	24	1.87%	123	2.15E-04
Total									6,600	

Charcot Ave, San Jose, CA  
 Operation - Proposed  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	6,205	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	6,205	
									Total	12,410

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and TOG Exhaust Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	1.19E-04	9	7.12%	7.42E-04	17	7.40%	459	7.71E-04
2	0.42%	26	4.38E-05	10	4.38%	4.56E-04	18	8.19%	508	8.53E-04
3	0.40%	25	4.17E-05	11	4.66%	4.85E-04	19	5.71%	354	5.95E-04
4	0.24%	15	2.50E-05	12	5.89%	6.14E-04	20	4.28%	266	4.46E-04
5	0.49%	30	5.10E-05	13	6.16%	6.42E-04	21	3.25%	202	3.39E-04
6	0.89%	55	9.27E-05	14	6.03%	6.28E-04	22	3.30%	205	3.44E-04
7	3.78%	235	3.94E-04	15	7.02%	7.31E-04	23	2.46%	153	2.56E-04
8	7.77%	482	8.09E-04	16	7.15%	7.45E-04	24	1.87%	116	1.95E-04
Total										6,205

2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	1.19E-04	9	7.12%	7.42E-04	17	7.40%	459	7.71E-04
2	0.42%	26	4.38E-05	10	4.38%	4.56E-04	18	8.19%	508	8.53E-04
3	0.40%	25	4.17E-05	11	4.66%	4.85E-04	19	5.71%	354	5.95E-04
4	0.24%	15	2.50E-05	12	5.89%	6.14E-04	20	4.28%	266	4.46E-04
5	0.49%	30	5.10E-05	13	6.16%	6.42E-04	21	3.25%	202	3.39E-04
6	0.89%	55	9.27E-05	14	6.03%	6.28E-04	22	3.30%	205	3.44E-04
7	3.78%	235	3.94E-04	15	7.02%	7.31E-04	23	2.46%	153	2.56E-04
8	7.77%	482	8.09E-04	16	7.15%	7.45E-04	24	1.87%	116	1.95E-04
Total										6,205

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,205
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,205
								Total	12,410

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.93E-04	9	7.12%	1.83E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.13E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.20E-03	19	5.71%	354	1.47E-03
4	0.24%	15	6.17E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.35E-04
6	0.89%	55	2.29E-04	14	6.03%	1.55E-03	22	3.30%	205	8.48E-04
7	3.78%	235	9.71E-04	15	7.02%	1.80E-03	23	2.46%	153	6.32E-04
8	7.77%	482	2.00E-03	16	7.15%	1.84E-03	24	1.87%	116	4.80E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.93E-04	9	7.12%	1.83E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.13E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.20E-03	19	5.71%	354	1.47E-03
4	0.24%	15	6.17E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.35E-04
6	0.89%	55	2.29E-04	14	6.03%	1.55E-03	22	3.30%	205	8.48E-04
7	3.78%	235	9.71E-04	15	7.02%	1.80E-03	23	2.46%	153	6.32E-04
8	7.77%	482	2.00E-03	16	7.15%	1.84E-03	24	1.87%	116	4.80E-04
Total									6,205	



Charcot Ave, San Jose, CA

Operation - Proposed

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2040

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	6,205	
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	6,205	
									Total	12,410

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Prop-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.14%	71	9.41E-05	9	7.12%	5.88E-04	17	7.40%	459	6.11E-04	
2	0.42%	26	3.47E-05	10	4.38%	3.62E-04	18	8.19%	508	6.76E-04	
3	0.40%	25	3.30E-05	11	4.66%	3.85E-04	19	5.71%	354	4.71E-04	
4	0.24%	15	1.98E-05	12	5.89%	4.86E-04	20	4.28%	266	3.53E-04	
5	0.49%	30	4.04E-05	13	6.16%	5.08E-04	21	3.25%	202	2.68E-04	
6	0.89%	55	7.35E-05	14	6.03%	4.98E-04	22	3.30%	205	2.72E-04	
7	3.78%	235	3.12E-04	15	7.02%	5.79E-04	23	2.46%	153	2.03E-04	
8	7.77%	482	6.41E-04	16	7.15%	5.90E-04	24	1.87%	116	1.54E-04	
										Total	6,205

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Prop-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.14%	71	9.41E-05	9	7.12%	5.88E-04	17	7.40%	459	6.11E-04	
2	0.42%	26	3.47E-05	10	4.38%	3.62E-04	18	8.19%	508	6.76E-04	
3	0.40%	25	3.30E-05	11	4.66%	3.85E-04	19	5.71%	354	4.71E-04	
4	0.24%	15	1.98E-05	12	5.89%	4.86E-04	20	4.28%	266	3.53E-04	
5	0.49%	30	4.04E-05	13	6.16%	5.08E-04	21	3.25%	202	2.68E-04	
6	0.89%	55	7.35E-05	14	6.03%	4.98E-04	22	3.30%	205	2.72E-04	
7	3.78%	235	3.12E-04	15	7.02%	5.79E-04	23	2.46%	153	2.03E-04	
8	7.77%	482	6.41E-04	16	7.15%	5.90E-04	24	1.87%	116	1.54E-04	
										Total	6,205

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,205
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,205
								Total	12,410

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.32E-04	9	7.12%	1.45E-03	17	7.40%	459	1.51E-03
2	0.42%	26	8.55E-05	10	4.38%	8.92E-04	18	8.19%	508	1.67E-03
3	0.40%	25	8.14E-05	11	4.66%	9.49E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.89E-05	12	5.89%	1.20E-03	20	4.28%	266	8.71E-04
5	0.49%	30	9.98E-05	13	6.16%	1.25E-03	21	3.25%	202	6.62E-04
6	0.89%	55	1.81E-04	14	6.03%	1.23E-03	22	3.30%	205	6.72E-04
7	3.78%	235	7.70E-04	15	7.02%	1.43E-03	23	2.46%	153	5.01E-04
8	7.77%	482	1.58E-03	16	7.15%	1.46E-03	24	1.87%	116	3.81E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.32E-04	9	7.12%	1.45E-03	17	7.40%	459	1.51E-03
2	0.42%	26	8.55E-05	10	4.38%	8.92E-04	18	8.19%	508	1.67E-03
3	0.40%	25	8.14E-05	11	4.66%	9.49E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.89E-05	12	5.89%	1.20E-03	20	4.28%	266	8.71E-04
5	0.49%	30	9.98E-05	13	6.16%	1.25E-03	21	3.25%	202	6.62E-04
6	0.89%	55	1.81E-04	14	6.03%	1.23E-03	22	3.30%	205	6.72E-04
7	3.78%	235	7.70E-04	15	7.02%	1.43E-03	23	2.46%	153	5.01E-04
8	7.77%	482	1.58E-03	16	7.15%	1.46E-03	24	1.87%	116	3.81E-04
Total									6,205	

Charcot Ave, San Jose, CA

Operation - Proposed

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-North	Northbound Charcot Ave*	NW	2	187	42	12.7	1.3	25	6,600
Prop-SB Charcot-North	Southbound Charcot Ave*	SE	2	187	42	12.7	1.3	25	6,600
								Total	13,200

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Prop-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	3.71E-05	9	7.12%	2.32E-04	17	7.40%	488	2.41E-04
2	0.42%	28	1.37E-05	10	4.38%	1.43E-04	18	8.19%	541	2.67E-04
3	0.40%	26	1.30E-05	11	4.66%	1.52E-04	19	5.71%	377	1.86E-04
4	0.24%	16	7.81E-06	12	5.89%	1.92E-04	20	4.28%	282	1.39E-04
5	0.49%	32	1.59E-05	13	6.16%	2.01E-04	21	3.25%	215	1.06E-04
6	0.89%	59	2.90E-05	14	6.03%	1.96E-04	22	3.30%	218	1.07E-04
7	3.78%	249	1.23E-04	15	7.02%	2.29E-04	23	2.46%	162	8.01E-05
8	7.77%	513	2.53E-04	16	7.15%	2.33E-04	24	1.87%	123	6.09E-05
Total									6,600	

2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Prop-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	3.71E-05	9	7.12%	2.32E-04	17	7.40%	488	2.41E-04
2	0.42%	28	1.37E-05	10	4.38%	1.43E-04	18	8.19%	541	2.67E-04
3	0.40%	26	1.30E-05	11	4.66%	1.52E-04	19	5.71%	377	1.86E-04
4	0.24%	16	7.81E-06	12	5.89%	1.92E-04	20	4.28%	282	1.39E-04
5	0.49%	32	1.59E-05	13	6.16%	2.01E-04	21	3.25%	215	1.06E-04
6	0.89%	59	2.90E-05	14	6.03%	1.96E-04	22	3.30%	218	1.07E-04
7	3.78%	249	1.23E-04	15	7.02%	2.29E-04	23	2.46%	162	8.01E-05
8	7.77%	513	2.53E-04	16	7.15%	2.33E-04	24	1.87%	123	6.09E-05
Total									6,600	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Prop-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,600
Prop-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,600
								Total	13,200

\* Road segments south of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Prop-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	9.15E-05	9	7.12%	5.72E-04	17	7.40%	488	5.94E-04
2	0.42%	28	3.37E-05	10	4.38%	3.52E-04	18	8.19%	541	6.57E-04
3	0.40%	26	3.21E-05	11	4.66%	3.74E-04	19	5.71%	377	4.58E-04
4	0.24%	16	1.93E-05	12	5.89%	4.73E-04	20	4.28%	282	3.44E-04
5	0.49%	32	3.93E-05	13	6.16%	4.94E-04	21	3.25%	215	2.61E-04
6	0.89%	59	7.14E-05	14	6.03%	4.84E-04	22	3.30%	218	2.65E-04
7	3.78%	249	3.03E-04	15	7.02%	5.64E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.24E-04	16	7.15%	5.74E-04	24	1.87%	123	1.50E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Prop-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	9.15E-05	9	7.12%	5.72E-04	17	7.40%	488	5.94E-04
2	0.42%	28	3.37E-05	10	4.38%	3.52E-04	18	8.19%	541	6.57E-04
3	0.40%	26	3.21E-05	11	4.66%	3.74E-04	19	5.71%	377	4.58E-04
4	0.24%	16	1.93E-05	12	5.89%	4.73E-04	20	4.28%	282	3.44E-04
5	0.49%	32	3.93E-05	13	6.16%	4.94E-04	21	3.25%	215	2.61E-04
6	0.89%	59	7.14E-05	14	6.03%	4.84E-04	22	3.30%	218	2.65E-04
7	3.78%	249	3.03E-04	15	7.02%	5.64E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.24E-04	16	7.15%	5.74E-04	24	1.87%	123	1.50E-04
Total									6,600	

**Charcot Ave, San Jose, CA**

**Operation - Proposed Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2040

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	13,200	0.40	80.7

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

# Oakland Road Traffic Emissions

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2020

## Oakland Road

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles				
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	3.4	40	2,500	130.2	28	26	76
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	3.4	40	2,500	130.2	28	26	76
Total									5,000	260	57	52	151
Fraction of Total Vehicles =											0.948	0.020	0.032
Fraction Diesel in category =											0.012	0.523	0.945

DPM Emissions	
Daily Emissions (g/day)* =	4.613
Total Road Length (mi) =	0.40
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>5.34E-05</b>

\* daily emissions based on CT-EMFAC

### 2020 Hourly Diesel Traffic Volumes and DPM Emissions - NB Oakland Rd

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	5	2.52E-05	9	6.47%	4.15E-05	17	5.49%	7	3.52E-05
2	2.54%	3	1.63E-05	10	7.16%	4.59E-05	18	3.29%	4	2.11E-05
3	2.83%	4	1.81E-05	11	6.35%	4.07E-05	19	2.43%	3	1.56E-05
4	3.41%	4	2.18E-05	12	6.93%	4.44E-05	20	0.98%	1	6.29E-06
5	2.20%	3	1.41E-05	13	6.12%	3.92E-05	21	3.06%	4	1.96E-05
6	3.35%	4	2.15E-05	14	6.12%	3.92E-05	22	4.16%	5	2.67E-05
7	6.07%	8	3.89E-05	15	5.14%	3.30E-05	23	2.37%	3	1.52E-05
8	4.79%	6	3.07E-05	16	3.93%	2.52E-05	24	0.87%	1	5.55E-06
Total									130	

### 2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - SB Oakland Rd

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	5	2.52E-05	9	6.47%	4.15E-05	17	5.49%	7	3.52E-05
2	2.54%	3	1.63E-05	10	7.16%	4.59E-05	18	3.29%	4	2.11E-05
3	2.83%	4	1.81E-05	11	6.35%	4.07E-05	19	2.43%	3	1.56E-05
4	3.41%	4	2.18E-05	12	6.93%	4.44E-05	20	0.98%	1	6.29E-06
5	2.20%	3	1.41E-05	13	6.12%	3.92E-05	21	3.06%	4	1.96E-05
6	3.35%	4	2.15E-05	14	6.12%	3.92E-05	22	4.16%	5	2.67E-05
7	6.07%	8	3.89E-05	15	5.14%	3.30E-05	23	2.37%	3	1.52E-05
8	4.79%	6	3.07E-05	16	3.93%	2.52E-05	24	0.87%	1	5.55E-06
Total									130	

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2020

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	2,500	
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	2,500	
									Total	5,000

PM2.5 Emissions	
Daily Emissions (g/day)* =	50.19
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>5.81E-04</b>

\* daily emissions based on CT-EMFAC

**2020 Hourly Traffic Volumes and PM2.5 Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	29	8.04E-05	9	7.11%	4.96E-04	17	7.38%	185	5.15E-04
2	0.42%	11	2.93E-05	10	4.39%	3.06E-04	18	8.17%	204	5.70E-04
3	0.41%	10	2.83E-05	11	4.67%	3.25E-04	19	5.70%	142	3.97E-04
4	0.27%	7	1.88E-05	12	5.89%	4.11E-04	20	4.27%	107	2.98E-04
5	0.50%	13	3.50E-05	13	6.15%	4.29E-04	21	3.26%	81	2.27E-04
6	0.91%	23	6.33E-05	14	6.03%	4.21E-04	22	3.30%	82	2.30E-04
7	3.80%	95	2.65E-04	15	7.01%	4.89E-04	23	2.46%	61	1.71E-04
8	7.76%	194	5.41E-04	16	7.13%	4.97E-04	24	1.87%	47	1.30E-04
									Total	2,500

**2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	29	8.04E-05	9	7.11%	4.96E-04	17	7.38%	185	5.15E-04
2	0.42%	11	2.93E-05	10	4.39%	3.06E-04	18	8.17%	204	5.70E-04
3	0.41%	10	2.83E-05	11	4.67%	3.25E-04	19	5.70%	142	3.97E-04
4	0.27%	7	1.88E-05	12	5.89%	4.11E-04	20	4.27%	107	2.98E-04
5	0.50%	13	3.50E-05	13	6.15%	4.29E-04	21	3.26%	81	2.27E-04
6	0.91%	23	6.33E-05	14	6.03%	4.21E-04	22	3.30%	82	2.30E-04
7	3.80%	95	2.65E-04	15	7.01%	4.89E-04	23	2.46%	61	1.71E-04
8	7.76%	194	5.41E-04	16	7.13%	4.97E-04	24	1.87%	47	1.30E-04
									Total	2,500

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2020

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	2,375
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	2,375
Total									4,750

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	160.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
<b>Modeled Emission Rate (g/s) =</b>	<b>1.86E-03</b>

\* daily emissions based on CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Exhaust Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	27	2.57E-04	9	7.11%	1.59E-03	17	7.38%	175	1.65E-03
2	0.42%	10	9.37E-05	10	4.39%	9.79E-04	18	8.17%	194	1.82E-03
3	0.41%	10	9.05E-05	11	4.67%	1.04E-03	19	5.70%	135	1.27E-03
4	0.27%	6	6.02E-05	12	5.89%	1.31E-03	20	4.27%	101	9.53E-04
5	0.50%	12	1.12E-04	13	6.15%	1.37E-03	21	3.26%	77	7.26E-04
6	0.91%	22	2.03E-04	14	6.03%	1.35E-03	22	3.30%	78	7.35E-04
7	3.80%	90	8.47E-04	15	7.01%	1.56E-03	23	2.46%	58	5.48E-04
8	7.76%	184	1.73E-03	16	7.13%	1.59E-03	24	1.87%	44	4.16E-04
Total									2,375	

**2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	27	2.57E-04	9	7.11%	1.59E-03	17	7.38%	175	1.65E-03
2	0.42%	10	9.37E-05	10	4.39%	9.79E-04	18	8.17%	194	1.82E-03
3	0.41%	10	9.05E-05	11	4.67%	1.04E-03	19	5.70%	135	1.27E-03
4	0.27%	6	6.02E-05	12	5.89%	1.31E-03	20	4.27%	101	9.53E-04
5	0.50%	12	1.12E-04	13	6.15%	1.37E-03	21	3.26%	77	7.26E-04
6	0.91%	22	2.03E-04	14	6.03%	1.35E-03	22	3.30%	78	7.35E-04
7	3.80%	90	8.47E-04	15	7.01%	1.56E-03	23	2.46%	58	5.48E-04
8	7.76%	184	1.73E-03	16	7.13%	1.59E-03	24	1.87%	44	4.16E-04
Total									2,375	



Charcot Ave, San Jose, CA

Operation - Oakland Road Emissions

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2020

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	2,375	
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	2,375	
									Total	4,750

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	132.56
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>1.53E-03</b>

\* daily emissions based on CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.15%	27	2.12E-04	9	7.11%	1.31E-03	17	7.38%	175	1.36E-03	
2	0.42%	10	7.74E-05	10	4.39%	8.08E-04	18	8.17%	194	1.51E-03	
3	0.41%	10	7.47E-05	11	4.67%	8.59E-04	19	5.70%	135	1.05E-03	
4	0.27%	6	4.97E-05	12	5.89%	1.08E-03	20	4.27%	101	7.87E-04	
5	0.50%	12	9.26E-05	13	6.15%	1.13E-03	21	3.26%	77	6.00E-04	
6	0.91%	22	1.67E-04	14	6.03%	1.11E-03	22	3.30%	78	6.07E-04	
7	3.80%	90	6.99E-04	15	7.01%	1.29E-03	23	2.46%	58	4.52E-04	
8	7.76%	184	1.43E-03	16	7.13%	1.31E-03	24	1.87%	44	3.44E-04	
									Total	2,375	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.15%	27	2.12E-04	9	7.11%	1.31E-03	17	7.38%	175	1.36E-03	
2	0.42%	10	7.74E-05	10	4.39%	8.08E-04	18	8.17%	194	1.51E-03	
3	0.41%	10	7.47E-05	11	4.67%	8.59E-04	19	5.70%	135	1.05E-03	
4	0.27%	6	4.97E-05	12	5.89%	1.08E-03	20	4.27%	101	7.87E-04	
5	0.50%	12	9.26E-05	13	6.15%	1.13E-03	21	3.26%	77	6.00E-04	
6	0.91%	22	1.67E-04	14	6.03%	1.11E-03	22	3.30%	78	6.07E-04	
7	3.80%	90	6.99E-04	15	7.01%	1.29E-03	23	2.46%	58	4.52E-04	
8	7.76%	184	1.43E-03	16	7.13%	1.31E-03	24	1.87%	44	3.44E-04	
									Total	2,375	

Charcot Ave, San Jose, CA

Operation - Oakland Road Emissions

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2020

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	2,500
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	2,500
Total									5,000

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day) =	30.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
Modeled Emission Rate (g/s) =	3.54E-04

**2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	29	4.90E-05	9	7.11%	3.02E-04	17	7.38%	185	3.13E-04
2	0.42%	11	1.78E-05	10	4.39%	1.86E-04	18	8.17%	204	3.47E-04
3	0.41%	10	1.72E-05	11	4.67%	1.98E-04	19	5.70%	142	2.42E-04
4	0.27%	7	1.15E-05	12	5.89%	2.50E-04	20	4.27%	107	1.81E-04
5	0.50%	13	2.13E-05	13	6.15%	2.61E-04	21	3.26%	81	1.38E-04
6	0.91%	23	3.86E-05	14	6.03%	2.56E-04	22	3.30%	82	1.40E-04
7	3.80%	95	1.61E-04	15	7.01%	2.98E-04	23	2.46%	61	1.04E-04
8	7.76%	194	3.30E-04	16	7.13%	3.03E-04	24	1.87%	47	7.92E-05
Total									2,500	

**2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	29	4.90E-05	9	7.11%	3.02E-04	17	7.38%	185	3.13E-04
2	0.42%	11	1.78E-05	10	4.39%	1.86E-04	18	8.17%	204	3.47E-04
3	0.41%	10	1.72E-05	11	4.67%	1.98E-04	19	5.70%	142	2.42E-04
4	0.27%	7	1.15E-05	12	5.89%	2.50E-04	20	4.27%	107	1.81E-04
5	0.50%	13	2.13E-05	13	6.15%	2.61E-04	21	3.26%	81	1.38E-04
6	0.91%	23	3.86E-05	14	6.03%	2.56E-04	22	3.30%	82	1.40E-04
7	3.80%	95	1.61E-04	15	7.01%	2.98E-04	23	2.46%	61	1.04E-04
8	7.76%	194	3.30E-04	16	7.13%	3.03E-04	24	1.87%	47	7.92E-05
Total									2,500	

**Charcot Ave, San Jose, CA**

**Operation - Oakland Road Emissions Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2020

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM2.5 Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	5,000	0.40	30.6

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2025

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles				
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	3.4	40	3,000	168.1	37	32	99
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	3.4	40	3,000	168.1	37	32	99
Total									6,000	336	74	64	198
Fraction of Total Vehicles =											0.947	0.018	0.035
Fraction Diesel in category =											0.013	0.591	0.945

DPM Emissions	
Daily Emissions (g/day)* =	2.7
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>3.13E-05</b>

\* daily emissions based on CT-EMFAC

**2025 Hourly Diesel Traffic Volumes and DPM Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	7	1.48E-05	9	6.41%	2.40E-05	17	5.55%	9	2.08E-05
2	2.62%	4	9.84E-06	10	7.36%	2.76E-05	18	3.16%	5	1.18E-05
3	2.85%	5	1.07E-05	11	6.34%	2.38E-05	19	2.36%	4	8.85E-06
4	3.31%	6	1.24E-05	12	6.92%	2.60E-05	20	0.87%	1	3.25E-06
5	2.17%	4	8.13E-06	13	6.29%	2.36E-05	21	3.09%	5	1.16E-05
6	3.36%	6	1.26E-05	14	6.23%	2.34E-05	22	4.12%	7	1.54E-05
7	6.00%	10	2.25E-05	15	5.15%	1.93E-05	23	2.58%	4	9.66E-06
8	4.58%	8	1.72E-05	16	3.84%	1.44E-05	24	0.92%	2	3.46E-06
Total										168

**2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	7	1.48E-05	9	6.41%	2.40E-05	17	5.55%	9	2.08E-05
2	2.62%	4	9.84E-06	10	7.36%	2.76E-05	18	3.16%	5	1.18E-05
3	2.85%	5	1.07E-05	11	6.34%	2.38E-05	19	2.36%	4	8.85E-06
4	3.31%	6	1.24E-05	12	6.92%	2.60E-05	20	0.87%	1	3.25E-06
5	2.17%	4	8.13E-06	13	6.29%	2.36E-05	21	3.09%	5	1.16E-05
6	3.36%	6	1.26E-05	14	6.23%	2.34E-05	22	4.12%	7	1.54E-05
7	6.00%	10	2.25E-05	15	5.15%	1.93E-05	23	2.58%	4	9.66E-06
8	4.58%	8	1.72E-05	16	3.84%	1.44E-05	24	0.92%	2	3.46E-06
Total										168

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2025

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	3,000
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	3,000
								Total	6,000

PM2.5 Emissions	
Daily Emissions (g/day)* =	57.12
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>6.61E-04</b>

\* daily emissions based on CT-EMFAC

**2025 Hourly Traffic Volumes and PM2.5 Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	34	9.12E-05	9	7.11%	5.65E-04	17	7.39%	222	5.86E-04
2	0.42%	13	3.35E-05	10	4.39%	3.48E-04	18	8.18%	245	6.49E-04
3	0.41%	12	3.24E-05	11	4.66%	3.70E-04	19	5.69%	171	4.52E-04
4	0.26%	8	2.06E-05	12	5.89%	4.67E-04	20	4.28%	128	3.39E-04
5	0.50%	15	3.94E-05	13	6.15%	4.88E-04	21	3.25%	98	2.58E-04
6	0.91%	27	7.20E-05	14	6.04%	4.79E-04	22	3.30%	99	2.62E-04
7	3.79%	114	3.01E-04	15	7.01%	5.56E-04	23	2.46%	74	1.95E-04
8	7.77%	233	6.16E-04	16	7.14%	5.67E-04	24	1.86%	56	1.48E-04
Total									3,000	

**2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	34	9.12E-05	9	7.11%	5.65E-04	17	7.39%	222	5.86E-04
2	0.42%	13	3.35E-05	10	4.39%	3.48E-04	18	8.18%	245	6.49E-04
3	0.41%	12	3.24E-05	11	4.66%	3.70E-04	19	5.69%	171	4.52E-04
4	0.26%	8	2.06E-05	12	5.89%	4.67E-04	20	4.28%	128	3.39E-04
5	0.50%	15	3.94E-05	13	6.15%	4.88E-04	21	3.25%	98	2.58E-04
6	0.91%	27	7.20E-05	14	6.04%	4.79E-04	22	3.30%	99	2.62E-04
7	3.79%	114	3.01E-04	15	7.01%	5.56E-04	23	2.46%	74	1.95E-04
8	7.77%	233	6.16E-04	16	7.14%	5.67E-04	24	1.86%	56	1.48E-04
Total									3,000	

Charcot Ave, San Jose, CA  
 Operation - Alternative 3 - Oakland Road Emissions  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2025

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	2,832
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	2,832
								Total	5,664

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	140.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>1.62E-03</b>

\* daily emissions based on CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Exhaust Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	33	2.24E-04	9	7.11%	1.38E-03	17	7.39%	209	1.44E-03
2	0.42%	12	8.21E-05	10	4.39%	8.54E-04	18	8.18%	232	1.59E-03
3	0.41%	12	7.95E-05	11	4.66%	9.08E-04	19	5.69%	161	1.11E-03
4	0.26%	7	5.06E-05	12	5.89%	1.15E-03	20	4.28%	121	8.32E-04
5	0.50%	14	9.67E-05	13	6.15%	1.20E-03	21	3.25%	92	6.34E-04
6	0.91%	26	1.77E-04	14	6.04%	1.18E-03	22	3.30%	93	6.42E-04
7	3.79%	107	7.37E-04	15	7.01%	1.36E-03	23	2.46%	70	4.79E-04
8	7.77%	220	1.51E-03	16	7.14%	1.39E-03	24	1.86%	53	3.63E-04
Total									2,832	

**2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	33	2.24E-04	9	7.11%	1.38E-03	17	7.39%	209	1.44E-03
2	0.42%	12	8.21E-05	10	4.39%	8.54E-04	18	8.18%	232	1.59E-03
3	0.41%	12	7.95E-05	11	4.66%	9.08E-04	19	5.69%	161	1.11E-03
4	0.26%	7	5.06E-05	12	5.89%	1.15E-03	20	4.28%	121	8.32E-04
5	0.50%	14	9.67E-05	13	6.15%	1.20E-03	21	3.25%	92	6.34E-04
6	0.91%	26	1.77E-04	14	6.04%	1.18E-03	22	3.30%	93	6.42E-04
7	3.79%	107	7.37E-04	15	7.01%	1.36E-03	23	2.46%	70	4.79E-04
8	7.77%	220	1.51E-03	16	7.14%	1.39E-03	24	1.86%	53	3.63E-04
Total									2,832	

Charcot Ave, San Jose, CA

Operation - Oakland Road Emissions

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2025

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	2,832
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	2,832
								Total	5,664

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	125.46
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>1.45E-03</b>

\* daily emissions based on CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	33	2.00E-04	9	7.11%	1.24E-03	17	7.39%	209	1.29E-03
2	0.42%	12	7.35E-05	10	4.39%	7.65E-04	18	8.18%	232	1.43E-03
3	0.41%	12	7.12E-05	11	4.66%	8.13E-04	19	5.69%	161	9.93E-04
4	0.26%	7	4.53E-05	12	5.89%	1.03E-03	20	4.28%	121	7.45E-04
5	0.50%	14	8.66E-05	13	6.15%	1.07E-03	21	3.25%	92	5.67E-04
6	0.91%	26	1.58E-04	14	6.04%	1.05E-03	22	3.30%	93	5.75E-04
7	3.79%	107	6.60E-04	15	7.01%	1.22E-03	23	2.46%	70	4.29E-04
8	7.77%	220	1.35E-03	16	7.14%	1.24E-03	24	1.86%	53	3.25E-04
Total									2,832	

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	33	2.00E-04	9	7.11%	1.24E-03	17	7.39%	209	1.29E-03
2	0.42%	12	7.35E-05	10	4.39%	7.65E-04	18	8.18%	232	1.43E-03
3	0.41%	12	7.12E-05	11	4.66%	8.13E-04	19	5.69%	161	9.93E-04
4	0.26%	7	4.53E-05	12	5.89%	1.03E-03	20	4.28%	121	7.45E-04
5	0.50%	14	8.66E-05	13	6.15%	1.07E-03	21	3.25%	92	5.67E-04
6	0.91%	26	1.58E-04	14	6.04%	1.05E-03	22	3.30%	93	5.75E-04
7	3.79%	107	6.60E-04	15	7.01%	1.22E-03	23	2.46%	70	4.29E-04
8	7.77%	220	1.35E-03	16	7.14%	1.24E-03	24	1.86%	53	3.25E-04
Total									2,832	

Charcot Ave, San Jose, CA

Operation - Oakland Road Emissions

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2025

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	40	3,000
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	40	3,000
								Total	6,000

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day) =	36.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>4.24E-04</b>

**2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	34	5.86E-05	9	7.11%	3.62E-04	17	7.39%	222	3.76E-04
2	0.42%	13	2.15E-05	10	4.39%	2.24E-04	18	8.18%	245	4.17E-04
3	0.41%	12	2.08E-05	11	4.66%	2.38E-04	19	5.69%	171	2.90E-04
4	0.26%	8	1.32E-05	12	5.89%	3.00E-04	20	4.28%	128	2.18E-04
5	0.50%	15	2.53E-05	13	6.15%	3.13E-04	21	3.25%	98	1.66E-04
6	0.91%	27	4.62E-05	14	6.04%	3.08E-04	22	3.30%	99	1.68E-04
7	3.79%	114	1.93E-04	15	7.01%	3.57E-04	23	2.46%	74	1.25E-04
8	7.77%	233	3.96E-04	16	7.14%	3.64E-04	24	1.86%	56	9.50E-05
Total									3,000	

**2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	34	5.86E-05	9	7.11%	3.62E-04	17	7.39%	222	3.76E-04
2	0.42%	13	2.15E-05	10	4.39%	2.24E-04	18	8.18%	245	4.17E-04
3	0.41%	12	2.08E-05	11	4.66%	2.38E-04	19	5.69%	171	2.90E-04
4	0.26%	8	1.32E-05	12	5.89%	3.00E-04	20	4.28%	128	2.18E-04
5	0.50%	15	2.53E-05	13	6.15%	3.13E-04	21	3.25%	98	1.66E-04
6	0.91%	27	4.62E-05	14	6.04%	3.08E-04	22	3.30%	99	1.68E-04
7	3.79%	114	1.93E-04	15	7.01%	3.57E-04	23	2.46%	74	1.25E-04
8	7.77%	233	3.96E-04	16	7.14%	3.64E-04	24	1.86%	56	9.50E-05
Total									3,000	



**Charcot Ave, San Jose, CA**

**Operation - Oakland Road Emissions Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2025

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	6,000	0.40	36.7

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2040

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles			
										Diesel Vehicles/Day	Non-Truck	MDT	HDT
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	3.4	25	3,750	224.6	50	40	135
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	3.4	25	3,750	224.6	50	40	135
Total									7,500	449	99	80	270
Fraction of Total Vehicles =										0.946	0.016	0.038	
Fraction Diesel in category =										0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	1.88
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>2.17E-05</b>

\* daily emissions based on CT-EMFAC

**2040 Hourly Diesel Traffic Volumes and DPM Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	9	1.07E-05	9	6.54%	1.70E-05	17	5.65%	13	1.47E-05
2	2.80%	6	7.29E-06	10	7.60%	1.98E-05	18	3.11%	7	8.11E-06
3	2.85%	6	7.42E-06	11	6.39%	1.66E-05	19	2.11%	5	5.50E-06
4	3.11%	7	8.11E-06	12	7.07%	1.84E-05	20	0.84%	2	2.20E-06
5	2.06%	5	5.36E-06	13	6.33%	1.65E-05	21	3.06%	7	7.97E-06
6	3.22%	7	8.39E-06	14	6.17%	1.61E-05	22	4.27%	10	1.11E-05
7	5.96%	13	1.55E-05	15	5.22%	1.36E-05	23	2.69%	6	7.01E-06
8	4.22%	9	1.10E-05	16	3.75%	9.76E-06	24	0.84%	2	2.20E-06
Total									225	

**2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	9	1.07E-05	9	6.54%	1.70E-05	17	5.65%	13	1.47E-05
2	2.80%	6	7.29E-06	10	7.60%	1.98E-05	18	3.11%	7	8.11E-06
3	2.85%	6	7.42E-06	11	6.39%	1.66E-05	19	2.11%	5	5.50E-06
4	3.11%	7	8.11E-06	12	7.07%	1.84E-05	20	0.84%	2	2.20E-06
5	2.06%	5	5.36E-06	13	6.33%	1.65E-05	21	3.06%	7	7.97E-06
6	3.22%	7	8.39E-06	14	6.17%	1.61E-05	22	4.27%	10	1.11E-05
7	5.96%	13	1.55E-05	15	5.22%	1.36E-05	23	2.69%	6	7.01E-06
8	4.22%	9	1.10E-05	16	3.75%	9.76E-06	24	0.84%	2	2.20E-06
Total									225	

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2040

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	25	3,750
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	25	3,750
								Total	7,500

PM2.5 Emissions	
Daily Emissions (g/day)* =	65.57
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>7.59E-04</b>

\* daily emissions based on CT-EMFAC

**2040 Hourly Traffic Volumes and PM2.5 Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	43	1.04E-04	9	7.12%	6.49E-04	17	7.40%	278	6.74E-04
2	0.42%	16	3.83E-05	10	4.38%	3.99E-04	18	8.19%	307	7.46E-04
3	0.40%	15	3.64E-05	11	4.66%	4.25E-04	19	5.71%	214	5.20E-04
4	0.24%	9	2.19E-05	12	5.89%	5.37E-04	20	4.28%	161	3.90E-04
5	0.49%	18	4.46E-05	13	6.16%	5.61E-04	21	3.25%	122	2.96E-04
6	0.89%	33	8.11E-05	14	6.03%	5.49E-04	22	3.30%	124	3.01E-04
7	3.78%	142	3.44E-04	15	7.02%	6.40E-04	23	2.46%	92	2.24E-04
8	7.77%	291	7.08E-04	16	7.15%	6.51E-04	24	1.87%	70	1.70E-04
Total									3,750	

**2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	43	1.04E-04	9	7.12%	6.49E-04	17	7.40%	278	6.74E-04
2	0.42%	16	3.83E-05	10	4.38%	3.99E-04	18	8.19%	307	7.46E-04
3	0.40%	15	3.64E-05	11	4.66%	4.25E-04	19	5.71%	214	5.20E-04
4	0.24%	9	2.19E-05	12	5.89%	5.37E-04	20	4.28%	161	3.90E-04
5	0.49%	18	4.46E-05	13	6.16%	5.61E-04	21	3.25%	122	2.96E-04
6	0.89%	33	8.11E-05	14	6.03%	5.49E-04	22	3.30%	124	3.01E-04
7	3.78%	142	3.44E-04	15	7.02%	6.40E-04	23	2.46%	92	2.24E-04
8	7.77%	291	7.08E-04	16	7.15%	6.51E-04	24	1.87%	70	1.70E-04
Total									3,750	

Charcot Ave, San Jose, CA  
 Operation - Oakland Road Emissions  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2040

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	25	3,526
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	25	3,526
								Total	7,051

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	146.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>1.70E-03</b>

\* daily emissions based on CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Exhaust Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	40	2.32E-04	9	7.12%	1.45E-03	17	7.40%	261	1.51E-03
2	0.42%	15	8.56E-05	10	4.38%	8.93E-04	18	8.19%	289	1.67E-03
3	0.40%	14	8.15E-05	11	4.66%	9.50E-04	19	5.71%	201	1.16E-03
4	0.24%	8	4.89E-05	12	5.89%	1.20E-03	20	4.28%	151	8.72E-04
5	0.49%	17	9.99E-05	13	6.16%	1.26E-03	21	3.25%	115	6.62E-04
6	0.89%	31	1.81E-04	14	6.03%	1.23E-03	22	3.30%	116	6.73E-04
7	3.78%	133	7.71E-04	15	7.02%	1.43E-03	23	2.46%	87	5.01E-04
8	7.77%	274	1.58E-03	16	7.15%	1.46E-03	24	1.87%	66	3.81E-04
Total									3,526	

**2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	40	2.32E-04	9	7.12%	1.45E-03	17	7.40%	261	1.51E-03
2	0.42%	15	8.56E-05	10	4.38%	8.93E-04	18	8.19%	289	1.67E-03
3	0.40%	14	8.15E-05	11	4.66%	9.50E-04	19	5.71%	201	1.16E-03
4	0.24%	8	4.89E-05	12	5.89%	1.20E-03	20	4.28%	151	8.72E-04
5	0.49%	17	9.99E-05	13	6.16%	1.26E-03	21	3.25%	115	6.62E-04
6	0.89%	31	1.81E-04	14	6.03%	1.23E-03	22	3.30%	116	6.73E-04
7	3.78%	133	7.71E-04	15	7.02%	1.43E-03	23	2.46%	87	5.01E-04
8	7.77%	274	1.58E-03	16	7.15%	1.46E-03	24	1.87%	66	3.81E-04
Total									3,526	

Charcot Ave, San Jose, CA

Operation - Oakland Road Emissions

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2040

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	25	3,526
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	25	3,526
								Total	7,051

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	116.25
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>1.35E-03</b>

\* daily emissions based on CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	40	1.84E-04	9	7.12%	1.15E-03	17	7.40%	261	1.20E-03
2	0.42%	15	6.78E-05	10	4.38%	7.07E-04	18	8.19%	289	1.32E-03
3	0.40%	14	6.46E-05	11	4.66%	7.53E-04	19	5.71%	201	9.22E-04
4	0.24%	8	3.88E-05	12	5.89%	9.51E-04	20	4.28%	151	6.91E-04
5	0.49%	17	7.91E-05	13	6.16%	9.95E-04	21	3.25%	115	5.25E-04
6	0.89%	31	1.44E-04	14	6.03%	9.74E-04	22	3.30%	116	5.33E-04
7	3.78%	133	6.11E-04	15	7.02%	1.13E-03	23	2.46%	87	3.97E-04
8	7.77%	274	1.26E-03	16	7.15%	1.15E-03	24	1.87%	66	3.02E-04
Total									3,526	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	40	1.84E-04	9	7.12%	1.15E-03	17	7.40%	261	1.20E-03
2	0.42%	15	6.78E-05	10	4.38%	7.07E-04	18	8.19%	289	1.32E-03
3	0.40%	14	6.46E-05	11	4.66%	7.53E-04	19	5.71%	201	9.22E-04
4	0.24%	8	3.88E-05	12	5.89%	9.51E-04	20	4.28%	151	6.91E-04
5	0.49%	17	7.91E-05	13	6.16%	9.95E-04	21	3.25%	115	5.25E-04
6	0.89%	31	1.44E-04	14	6.03%	9.74E-04	22	3.30%	116	5.33E-04
7	3.78%	133	6.11E-04	15	7.02%	1.13E-03	23	2.46%	87	3.97E-04
8	7.77%	274	1.26E-03	16	7.15%	1.15E-03	24	1.87%	66	3.02E-04
Total									3,526	

Charcot Ave, San Jose, CA

Operation - Oakland Road Emissions

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2040

**Oakland Road**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
NB Oakland Rd	Northbound Oakland Road	N	3	644	53	16.1	1.3	25	3,750
SB Oakland Rd	Southbound Oakland Road	S	3	644	53	16.1	1.3	25	3,750
								Total	7,500

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day) =	45.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>5.31E-04</b>

**2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - NB Oakland Rd**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	43	7.26E-05	9	7.12%	4.53E-04	17	7.40%	278	4.71E-04
2	0.42%	16	2.68E-05	10	4.38%	2.79E-04	18	8.19%	307	5.22E-04
3	0.40%	15	2.55E-05	11	4.66%	2.97E-04	19	5.71%	214	3.64E-04
4	0.24%	9	1.53E-05	12	5.89%	3.75E-04	20	4.28%	161	2.73E-04
5	0.49%	18	3.12E-05	13	6.16%	3.92E-04	21	3.25%	122	2.07E-04
6	0.89%	33	5.67E-05	14	6.03%	3.84E-04	22	3.30%	124	2.10E-04
7	3.78%	142	2.41E-04	15	7.02%	4.47E-04	23	2.46%	92	1.57E-04
8	7.77%	291	4.95E-04	16	7.15%	4.55E-04	24	1.87%	70	1.19E-04
Total									3,750	

**2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - SB Oakland Rd**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	43	7.26E-05	9	7.12%	4.53E-04	17	7.40%	278	4.71E-04
2	0.42%	16	2.68E-05	10	4.38%	2.79E-04	18	8.19%	307	5.22E-04
3	0.40%	15	2.55E-05	11	4.66%	2.97E-04	19	5.71%	214	3.64E-04
4	0.24%	9	1.53E-05	12	5.89%	3.75E-04	20	4.28%	161	2.73E-04
5	0.49%	18	3.12E-05	13	6.16%	3.92E-04	21	3.25%	122	2.07E-04
6	0.89%	33	5.67E-05	14	6.03%	3.84E-04	22	3.30%	124	2.10E-04
7	3.78%	142	2.41E-04	15	7.02%	4.47E-04	23	2.46%	92	1.57E-04
8	7.77%	291	4.95E-04	16	7.15%	4.55E-04	24	1.87%	70	1.19E-04
Total									3,750	

**Charcot Ave, San Jose, CA**

**Operation - Oakland Road Emissions Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

**Year = 2040**

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	7,500	0.40	45.8

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

## **Proposed Project – Charcot Avenue and Oakland Road Modeling Information and Health Risk Calculations**

### **Proposed - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations Residential Receptors (1.5 meter receptor heights)**

**Emissions Years** 2020, 2025, and 2040

**Receptor Information**

Number of Receptors 118  
 Receptor Height = 1.5 meters above ground level  
 Receptor distances = at residential locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00703	0.2394	0.1973
2025	0.00424	0.2240	0.1934
2040	0.00304	0.2349	0.1863

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1253	0.0474	0.0779
2025	0.1519	0.0594	0.0925
2040	0.1903	0.0782	0.1121



**Charcot Ave, San Jose, CA - Proposed - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks Residential Receptors (1.5 meter receptor heights) 30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information					Cancer Risk (per million)					
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2020	0.25	-0.25 - 0*	10	0.0070	0.2394	0.1973	0.096	0.019	0.001	0.12			
1	2020	1	1	10	0.0070	0.2394	0.1973	1.15	0.225	0.011	1.39			
2	2021	1	2	10	0.0070	0.2394	0.1973	1.15	0.225	0.011	1.39			
3	2022	1	3	3	0.0070	0.2394	0.1973	0.18	0.035	0.002	0.22			
4	2023	1	4	3	0.0070	0.2394	0.1973	0.18	0.035	0.002	0.22			
5	2024	1	5	3	0.0070	0.2394	0.1973	0.18	0.035	0.002	0.22			
6	2025	1	6	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
7	2026	1	7	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
8	2027	1	8	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
9	2028	1	9	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
10	2029	1	10	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
11	2030	1	11	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
12	2031	1	12	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
13	2032	1	13	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
14	2033	1	14	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
15	2034	1	15	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
16	2035	1	16	3	0.0042	0.2240	0.1934	0.11	0.033	0.002	0.14			
17	2036	1	17	1	0.0042	0.2240	0.1934	0.01	0.0037	0.000	0.016			
18	2037	1	18	1	0.0042	0.2240	0.1934	0.01	0.004	0.000	0.016			
19	2038	1	19	1	0.0042	0.2240	0.1934	0.01	0.004	0.000	0.016			
20	2039	1	20	1	0.0042	0.2240	0.1934	0.01	0.004	0.000	0.016			
21	2040	1	21	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
22	2041	1	22	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
23	2042	1	23	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
24	2043	1	24	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
25	2044	1	25	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
26	2045	1	26	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
27	2046	1	27	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
28	2047	1	28	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
29	2048	1	29	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
30	2049	1	30	1	0.0030	0.2349	0.1863	0.01	0.004	0.000	0.013			
<b>Total Increased Cancer Risk</b>			<b>Total</b>					4.29	0.991	0.049	<b>5.3</b>			

\* Third trimester of pregnancy

**Proposed - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Years** 2020 and 2025

**Receptor Information**

Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00889	0.4325	0.3566
2025	0.00542	0.4087	0.3531

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.2183	0.0826	0.13562
2025	0.2649	0.1036	0.16126

**Charcot Ave, San Jose, CA - Proposed - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EFH/24) x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
EFH =	10	10	10	10
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information			Cancer Risk (per million)				
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)		DPM	Exhaust TOG	Evaporative TOG	Total	
					DPM	TOG					TOG
1	2020	1	3	3	0.0089	0.4325	0.3566	0.096	0.027	0.001	0.12
2	2021	1	4	3	0.0089	0.4325	0.3566	0.096	0.027	0.001	0.12
3	2022	1	5	3	0.0089	0.4325	0.3566	0.096	0.027	0.001	0.12
4	2023	1	6	3	0.0089	0.4325	0.3566	0.096	0.027	0.001	0.12
5	2024	1	7	3	0.0089	0.4325	0.3566	0.096	0.027	0.001	0.12
6	2025	1	8	3	0.0054	0.4087	0.3531	0.058	0.025	0.001	0.08
7	2026	1	9	3	0.0054	0.4087	0.3531	0.058	0.025	0.001	0.08
8	2027	1	10	3	0.0054	0.4087	0.3531	0.058	0.025	0.001	0.08
9	2028	1	11	3	0.0054	0.4087	0.3531	0.058	0.025	0.001	0.08
<b>Total Increased Cancer Risk</b>			<b>Total</b>					0.71	0.234	0.020	<b>1.0</b>

**Charcot Ave Extension- Construction & Operation Sources - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 Off-Site Residential Receptors (1.5 meter receptor heights)**

**Emissions Year** 2019 - 2048

**Receptor Information**

Number of Receptors 118  
 Receptor Height = 1.5 meters  
 Receptor distances = at sensitive residential receptor locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02383	0.0000	0.0000
2020-2024	0.00689	0.2489	0.2053
2025-2039	0.00421	0.2359	0.2034
2040-2048	0.00306	0.2502	0.1983



**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road**

**Proposed Project**

**Off-Site Residential Receptors (1.5 meter receptor heights)**

**30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information						Cancer Risk (per million)				
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2019	0.25	-0.25 - 0*	10	0.0238	0.0000	0.0000	0.324	0.000	0.000	0.000	0.32		
1	2019	1	1	10	0.0238	0.0000	0.0000	3.91	0.000	0.000	0.000	3.91		
2	2020	1	2	10	0.0069	0.2489	0.2053	1.13	0.233	0.011	0.011	1.38		
3	2021	1	3	3	0.0069	0.2489	0.2053	0.18	0.037	0.002	0.002	0.217		
4	2022	1	4	3	0.0069	0.2489	0.2053	0.18	0.037	0.002	0.002	0.217		
5	2023	1	5	3	0.0069	0.2489	0.2053	0.18	0.037	0.002	0.002	0.217		
6	2024	1	6	3	0.0069	0.2489	0.2053	0.18	0.037	0.002	0.002	0.217		
7	2025	1	7	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
8	2026	1	8	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
9	2027	1	9	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
10	2028	1	10	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
11	2029	1	11	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
12	2030	1	12	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
13	2031	1	13	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
14	2032	1	14	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
15	2033	1	15	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
16	2034	1	16	3	0.0042	0.2359	0.2034	0.11	0.035	0.002	0.002	0.145		
17	2035	1	17	1	0.0042	0.2359	0.2034	0.01	0.00	0.000	0.000	0.016		
18	2036	1	18	1	0.0042	0.2359	0.2034	0.01	0.00	0.000	0.000	0.016		
19	2037	1	19	1	0.0042	0.2359	0.2034	0.01	0.00	0.000	0.000	0.016		
20	2038	1	20	1	0.0042	0.2359	0.2034	0.01	0.00	0.000	0.000	0.016		
21	2039	1	21	1	0.0042	0.2359	0.2034	0.01	0.00	0.000	0.000	0.016		
22	2040	1	22	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
23	2041	1	23	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
24	2042	1	24	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
25	2043	1	25	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
26	2044	1	26	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
27	2045	1	27	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
28	2046	1	28	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
29	2047	1	29	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
29	2048	1	29	1	0.0031	0.2502	0.1983	0.01	0.00	0.000	0.000	0.013		
<b>Total Increased Cancer Risk</b>			<b>Total</b>					7.31	0.78495	0.03892		<b>8.13</b>		

\* Third trimester of pregnancy

**Charcot Ave Extension- Construction & Operation Sources - TACs**  
**Proposed Project**  
**AERMOD Risk Modeling Parameters and Maximum Concentrations**  
**Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Year** 2019 - 2027

**Receptor Information**

Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.03449	0.0000	0.0000
2020-2024	0.00624	0.2748	0.2267
2025-2027	0.00381	0.2542	0.2240

**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road  
Proposed Project  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age -->	Infant/Child				Adult
	3rd Trimester	0 - <2	2 - <9	2 - <16	16 - 30
Parameter					
ASF	10	10	3	3	1
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
EFH =	10	10	10	10	10
ED =	0.25	2	14	14	14
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Construction and Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Maximum - Exposure Information				Cancer Risk (per million)			
			Age* Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	Total
				DPM	Exhaust TOG	Evaporative TOG				
1	2019	1	3	0.0345	0.0000	0.0000	0.984	0.000	0.000	0.98
2	2020	1	3	0.0062	0.2748	0.2267	0.074	0.019	0.001	0.09
3	2021	1	3	0.0062	0.2748	0.2267	0.074	0.019	0.001	0.09
4	2022	1	3	0.0062	0.2748	0.2267	0.074	0.019	0.001	0.09
5	2023	1	3	0.0062	0.2748	0.2267	0.074	0.019	0.001	0.09
6	2024	1	3	0.0062	0.2748	0.2267	0.074	0.019	0.001	0.09
7	2025	1	3	0.0038	0.2542	0.2240	0.045	0.017	0.001	0.06
8	2026	1	3	0.0038	0.2542	0.2240	0.045	0.017	0.001	0.06
9	2027	1	3	0.0038	0.2542	0.2240	0.045	0.017	0.001	0.06
<b>Total Increased Cancer Risk</b>			<b>Total</b>				1.49	0.145	0.007	<b>1.64</b>

\* Children assumed to be from 5 to 13 years of age



# Alternative 1 – Charcot Avenue and Oakland Road Traffic Emissions

## Charcot Avenue Traffic Emissions

Charcot Ave, San Jose, CA

Operation - Alternative 1

DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions

Year = 2020

### North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles				
										Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	3.4	25	4,000	208.3	46	42	121	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	3.4	25	4,000	208.3	46	42	121	
Total									8,000	417	91	84	242	
* Road segments north of Silk Wood Lane.										Fraction of Total Vehicles =		0.948	0.020	0.032
										Fraction Diesel in category =		0.012	0.523	0.945

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.40
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

### 2020 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.18E-05	9	6.47%	1.94E-05	17	5.49%	11	1.64E-05
2	2.54%	5	7.61E-06	10	7.16%	2.14E-05	18	3.29%	7	9.85E-06
3	2.83%	6	8.47E-06	11	6.35%	1.90E-05	19	2.43%	5	7.26E-06
4	3.41%	7	1.02E-05	12	6.93%	2.07E-05	20	0.98%	2	2.94E-06
5	2.20%	5	6.57E-06	13	6.12%	1.83E-05	21	3.06%	6	9.16E-06
6	3.35%	7	1.00E-05	14	6.12%	1.83E-05	22	4.16%	9	1.24E-05
7	6.07%	13	1.81E-05	15	5.14%	1.54E-05	23	2.37%	5	7.09E-06
8	4.79%	10	1.43E-05	16	3.93%	1.18E-05	24	0.87%	2	2.59E-06
Total									208	

### 2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.18E-05	9	6.47%	1.94E-05	17	5.49%	11	1.64E-05
2	2.54%	5	7.61E-06	10	7.16%	2.14E-05	18	3.29%	7	9.85E-06
3	2.83%	6	8.47E-06	11	6.35%	1.90E-05	19	2.43%	5	7.26E-06
4	3.41%	7	1.02E-05	12	6.93%	2.07E-05	20	0.98%	2	2.94E-06
5	2.20%	5	6.57E-06	13	6.12%	1.83E-05	21	3.06%	6	9.16E-06
6	3.35%	7	1.00E-05	14	6.12%	1.83E-05	22	4.16%	9	1.24E-05
7	6.07%	13	1.81E-05	15	5.14%	1.54E-05	23	2.37%	5	7.09E-06
8	4.79%	10	1.43E-05	16	3.93%	1.18E-05	24	0.87%	2	2.59E-06
Total									208	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	4,000	208.3	46	42	121	
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	4,000	208.3	46	42	121	
									Total	8,000	417	91	84	242
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.948	0.020	0.032	
									Fraction Diesel in category =		0.012	0.523	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.75E-05	17	5.49%	11	4.03E-05
2	2.54%	5	1.87E-05	10	7.16%	5.26E-05	18	3.29%	7	2.42E-05
3	2.83%	6	2.08E-05	11	6.35%	4.67E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.09E-05	20	0.98%	2	7.21E-06
5	2.20%	5	1.61E-05	13	6.12%	4.50E-05	21	3.06%	6	2.25E-05
6	3.35%	7	2.46E-05	14	6.12%	4.50E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.45E-05	15	5.14%	3.78E-05	23	2.37%	5	1.74E-05
8	4.79%	10	3.52E-05	16	3.93%	2.88E-05	24	0.87%	2	6.36E-06
Total									208	

**2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.75E-05	17	5.49%	11	4.03E-05
2	2.54%	5	1.87E-05	10	7.16%	5.26E-05	18	3.29%	7	2.42E-05
3	2.83%	6	2.08E-05	11	6.35%	4.67E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.09E-05	20	0.98%	2	7.21E-06
5	2.20%	5	1.61E-05	13	6.12%	4.50E-05	21	3.06%	6	2.25E-05
6	3.35%	7	2.46E-05	14	6.12%	4.50E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.45E-05	15	5.14%	3.78E-05	23	2.37%	5	1.74E-05
8	4.79%	10	3.52E-05	16	3.93%	2.88E-05	24	0.87%	2	6.36E-06
Total									208	

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	4,000
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	4,000
Total									8,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and PM2.5 Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	3.76E-05	9	7.11%	2.32E-04	17	7.38%	295	2.40E-04
2	0.42%	17	1.37E-05	10	4.39%	1.43E-04	18	8.17%	327	2.66E-04
3	0.41%	16	1.32E-05	11	4.67%	1.52E-04	19	5.70%	228	1.85E-04
4	0.27%	11	8.78E-06	12	5.89%	1.92E-04	20	4.27%	171	1.39E-04
5	0.50%	20	1.64E-05	13	6.15%	2.00E-04	21	3.26%	130	1.06E-04
6	0.91%	36	2.96E-05	14	6.03%	1.96E-04	22	3.30%	132	1.07E-04
7	3.80%	152	1.24E-04	15	7.01%	2.28E-04	23	2.46%	98	7.99E-05
8	7.76%	311	2.53E-04	16	7.13%	2.32E-04	24	1.87%	75	6.08E-05
Total									4,000	

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	3.76E-05	9	7.11%	2.32E-04	17	7.38%	295	2.40E-04
2	0.42%	17	1.37E-05	10	4.39%	1.43E-04	18	8.17%	327	2.66E-04
3	0.41%	16	1.32E-05	11	4.67%	1.52E-04	19	5.70%	228	1.85E-04
4	0.27%	11	8.78E-06	12	5.89%	1.92E-04	20	4.27%	171	1.39E-04
5	0.50%	20	1.64E-05	13	6.15%	2.00E-04	21	3.26%	130	1.06E-04
6	0.91%	36	2.96E-05	14	6.03%	1.96E-04	22	3.30%	132	1.07E-04
7	3.80%	152	1.24E-04	15	7.01%	2.28E-04	23	2.46%	98	7.99E-05
8	7.76%	311	2.53E-04	16	7.13%	2.32E-04	24	1.87%	75	6.08E-05
Total									4,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,000
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,000
								Total	8,000

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and PM2.5 Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	9.22E-05	9	7.11%	5.68E-04	17	7.38%	295	5.90E-04
2	0.42%	17	3.36E-05	10	4.39%	3.51E-04	18	8.17%	327	6.53E-04
3	0.41%	16	3.24E-05	11	4.67%	3.73E-04	19	5.70%	228	4.55E-04
4	0.27%	11	2.16E-05	12	5.89%	4.71E-04	20	4.27%	171	3.41E-04
5	0.50%	20	4.02E-05	13	6.15%	4.92E-04	21	3.26%	130	2.60E-04
6	0.91%	36	7.26E-05	14	6.03%	4.82E-04	22	3.30%	132	2.63E-04
7	3.80%	152	3.03E-04	15	7.01%	5.60E-04	23	2.46%	98	1.96E-04
8	7.76%	311	6.20E-04	16	7.13%	5.70E-04	24	1.87%	75	1.49E-04
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	9.22E-05	9	7.11%	5.68E-04	17	7.38%	295	5.90E-04
2	0.42%	17	3.36E-05	10	4.39%	3.51E-04	18	8.17%	327	6.53E-04
3	0.41%	16	3.24E-05	11	4.67%	3.73E-04	19	5.70%	228	4.55E-04
4	0.27%	11	2.16E-05	12	5.89%	4.71E-04	20	4.27%	171	3.41E-04
5	0.50%	20	4.02E-05	13	6.15%	4.92E-04	21	3.26%	130	2.60E-04
6	0.91%	36	7.26E-05	14	6.03%	4.82E-04	22	3.30%	132	2.63E-04
7	3.80%	152	3.03E-04	15	7.01%	5.60E-04	23	2.46%	98	1.96E-04
8	7.76%	311	6.20E-04	16	7.13%	5.70E-04	24	1.87%	75	1.49E-04
Total									4,000	

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	3,800
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
Modeled Emission Rate (g/s) =	2.97E-03

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	1.20E-04	9	7.11%	7.40E-04	17	7.38%	280	7.68E-04
2	0.42%	16	4.37E-05	10	4.39%	4.57E-04	18	8.17%	311	8.51E-04
3	0.41%	15	4.22E-05	11	4.67%	4.86E-04	19	5.70%	216	5.93E-04
4	0.27%	10	2.81E-05	12	5.89%	6.13E-04	20	4.27%	162	4.45E-04
5	0.50%	19	5.23E-05	13	6.15%	6.41E-04	21	3.26%	124	3.39E-04
6	0.91%	35	9.46E-05	14	6.03%	6.28E-04	22	3.30%	125	3.43E-04
7	3.80%	144	3.95E-04	15	7.01%	7.30E-04	23	2.46%	93	2.56E-04
8	7.76%	295	8.08E-04	16	7.13%	7.43E-04	24	1.87%	71	1.94E-04
Total									3,800	

2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	1.20E-04	9	7.11%	7.40E-04	17	7.38%	280	7.68E-04
2	0.42%	16	4.37E-05	10	4.39%	4.57E-04	18	8.17%	311	8.51E-04
3	0.41%	15	4.22E-05	11	4.67%	4.86E-04	19	5.70%	216	5.93E-04
4	0.27%	10	2.81E-05	12	5.89%	6.13E-04	20	4.27%	162	4.45E-04
5	0.50%	19	5.23E-05	13	6.15%	6.41E-04	21	3.26%	124	3.39E-04
6	0.91%	35	9.46E-05	14	6.03%	6.28E-04	22	3.30%	125	3.43E-04
7	3.80%	144	3.95E-04	15	7.01%	7.30E-04	23	2.46%	93	2.56E-04
8	7.76%	295	8.08E-04	16	7.13%	7.43E-04	24	1.87%	71	1.94E-04
Total									3,800	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	3,800
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
<b>Modeled Emission Rate (g/s) =</b>	<b>2.97E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.95E-04	9	7.11%	1.82E-03	17	7.38%	280	1.89E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.09E-03
3	0.41%	15	1.04E-04	11	4.67%	1.19E-03	19	5.70%	216	1.46E-03
4	0.27%	10	6.89E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.32E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.43E-04
7	3.80%	144	9.70E-04	15	7.01%	1.79E-03	23	2.46%	93	6.27E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.77E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.95E-04	9	7.11%	1.82E-03	17	7.38%	280	1.89E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.09E-03
3	0.41%	15	1.04E-04	11	4.67%	1.19E-03	19	5.70%	216	1.46E-03
4	0.27%	10	6.89E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.32E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.43E-04
7	3.80%	144	9.70E-04	15	7.01%	1.79E-03	23	2.46%	93	6.27E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.77E-04
Total									3,800	

Charcot Ave, San Jose, CA

Operation - Alternative 1

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	3,800
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	9.92E-05	9	7.11%	6.12E-04	17	7.38%	280	6.35E-04
2	0.42%	16	3.61E-05	10	4.39%	3.77E-04	18	8.17%	311	7.03E-04
3	0.41%	15	3.49E-05	11	4.67%	4.01E-04	19	5.70%	216	4.90E-04
4	0.27%	10	2.32E-05	12	5.89%	5.06E-04	20	4.27%	162	3.67E-04
5	0.50%	19	4.32E-05	13	6.15%	5.29E-04	21	3.26%	124	2.80E-04
6	0.91%	35	7.81E-05	14	6.03%	5.19E-04	22	3.30%	125	2.84E-04
7	3.80%	144	3.26E-04	15	7.01%	6.03E-04	23	2.46%	93	2.11E-04
8	7.76%	295	6.68E-04	16	7.13%	6.13E-04	24	1.87%	71	1.60E-04
Total									3,800	

2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	9.92E-05	9	7.11%	6.12E-04	17	7.38%	280	6.35E-04
2	0.42%	16	3.61E-05	10	4.39%	3.77E-04	18	8.17%	311	7.03E-04
3	0.41%	15	3.49E-05	11	4.67%	4.01E-04	19	5.70%	216	4.90E-04
4	0.27%	10	2.32E-05	12	5.89%	5.06E-04	20	4.27%	162	3.67E-04
5	0.50%	19	4.32E-05	13	6.15%	5.29E-04	21	3.26%	124	2.80E-04
6	0.91%	35	7.81E-05	14	6.03%	5.19E-04	22	3.30%	125	2.84E-04
7	3.80%	144	3.26E-04	15	7.01%	6.03E-04	23	2.46%	93	2.11E-04
8	7.76%	295	6.68E-04	16	7.13%	6.13E-04	24	1.87%	71	1.60E-04
Total									3,800	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	3,800
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.56E-03
2	0.42%	16	8.87E-05	10	4.39%	9.26E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.56E-05	11	4.67%	9.85E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.69E-05	12	5.89%	1.24E-03	20	4.27%	162	9.02E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.87E-04
6	0.91%	35	1.92E-04	14	6.03%	1.27E-03	22	3.30%	125	6.96E-04
7	3.80%	144	8.01E-04	15	7.01%	1.48E-03	23	2.46%	93	5.18E-04
8	7.76%	295	1.64E-03	16	7.13%	1.51E-03	24	1.87%	71	3.94E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.56E-03
2	0.42%	16	8.87E-05	10	4.39%	9.26E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.56E-05	11	4.67%	9.85E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.69E-05	12	5.89%	1.24E-03	20	4.27%	162	9.02E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.87E-04
6	0.91%	35	1.92E-04	14	6.03%	1.27E-03	22	3.30%	125	6.96E-04
7	3.80%	144	8.01E-04	15	7.01%	1.48E-03	23	2.46%	93	5.18E-04
8	7.76%	295	1.64E-03	16	7.13%	1.51E-03	24	1.87%	71	3.94E-04
Total									3,800	



Charcot Ave, San Jose, CA

Operation - Alternative 1

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2020

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	4,000
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	4,000
Total									8,000

\* Road segments north of Silk Wood Lane.

<b>Road PM2.5 Fugitive Emissions</b>	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>5.66E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 1-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	2.29E-05	9	7.11%	1.41E-04	17	7.38%	295	1.46E-04
2	0.42%	17	8.33E-06	10	4.39%	8.70E-05	18	8.17%	327	1.62E-04
3	0.41%	16	8.04E-06	11	4.67%	9.25E-05	19	5.70%	228	1.13E-04
4	0.27%	11	5.35E-06	12	5.89%	1.17E-04	20	4.27%	171	8.47E-05
5	0.50%	20	9.96E-06	13	6.15%	1.22E-04	21	3.26%	130	6.46E-05
6	0.91%	36	1.80E-05	14	6.03%	1.20E-04	22	3.30%	132	6.54E-05
7	3.80%	152	7.53E-05	15	7.01%	1.39E-04	23	2.46%	98	4.87E-05
8	7.76%	311	1.54E-04	16	7.13%	1.41E-04	24	1.87%	75	3.70E-05
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 1-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	2.29E-05	9	7.11%	1.41E-04	17	7.38%	295	1.46E-04
2	0.42%	17	8.33E-06	10	4.39%	8.70E-05	18	8.17%	327	1.62E-04
3	0.41%	16	8.04E-06	11	4.67%	9.25E-05	19	5.70%	228	1.13E-04
4	0.27%	11	5.35E-06	12	5.89%	1.17E-04	20	4.27%	171	8.47E-05
5	0.50%	20	9.96E-06	13	6.15%	1.22E-04	21	3.26%	130	6.46E-05
6	0.91%	36	1.80E-05	14	6.03%	1.20E-04	22	3.30%	132	6.54E-05
7	3.80%	152	7.53E-05	15	7.01%	1.39E-04	23	2.46%	98	4.87E-05
8	7.76%	311	1.54E-04	16	7.13%	1.41E-04	24	1.87%	75	3.70E-05
Total									4,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,000
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,000
								Total	8,000

\* Road segments south of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>5.66E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	5.61E-05	9	7.11%	3.46E-04	17	7.38%	295	3.59E-04
2	0.42%	17	2.04E-05	10	4.39%	2.14E-04	18	8.17%	327	3.98E-04
3	0.41%	16	1.97E-05	11	4.67%	2.27E-04	19	5.70%	228	2.77E-04
4	0.27%	11	1.31E-05	12	5.89%	2.87E-04	20	4.27%	171	2.08E-04
5	0.50%	20	2.45E-05	13	6.15%	2.99E-04	21	3.26%	130	1.58E-04
6	0.91%	36	4.42E-05	14	6.03%	2.94E-04	22	3.30%	132	1.60E-04
7	3.80%	152	1.85E-04	15	7.01%	3.41E-04	23	2.46%	98	1.19E-04
8	7.76%	311	3.78E-04	16	7.13%	3.47E-04	24	1.87%	75	9.08E-05
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	5.61E-05	9	7.11%	3.46E-04	17	7.38%	295	3.59E-04
2	0.42%	17	2.04E-05	10	4.39%	2.14E-04	18	8.17%	327	3.98E-04
3	0.41%	16	1.97E-05	11	4.67%	2.27E-04	19	5.70%	228	2.77E-04
4	0.27%	11	1.31E-05	12	5.89%	2.87E-04	20	4.27%	171	2.08E-04
5	0.50%	20	2.45E-05	13	6.15%	2.99E-04	21	3.26%	130	1.58E-04
6	0.91%	36	4.42E-05	14	6.03%	2.94E-04	22	3.30%	132	1.60E-04
7	3.80%	152	1.85E-04	15	7.01%	3.41E-04	23	2.46%	98	1.19E-04
8	7.76%	311	3.78E-04	16	7.13%	3.47E-04	24	1.87%	75	9.08E-05
Total									4,000	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 1 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2020

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	8,000	0.40	48.9

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles						
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT		
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	3.4	25	5,000	280.1	62	53	165		
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	3.4	25	5,000	280.1	62	53	165		
Total									10,000	560	123	106	331		
* Road segments north of Silk Wood Lane.										Fraction of Total Vehicles =			0.947	0.018	0.035
										Fraction Diesel in category =			0.013	0.591	0.945

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	7.18E-06	9	6.41%	1.17E-05	17	5.55%	16	1.01E-05
2	2.62%	7	4.78E-06	10	7.36%	1.34E-05	18	3.16%	9	5.76E-06
3	2.85%	8	5.20E-06	11	6.34%	1.16E-05	19	2.36%	7	4.30E-06
4	3.31%	9	6.03E-06	12	6.92%	1.26E-05	20	0.87%	2	1.58E-06
5	2.17%	6	3.95E-06	13	6.29%	1.15E-05	21	3.09%	9	5.64E-06
6	3.36%	9	6.14E-06	14	6.23%	1.14E-05	22	4.12%	12	7.51E-06
7	6.00%	17	1.09E-05	15	5.15%	9.40E-06	23	2.58%	7	4.70E-06
8	4.58%	13	8.36E-06	16	3.84%	7.01E-06	24	0.92%	3	1.68E-06
Total									280	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	7.18E-06	9	6.41%	1.17E-05	17	5.55%	16	1.01E-05
2	2.62%	7	4.78E-06	10	7.36%	1.34E-05	18	3.16%	9	5.76E-06
3	2.85%	8	5.20E-06	11	6.34%	1.16E-05	19	2.36%	7	4.30E-06
4	3.31%	9	6.03E-06	12	6.92%	1.26E-05	20	0.87%	2	1.58E-06
5	2.17%	6	3.95E-06	13	6.29%	1.15E-05	21	3.09%	9	5.64E-06
6	3.36%	9	6.14E-06	14	6.23%	1.14E-05	22	4.12%	12	7.51E-06
7	6.00%	17	1.09E-05	15	5.15%	9.40E-06	23	2.58%	7	4.70E-06
8	4.58%	13	8.36E-06	16	3.84%	7.01E-06	24	0.92%	3	1.68E-06
Total									280	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	5,000	280.1	62	53	165	
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	5,000	280.1	62	53	165	
									Total	10,000	560	123	106	331
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.947	0.018	0.035	
									Fraction Diesel in category =		0.013	0.591	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.87E-05	17	5.55%	16	2.49E-05
2	2.62%	7	1.17E-05	10	7.36%	3.30E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.28E-05	11	6.34%	2.84E-05	19	2.36%	7	1.06E-05
4	3.31%	9	1.48E-05	12	6.92%	3.10E-05	20	0.87%	2	3.87E-06
5	2.17%	6	9.70E-06	13	6.29%	2.82E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.51E-05	14	6.23%	2.79E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.31E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.13E-06
Total										280

**2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.87E-05	17	5.55%	16	2.49E-05
2	2.62%	7	1.17E-05	10	7.36%	3.30E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.28E-05	11	6.34%	2.84E-05	19	2.36%	7	1.06E-05
4	3.31%	9	1.48E-05	12	6.92%	3.10E-05	20	0.87%	2	3.87E-06
5	2.17%	6	9.70E-06	13	6.29%	2.82E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.51E-05	14	6.23%	2.79E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.31E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.13E-06
Total										280

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	5,000	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	5,000	
									Total	10,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and PM2.5 Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.15%	57	4.44E-05	9	7.11%	2.75E-04	17	7.39%	369	2.85E-04	
2	0.42%	21	1.63E-05	10	4.39%	1.69E-04	18	8.18%	409	3.16E-04	
3	0.41%	20	1.58E-05	11	4.66%	1.80E-04	19	5.69%	285	2.20E-04	
4	0.26%	13	1.00E-05	12	5.89%	2.27E-04	20	4.28%	214	1.65E-04	
5	0.50%	25	1.92E-05	13	6.15%	2.37E-04	21	3.25%	163	1.26E-04	
6	0.91%	45	3.50E-05	14	6.04%	2.33E-04	22	3.30%	165	1.27E-04	
7	3.79%	189	1.46E-04	15	7.01%	2.71E-04	23	2.46%	123	9.50E-05	
8	7.77%	388	3.00E-04	16	7.14%	2.76E-04	24	1.86%	93	7.19E-05	
										Total	5,000

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.15%	57	4.44E-05	9	7.11%	2.75E-04	17	7.39%	369	2.85E-04	
2	0.42%	21	1.63E-05	10	4.39%	1.69E-04	18	8.18%	409	3.16E-04	
3	0.41%	20	1.58E-05	11	4.66%	1.80E-04	19	5.69%	285	2.20E-04	
4	0.26%	13	1.00E-05	12	5.89%	2.27E-04	20	4.28%	214	1.65E-04	
5	0.50%	25	1.92E-05	13	6.15%	2.37E-04	21	3.25%	163	1.26E-04	
6	0.91%	45	3.50E-05	14	6.04%	2.33E-04	22	3.30%	165	1.27E-04	
7	3.79%	189	1.46E-04	15	7.01%	2.71E-04	23	2.46%	123	9.50E-05	
8	7.77%	388	3.00E-04	16	7.14%	2.76E-04	24	1.86%	93	7.19E-05	
										Total	5,000

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	5,000
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	5,000
								Total	10,000

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and PM2.5 Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	1.09E-04	9	7.11%	6.74E-04	17	7.39%	369	7.00E-04
2	0.42%	21	3.99E-05	10	4.39%	4.16E-04	18	8.18%	409	7.74E-04
3	0.41%	20	3.87E-05	11	4.66%	4.42E-04	19	5.69%	285	5.39E-04
4	0.26%	13	2.46E-05	12	5.89%	5.58E-04	20	4.28%	214	4.05E-04
5	0.50%	25	4.71E-05	13	6.15%	5.83E-04	21	3.25%	163	3.08E-04
6	0.91%	45	8.59E-05	14	6.04%	5.72E-04	22	3.30%	165	3.12E-04
7	3.79%	189	3.59E-04	15	7.01%	6.64E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.36E-04	16	7.14%	6.76E-04	24	1.86%	93	1.77E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	1.09E-04	9	7.11%	6.74E-04	17	7.39%	369	7.00E-04
2	0.42%	21	3.99E-05	10	4.39%	4.16E-04	18	8.18%	409	7.74E-04
3	0.41%	20	3.87E-05	11	4.66%	4.42E-04	19	5.69%	285	5.39E-04
4	0.26%	13	2.46E-05	12	5.89%	5.58E-04	20	4.28%	214	4.05E-04
5	0.50%	25	4.71E-05	13	6.15%	5.83E-04	21	3.25%	163	3.08E-04
6	0.91%	45	8.59E-05	14	6.04%	5.72E-04	22	3.30%	165	3.12E-04
7	3.79%	189	3.59E-04	15	7.01%	6.64E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.36E-04	16	7.14%	6.76E-04	24	1.86%	93	1.77E-04
Total									5,000	

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	4,720
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	1.09E-04	9	7.11%	6.73E-04	17	7.39%	349	6.99E-04
2	0.42%	20	3.99E-05	10	4.39%	4.15E-04	18	8.18%	386	7.74E-04
3	0.41%	19	3.86E-05	11	4.66%	4.41E-04	19	5.69%	269	5.39E-04
4	0.26%	12	2.46E-05	12	5.89%	5.57E-04	20	4.28%	202	4.05E-04
5	0.50%	23	4.70E-05	13	6.15%	5.82E-04	21	3.25%	154	3.08E-04
6	0.91%	43	8.59E-05	14	6.04%	5.72E-04	22	3.30%	156	3.12E-04
7	3.79%	179	3.59E-04	15	7.01%	6.64E-04	23	2.46%	116	2.33E-04
8	7.77%	367	7.35E-04	16	7.14%	6.76E-04	24	1.86%	88	1.76E-04
Total									4,720	

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	1.09E-04	9	7.11%	6.73E-04	17	7.39%	349	6.99E-04
2	0.42%	20	3.99E-05	10	4.39%	4.15E-04	18	8.18%	386	7.74E-04
3	0.41%	19	3.86E-05	11	4.66%	4.41E-04	19	5.69%	269	5.39E-04
4	0.26%	12	2.46E-05	12	5.89%	5.57E-04	20	4.28%	202	4.05E-04
5	0.50%	23	4.70E-05	13	6.15%	5.82E-04	21	3.25%	154	3.08E-04
6	0.91%	43	8.59E-05	14	6.04%	5.72E-04	22	3.30%	156	3.12E-04
7	3.79%	179	3.59E-04	15	7.01%	6.64E-04	23	2.46%	116	2.33E-04
8	7.77%	367	7.35E-04	16	7.14%	6.76E-04	24	1.86%	88	1.76E-04
Total									4,720	



**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,720
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.67E-04	9	7.11%	1.65E-03	17	7.39%	349	1.72E-03
2	0.42%	20	9.80E-05	10	4.39%	1.02E-03	18	8.18%	386	1.90E-03
3	0.41%	19	9.48E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.04E-05	12	5.89%	1.37E-03	20	4.28%	202	9.93E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.56E-04
6	0.91%	43	2.11E-04	14	6.04%	1.40E-03	22	3.30%	156	7.66E-04
7	3.79%	179	8.80E-04	15	7.01%	1.63E-03	23	2.46%	116	5.72E-04
8	7.77%	367	1.80E-03	16	7.14%	1.66E-03	24	1.86%	88	4.33E-04
Total									4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.67E-04	9	7.11%	1.65E-03	17	7.39%	349	1.72E-03
2	0.42%	20	9.80E-05	10	4.39%	1.02E-03	18	8.18%	386	1.90E-03
3	0.41%	19	9.48E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.04E-05	12	5.89%	1.37E-03	20	4.28%	202	9.93E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.56E-04
6	0.91%	43	2.11E-04	14	6.04%	1.40E-03	22	3.30%	156	7.66E-04
7	3.79%	179	8.80E-04	15	7.01%	1.63E-03	23	2.46%	116	5.72E-04
8	7.77%	367	1.80E-03	16	7.14%	1.66E-03	24	1.86%	88	4.33E-04
Total									4,720	

Charcot Ave, San Jose, CA

Operation - Alternative 1

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	4,720
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	9.75E-05	9	7.11%	6.03E-04	17	7.39%	349	6.26E-04
2	0.42%	20	3.58E-05	10	4.39%	3.72E-04	18	8.18%	386	6.93E-04
3	0.41%	19	3.46E-05	11	4.66%	3.95E-04	19	5.69%	269	4.83E-04
4	0.26%	12	2.20E-05	12	5.89%	4.99E-04	20	4.28%	202	3.62E-04
5	0.50%	23	4.21E-05	13	6.15%	5.21E-04	21	3.25%	154	2.76E-04
6	0.91%	43	7.69E-05	14	6.04%	5.12E-04	22	3.30%	156	2.79E-04
7	3.79%	179	3.21E-04	15	7.01%	5.94E-04	23	2.46%	116	2.09E-04
8	7.77%	367	6.58E-04	16	7.14%	6.05E-04	24	1.86%	88	1.58E-04
Total									4,720	

2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	9.75E-05	9	7.11%	6.03E-04	17	7.39%	349	6.26E-04
2	0.42%	20	3.58E-05	10	4.39%	3.72E-04	18	8.18%	386	6.93E-04
3	0.41%	19	3.46E-05	11	4.66%	3.95E-04	19	5.69%	269	4.83E-04
4	0.26%	12	2.20E-05	12	5.89%	4.99E-04	20	4.28%	202	3.62E-04
5	0.50%	23	4.21E-05	13	6.15%	5.21E-04	21	3.25%	154	2.76E-04
6	0.91%	43	7.69E-05	14	6.04%	5.12E-04	22	3.30%	156	2.79E-04
7	3.79%	179	3.21E-04	15	7.01%	5.94E-04	23	2.46%	116	2.09E-04
8	7.77%	367	6.58E-04	16	7.14%	6.05E-04	24	1.86%	88	1.58E-04
Total									4,720	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,720
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.54E-03
2	0.42%	20	8.77E-05	10	4.39%	9.13E-04	18	8.18%	386	1.70E-03
3	0.41%	19	8.49E-05	11	4.66%	9.70E-04	19	5.69%	269	1.18E-03
4	0.26%	12	5.41E-05	12	5.89%	1.22E-03	20	4.28%	202	8.89E-04
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.77E-04
6	0.91%	43	1.89E-04	14	6.04%	1.26E-03	22	3.30%	156	6.86E-04
7	3.79%	179	7.88E-04	15	7.01%	1.46E-03	23	2.46%	116	5.12E-04
8	7.77%	367	1.62E-03	16	7.14%	1.49E-03	24	1.86%	88	3.88E-04
Total									4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.54E-03
2	0.42%	20	8.77E-05	10	4.39%	9.13E-04	18	8.18%	386	1.70E-03
3	0.41%	19	8.49E-05	11	4.66%	9.70E-04	19	5.69%	269	1.18E-03
4	0.26%	12	5.41E-05	12	5.89%	1.22E-03	20	4.28%	202	8.89E-04
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.77E-04
6	0.91%	43	1.89E-04	14	6.04%	1.26E-03	22	3.30%	156	6.86E-04
7	3.79%	179	7.88E-04	15	7.01%	1.46E-03	23	2.46%	116	5.12E-04
8	7.77%	367	1.62E-03	16	7.14%	1.49E-03	24	1.86%	88	3.88E-04
Total									4,720	

Charcot Ave, San Jose, CA

Operation - Alternative 1

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2025

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	5,000	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	5,000	
									Total	10,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 1-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	2.85E-05	9	7.11%	1.76E-04	17	7.39%	369	1.83E-04
2	0.42%	21	1.04E-05	10	4.39%	1.09E-04	18	8.18%	409	2.03E-04
3	0.41%	20	1.01E-05	11	4.66%	1.16E-04	19	5.69%	285	1.41E-04
4	0.26%	13	6.44E-06	12	5.89%	1.46E-04	20	4.28%	214	1.06E-04
5	0.50%	25	1.23E-05	13	6.15%	1.52E-04	21	3.25%	163	8.06E-05
6	0.91%	45	2.25E-05	14	6.04%	1.50E-04	22	3.30%	165	8.17E-05
7	3.79%	189	9.39E-05	15	7.01%	1.74E-04	23	2.46%	123	6.10E-05
8	7.77%	388	1.92E-04	16	7.14%	1.77E-04	24	1.86%	93	4.62E-05
Total										5,000

**2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 1-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	2.85E-05	9	7.11%	1.76E-04	17	7.39%	369	1.83E-04
2	0.42%	21	1.04E-05	10	4.39%	1.09E-04	18	8.18%	409	2.03E-04
3	0.41%	20	1.01E-05	11	4.66%	1.16E-04	19	5.69%	285	1.41E-04
4	0.26%	13	6.44E-06	12	5.89%	1.46E-04	20	4.28%	214	1.06E-04
5	0.50%	25	1.23E-05	13	6.15%	1.52E-04	21	3.25%	163	8.06E-05
6	0.91%	45	2.25E-05	14	6.04%	1.50E-04	22	3.30%	165	8.17E-05
7	3.79%	189	9.39E-05	15	7.01%	1.74E-04	23	2.46%	123	6.10E-05
8	7.77%	388	1.92E-04	16	7.14%	1.77E-04	24	1.86%	93	4.62E-05
Total										5,000

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	5,000
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	5,000
								Total	10,000

\* Road segments south of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	6.99E-05	9	7.11%	4.33E-04	17	7.39%	369	4.49E-04
2	0.42%	21	2.56E-05	10	4.39%	2.67E-04	18	8.18%	409	4.97E-04
3	0.41%	20	2.48E-05	11	4.66%	2.84E-04	19	5.69%	285	3.46E-04
4	0.26%	13	1.58E-05	12	5.89%	3.58E-04	20	4.28%	214	2.60E-04
5	0.50%	25	3.02E-05	13	6.15%	3.74E-04	21	3.25%	163	1.98E-04
6	0.91%	45	5.52E-05	14	6.04%	3.67E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.26E-04	23	2.46%	123	1.50E-04
8	7.77%	388	4.72E-04	16	7.14%	4.34E-04	24	1.86%	93	1.13E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	6.99E-05	9	7.11%	4.33E-04	17	7.39%	369	4.49E-04
2	0.42%	21	2.56E-05	10	4.39%	2.67E-04	18	8.18%	409	4.97E-04
3	0.41%	20	2.48E-05	11	4.66%	2.84E-04	19	5.69%	285	3.46E-04
4	0.26%	13	1.58E-05	12	5.89%	3.58E-04	20	4.28%	214	2.60E-04
5	0.50%	25	3.02E-05	13	6.15%	3.74E-04	21	3.25%	163	1.98E-04
6	0.91%	45	5.52E-05	14	6.04%	3.67E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.26E-04	23	2.46%	123	1.50E-04
8	7.77%	388	4.72E-04	16	7.14%	4.34E-04	24	1.86%	93	1.13E-04
Total									5,000	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 1 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2025

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	10,000	0.40	61.1

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	3.4	25	6,600	395.3	87	71	237	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	3.4	25	6,600	395.3	87	71	237	
Total									13,200	791	175	141	475	
* Road segments north of Silk Wood Lane.										Fraction of Total Vehicles =		0.946	0.016	0.038
										Fraction Diesel in category =		0.014	0.669	0.946

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

2040 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.51E-06	9	6.54%	8.75E-06	17	5.65%	22	7.55E-06
2	2.80%	11	3.74E-06	10	7.60%	1.02E-05	18	3.11%	12	4.17E-06
3	2.85%	11	3.81E-06	11	6.39%	8.54E-06	19	2.11%	8	2.82E-06
4	3.11%	12	4.17E-06	12	7.07%	9.46E-06	20	0.84%	3	1.13E-06
5	2.06%	8	2.75E-06	13	6.33%	8.47E-06	21	3.06%	12	4.09E-06
6	3.22%	13	4.31E-06	14	6.17%	8.26E-06	22	4.27%	17	5.72E-06
7	5.96%	24	7.98E-06	15	5.22%	6.99E-06	23	2.69%	11	3.60E-06
8	4.22%	17	5.65E-06	16	3.75%	5.01E-06	24	0.84%	3	1.13E-06
Total									395	

2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.51E-06	9	6.54%	8.75E-06	17	5.65%	22	7.55E-06
2	2.80%	11	3.74E-06	10	7.60%	1.02E-05	18	3.11%	12	4.17E-06
3	2.85%	11	3.81E-06	11	6.39%	8.54E-06	19	2.11%	8	2.82E-06
4	3.11%	12	4.17E-06	12	7.07%	9.46E-06	20	0.84%	3	1.13E-06
5	2.06%	8	2.75E-06	13	6.33%	8.47E-06	21	3.06%	12	4.09E-06
6	3.22%	13	4.31E-06	14	6.17%	8.26E-06	22	4.27%	17	5.72E-06
7	5.96%	24	7.98E-06	15	5.22%	6.99E-06	23	2.69%	11	3.60E-06
8	4.22%	17	5.65E-06	16	3.75%	5.01E-06	24	0.84%	3	1.13E-06
Total									395	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	6,600	395.3	87	71	237	
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	6,600	395.3	87	71	237	
									Total	13,200	791	175	141	475
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.946	0.016	0.038	
									Fraction Diesel in category =		0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	4.12%	16	1.35E-05	9	6.54%	2.15E-05	17	5.65%	22	1.85E-05	
2	2.80%	11	9.18E-06	10	7.60%	2.50E-05	18	3.11%	12	1.02E-05	
3	2.85%	11	9.36E-06	11	6.39%	2.10E-05	19	2.11%	8	6.93E-06	
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06	
5	2.06%	8	6.76E-06	13	6.33%	2.08E-05	21	3.06%	12	1.00E-05	
6	3.22%	13	1.06E-05	14	6.17%	2.03E-05	22	4.27%	17	1.40E-05	
7	5.96%	24	1.96E-05	15	5.22%	1.72E-05	23	2.69%	11	8.84E-06	
8	4.22%	17	1.39E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06	
									Total	395	

**2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	4.12%	16	1.35E-05	9	6.54%	2.15E-05	17	5.65%	22	1.85E-05	
2	2.80%	11	9.18E-06	10	7.60%	2.50E-05	18	3.11%	12	1.02E-05	
3	2.85%	11	9.36E-06	11	6.39%	2.10E-05	19	2.11%	8	6.93E-06	
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06	
5	2.06%	8	6.76E-06	13	6.33%	2.08E-05	21	3.06%	12	1.00E-05	
6	3.22%	13	1.06E-05	14	6.17%	2.03E-05	22	4.27%	17	1.40E-05	
7	5.96%	24	1.96E-05	15	5.22%	1.72E-05	23	2.69%	11	8.84E-06	
8	4.22%	17	1.39E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06	
									Total	395	



Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	6,600	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	6,600	
									Total	13,200

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and PM2.5 Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.14%	75	5.33E-05	9	7.12%	3.33E-04	17	7.40%	488	3.46E-04	
2	0.42%	28	1.96E-05	10	4.38%	2.05E-04	18	8.19%	541	3.83E-04	
3	0.40%	26	1.87E-05	11	4.66%	2.18E-04	19	5.71%	377	2.67E-04	
4	0.24%	16	1.12E-05	12	5.89%	2.76E-04	20	4.28%	282	2.00E-04	
5	0.49%	32	2.29E-05	13	6.16%	2.88E-04	21	3.25%	215	1.52E-04	
6	0.89%	59	4.16E-05	14	6.03%	2.82E-04	22	3.30%	218	1.54E-04	
7	3.78%	249	1.77E-04	15	7.02%	3.28E-04	23	2.46%	162	1.15E-04	
8	7.77%	513	3.64E-04	16	7.15%	3.35E-04	24	1.87%	123	8.75E-05	
									Total	6,600	

2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.14%	75	5.33E-05	9	7.12%	3.33E-04	17	7.40%	488	3.46E-04	
2	0.42%	28	1.96E-05	10	4.38%	2.05E-04	18	8.19%	541	3.83E-04	
3	0.40%	26	1.87E-05	11	4.66%	2.18E-04	19	5.71%	377	2.67E-04	
4	0.24%	16	1.12E-05	12	5.89%	2.76E-04	20	4.28%	282	2.00E-04	
5	0.49%	32	2.29E-05	13	6.16%	2.88E-04	21	3.25%	215	1.52E-04	
6	0.89%	59	4.16E-05	14	6.03%	2.82E-04	22	3.30%	218	1.54E-04	
7	3.78%	249	1.77E-04	15	7.02%	3.28E-04	23	2.46%	162	1.15E-04	
8	7.77%	513	3.64E-04	16	7.15%	3.35E-04	24	1.87%	123	8.75E-05	
									Total	6,600	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,600
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,600
Total									13,200

\* Road segments south of Silk Wood Lane.

<b>PM2.5 Emissions</b>	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and PM2.5 Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	1.31E-04	9	7.12%	8.18E-04	17	7.40%	488	8.50E-04
2	0.42%	28	4.82E-05	10	4.38%	5.03E-04	18	8.19%	541	9.40E-04
3	0.40%	26	4.59E-05	11	4.66%	5.35E-04	19	5.71%	377	6.56E-04
4	0.24%	16	2.76E-05	12	5.89%	6.76E-04	20	4.28%	282	4.91E-04
5	0.49%	32	5.63E-05	13	6.16%	7.07E-04	21	3.25%	215	3.73E-04
6	0.89%	59	1.02E-04	14	6.03%	6.92E-04	22	3.30%	218	3.79E-04
7	3.78%	249	4.34E-04	15	7.02%	8.06E-04	23	2.46%	162	2.82E-04
8	7.77%	513	8.92E-04	16	7.15%	8.21E-04	24	1.87%	123	2.15E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	1.31E-04	9	7.12%	8.18E-04	17	7.40%	488	8.50E-04
2	0.42%	28	4.82E-05	10	4.38%	5.03E-04	18	8.19%	541	9.40E-04
3	0.40%	26	4.59E-05	11	4.66%	5.35E-04	19	5.71%	377	6.56E-04
4	0.24%	16	2.76E-05	12	5.89%	6.76E-04	20	4.28%	282	4.91E-04
5	0.49%	32	5.63E-05	13	6.16%	7.07E-04	21	3.25%	215	3.73E-04
6	0.89%	59	1.02E-04	14	6.03%	6.92E-04	22	3.30%	218	3.79E-04
7	3.78%	249	4.34E-04	15	7.02%	8.06E-04	23	2.46%	162	2.82E-04
8	7.77%	513	8.92E-04	16	7.15%	8.21E-04	24	1.87%	123	2.15E-04
Total									6,600	

Charcot Ave, San Jose, CA  
 Operation - Alternative 1  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	6,205	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	6,205	
									Total	12,410

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	1.19E-04	9	7.12%	7.45E-04	17	7.40%	459	7.75E-04
2	0.42%	26	4.40E-05	10	4.38%	4.58E-04	18	8.19%	508	8.57E-04
3	0.40%	25	4.19E-05	11	4.66%	4.88E-04	19	5.71%	354	5.98E-04
4	0.24%	15	2.51E-05	12	5.89%	6.17E-04	20	4.28%	266	4.48E-04
5	0.49%	30	5.13E-05	13	6.16%	6.45E-04	21	3.25%	202	3.40E-04
6	0.89%	55	9.32E-05	14	6.03%	6.31E-04	22	3.30%	205	3.45E-04
7	3.78%	235	3.96E-04	15	7.02%	7.35E-04	23	2.46%	153	2.58E-04
8	7.77%	482	8.13E-04	16	7.15%	7.48E-04	24	1.87%	116	1.96E-04
									Total	6,205

2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	1.19E-04	9	7.12%	7.45E-04	17	7.40%	459	7.75E-04
2	0.42%	26	4.40E-05	10	4.38%	4.58E-04	18	8.19%	508	8.57E-04
3	0.40%	25	4.19E-05	11	4.66%	4.88E-04	19	5.71%	354	5.98E-04
4	0.24%	15	2.51E-05	12	5.89%	6.17E-04	20	4.28%	266	4.48E-04
5	0.49%	30	5.13E-05	13	6.16%	6.45E-04	21	3.25%	202	3.40E-04
6	0.89%	55	9.32E-05	14	6.03%	6.31E-04	22	3.30%	205	3.45E-04
7	3.78%	235	3.96E-04	15	7.02%	7.35E-04	23	2.46%	153	2.58E-04
8	7.77%	482	8.13E-04	16	7.15%	7.48E-04	24	1.87%	116	1.96E-04
									Total	6,205

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,205
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments south of Silk Wood Lane.

<b>TOG Exhaust Emissions</b>	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.93E-04	9	7.12%	1.83E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.13E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.20E-03	19	5.71%	354	1.47E-03
4	0.24%	15	6.17E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.35E-04
6	0.89%	55	2.29E-04	14	6.03%	1.55E-03	22	3.30%	205	8.48E-04
7	3.78%	235	9.71E-04	15	7.02%	1.80E-03	23	2.46%	153	6.32E-04
8	7.77%	482	2.00E-03	16	7.15%	1.84E-03	24	1.87%	116	4.80E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.93E-04	9	7.12%	1.83E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.13E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.20E-03	19	5.71%	354	1.47E-03
4	0.24%	15	6.17E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.35E-04
6	0.89%	55	2.29E-04	14	6.03%	1.55E-03	22	3.30%	205	8.48E-04
7	3.78%	235	9.71E-04	15	7.02%	1.80E-03	23	2.46%	153	6.32E-04
8	7.77%	482	2.00E-03	16	7.15%	1.84E-03	24	1.87%	116	4.80E-04
Total									6,205	

Charcot Ave, San Jose, CA

Operation - Alternative 1

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	6,205	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	6,205	
									Total	12,410

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.14%	71	9.46E-05	9	7.12%	5.91E-04	17	7.40%	459	6.14E-04	
2	0.42%	26	3.48E-05	10	4.38%	3.63E-04	18	8.19%	508	6.79E-04	
3	0.40%	25	3.32E-05	11	4.66%	3.87E-04	19	5.71%	354	4.74E-04	
4	0.24%	15	1.99E-05	12	5.89%	4.89E-04	20	4.28%	266	3.55E-04	
5	0.49%	30	4.06E-05	13	6.16%	5.11E-04	21	3.25%	202	2.70E-04	
6	0.89%	55	7.38E-05	14	6.03%	5.00E-04	22	3.30%	205	2.74E-04	
7	3.78%	235	3.14E-04	15	7.02%	5.82E-04	23	2.46%	153	2.04E-04	
8	7.77%	482	6.44E-04	16	7.15%	5.93E-04	24	1.87%	116	1.55E-04	
									Total	6,205	

2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.14%	71	9.46E-05	9	7.12%	5.91E-04	17	7.40%	459	6.14E-04	
2	0.42%	26	3.48E-05	10	4.38%	3.63E-04	18	8.19%	508	6.79E-04	
3	0.40%	25	3.32E-05	11	4.66%	3.87E-04	19	5.71%	354	4.74E-04	
4	0.24%	15	1.99E-05	12	5.89%	4.89E-04	20	4.28%	266	3.55E-04	
5	0.49%	30	4.06E-05	13	6.16%	5.11E-04	21	3.25%	202	2.70E-04	
6	0.89%	55	7.38E-05	14	6.03%	5.00E-04	22	3.30%	205	2.74E-04	
7	3.78%	235	3.14E-04	15	7.02%	5.82E-04	23	2.46%	153	2.04E-04	
8	7.77%	482	6.44E-04	16	7.15%	5.93E-04	24	1.87%	116	1.55E-04	
									Total	6,205	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,205
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments south of Silk Wood Lane.

<b>TOG Evaporative Emissions</b>	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.32E-04	9	7.12%	1.45E-03	17	7.40%	459	1.51E-03
2	0.42%	26	8.55E-05	10	4.38%	8.92E-04	18	8.19%	508	1.67E-03
3	0.40%	25	8.14E-05	11	4.66%	9.49E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.89E-05	12	5.89%	1.20E-03	20	4.28%	266	8.71E-04
5	0.49%	30	9.98E-05	13	6.16%	1.25E-03	21	3.25%	202	6.62E-04
6	0.89%	55	1.81E-04	14	6.03%	1.23E-03	22	3.30%	205	6.72E-04
7	3.78%	235	7.70E-04	15	7.02%	1.43E-03	23	2.46%	153	5.01E-04
8	7.77%	482	1.58E-03	16	7.15%	1.46E-03	24	1.87%	116	3.81E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.32E-04	9	7.12%	1.45E-03	17	7.40%	459	1.51E-03
2	0.42%	26	8.55E-05	10	4.38%	8.92E-04	18	8.19%	508	1.67E-03
3	0.40%	25	8.14E-05	11	4.66%	9.49E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.89E-05	12	5.89%	1.20E-03	20	4.28%	266	8.71E-04
5	0.49%	30	9.98E-05	13	6.16%	1.25E-03	21	3.25%	202	6.62E-04
6	0.89%	55	1.81E-04	14	6.03%	1.23E-03	22	3.30%	205	6.72E-04
7	3.78%	235	7.70E-04	15	7.02%	1.43E-03	23	2.46%	153	5.01E-04
8	7.77%	482	1.58E-03	16	7.15%	1.46E-03	24	1.87%	116	3.81E-04
Total									6,205	

Charcot Ave, San Jose, CA

Operation - Alternative 1

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 1-NB Charcot-North	Northbound Charcot Ave*	NW	2	188	42	12.7	1.3	25	6,600	
Alt 1-SB Charcot-North	Southbound Charcot Ave*	SE	1	188	31	9.4	1.3	25	6,600	
									Total	13,200

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 1-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.14%	75	3.73E-05	9	7.12%	2.33E-04	17	7.40%	488	2.42E-04	
2	0.42%	28	1.37E-05	10	4.38%	1.43E-04	18	8.19%	541	2.68E-04	
3	0.40%	26	1.31E-05	11	4.66%	1.52E-04	19	5.71%	377	1.87E-04	
4	0.24%	16	7.85E-06	12	5.89%	1.93E-04	20	4.28%	282	1.40E-04	
5	0.49%	32	1.60E-05	13	6.16%	2.01E-04	21	3.25%	215	1.06E-04	
6	0.89%	59	2.91E-05	14	6.03%	1.97E-04	22	3.30%	218	1.08E-04	
7	3.78%	249	1.24E-04	15	7.02%	2.30E-04	23	2.46%	162	8.05E-05	
8	7.77%	513	2.54E-04	16	7.15%	2.34E-04	24	1.87%	123	6.12E-05	
									Total	6,600	

2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 1-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.14%	75	3.73E-05	9	7.12%	2.33E-04	17	7.40%	488	2.42E-04	
2	0.42%	28	1.37E-05	10	4.38%	1.43E-04	18	8.19%	541	2.68E-04	
3	0.40%	26	1.31E-05	11	4.66%	1.52E-04	19	5.71%	377	1.87E-04	
4	0.24%	16	7.85E-06	12	5.89%	1.93E-04	20	4.28%	282	1.40E-04	
5	0.49%	32	1.60E-05	13	6.16%	2.01E-04	21	3.25%	215	1.06E-04	
6	0.89%	59	2.91E-05	14	6.03%	1.97E-04	22	3.30%	218	1.08E-04	
7	3.78%	249	1.24E-04	15	7.02%	2.30E-04	23	2.46%	162	8.05E-05	
8	7.77%	513	2.54E-04	16	7.15%	2.34E-04	24	1.87%	123	6.12E-05	
									Total	6,600	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 1-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,600
Alt 1-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,600
Total									13,200

\* Road segments south of Silk Wood Lane.

<b>Road PM2.5 Fugitive Emissions</b>	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 1-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	9.15E-05	9	7.12%	5.72E-04	17	7.40%	488	5.94E-04
2	0.42%	28	3.37E-05	10	4.38%	3.52E-04	18	8.19%	541	6.57E-04
3	0.40%	26	3.21E-05	11	4.66%	3.74E-04	19	5.71%	377	4.58E-04
4	0.24%	16	1.93E-05	12	5.89%	4.73E-04	20	4.28%	282	3.44E-04
5	0.49%	32	3.93E-05	13	6.16%	4.94E-04	21	3.25%	215	2.61E-04
6	0.89%	59	7.14E-05	14	6.03%	4.84E-04	22	3.30%	218	2.65E-04
7	3.78%	249	3.03E-04	15	7.02%	5.64E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.24E-04	16	7.15%	5.74E-04	24	1.87%	123	1.50E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 1-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	9.15E-05	9	7.12%	5.72E-04	17	7.40%	488	5.94E-04
2	0.42%	28	3.37E-05	10	4.38%	3.52E-04	18	8.19%	541	6.57E-04
3	0.40%	26	3.21E-05	11	4.66%	3.74E-04	19	5.71%	377	4.58E-04
4	0.24%	16	1.93E-05	12	5.89%	4.73E-04	20	4.28%	282	3.44E-04
5	0.49%	32	3.93E-05	13	6.16%	4.94E-04	21	3.25%	215	2.61E-04
6	0.89%	59	7.14E-05	14	6.03%	4.84E-04	22	3.30%	218	2.65E-04
7	3.78%	249	3.03E-04	15	7.02%	5.64E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.24E-04	16	7.15%	5.74E-04	24	1.87%	123	1.50E-04
Total									6,600	



**Charcot Ave, San Jose, CA**

**Operation - Alternative 1 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2040

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	13,200	0.40	80.7

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

***Oakland Road Traffic Emissions***

Oakland Road traffic emissions are the same as listed above for the Proposed Project.

# Alternative 1 – Charcot Avenue and Oakland Road Modeling Information and Health Risk Calculations

## Alternative 1 - Oakland Road & New Charcot Ave Traffic - TACs & PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations Residential Receptors (1.5 meter receptor heights)

**Emissions Years** 2020, 2025, and 2040

**Receptor Information**

Number of Receptors 118  
 Receptor Height = 1.5 meters above ground level  
 Receptor distances = at residential locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00755	0.2630	0.2168
2025	0.00454	0.2360	0.2115
2040	0.00325	0.2573	0.2040

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1324	0.0501	0.0822
2025	0.1580	0.0618	0.0962
2040	0.1955	0.0804	0.1152

**Charcot Ave, San Jose, CA - Alternative 1 - Oakland Road & New Charcot Ave Traffic Maximum Cancer Risks  
Residential Receptors (1.5 meter receptor heights)  
30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information					Cancer Risk (per million)					
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2020	0.25	-0.25 - 0*	10	0.0076	0.2630	0.2168	0.103	0.020	0.001	0.12			
1	2020	1	1	10	0.0076	0.2630	0.2168	1.24	0.247	0.012	1.50			
2	2021	1	2	10	0.0076	0.2630	0.2168	1.24	0.247	0.012	1.50			
3	2022	1	3	3	0.0076	0.2630	0.2168	0.20	0.039	0.002	0.24			
4	2023	1	4	3	0.0076	0.2630	0.2168	0.20	0.039	0.002	0.24			
5	2024	1	5	3	0.0076	0.2630	0.2168	0.20	0.039	0.002	0.24			
6	2025	1	6	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
7	2026	1	7	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
8	2027	1	8	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
9	2028	1	9	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
10	2029	1	10	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
11	2030	1	11	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
12	2031	1	12	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
13	2032	1	13	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
14	2033	1	14	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
15	2034	1	15	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
16	2035	1	16	3	0.0045	0.2360	0.2115	0.12	0.035	0.002	0.15			
17	2036	1	17	1	0.0045	0.2360	0.2115	0.01	0.0039	0.000	0.017			
18	2037	1	18	1	0.0045	0.2360	0.2115	0.01	0.004	0.000	0.017			
19	2038	1	19	1	0.0045	0.2360	0.2115	0.01	0.004	0.000	0.017			
20	2039	1	20	1	0.0045	0.2360	0.2115	0.01	0.004	0.000	0.017			
21	2040	1	21	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
22	2041	1	22	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
23	2042	1	23	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
24	2043	1	24	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
25	2044	1	25	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
26	2045	1	26	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
27	2046	1	27	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
28	2047	1	28	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
29	2048	1	29	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
30	2049	1	30	1	0.0033	0.2573	0.2040	0.01	0.004	0.000	0.014			
<b>Total Increased Cancer Risk</b>			<b>Total</b>					4.61	1.071	0.054	<b>5.7</b>			

\* Third trimester of pregnancy

**Alternative 1 - Oakland Road & New Charcot Ave Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Years** 2020 and 2025  
**Receptor Information**  
 Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**  
 BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00833	0.3873	0.3194
2025	0.00504	0.3502	0.3138
Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1962	0.0743	0.12192
2025	0.2311	0.0871	0.1440

**Charcot Ave, San Jose, CA - Alternative 1 - Oakland Road & New Charcot Ave Traffic Maximum Cancer Risks  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EFH/24) x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
EFH =	10	10	10	10
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information				Cancer Risk (per million)			
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG				
1	2020	1	3	3	0.0083	0.3873	0.3194	0.090	0.024	0.001	0.11
2	2021	1	4	3	0.0083	0.3873	0.3194	0.090	0.024	0.001	0.11
3	2022	1	5	3	0.0083	0.3873	0.3194	0.090	0.024	0.001	0.11
4	2023	1	6	3	0.0083	0.3873	0.3194	0.090	0.024	0.001	0.11
5	2024	1	7	3	0.0083	0.3873	0.3194	0.090	0.024	0.001	0.11
6	2025	1	8	3	0.0050	0.3502	0.3138	0.054	0.022	0.001	0.08
7	2026	1	9	3	0.0050	0.3502	0.3138	0.054	0.022	0.001	0.08
8	2027	1	10	3	0.0050	0.3502	0.3138	0.054	0.022	0.001	0.08
9	2028	1	11	3	0.0050	0.3502	0.3138	0.054	0.022	0.001	0.08
<b>Total Increased Cancer Risk</b>			<b>Total</b>					0.67	0.205	0.018	<b>0.9</b>

**Charcot Ave Extension- Construction & Operation Sources - TACs & PM2.5**

**Alternative 1**

**AERMOD Risk Modeling Parameters and Maximum Concentrations**

**Off-Site Residential Receptors (1.5 meter receptor heights)**

**Emissions Year** 2019 - 2048

**Receptor Information**

Number of Receptors 118  
Receptor Height = 1.5 meters  
Receptor distances = at sensitive residential receptor locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
Land Use Classification urban  
Wind speed = variable  
Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02084	0.0000	0.0000
2020-2024	0.00696	0.2548	0.2102
2025-2039	0.00423	0.2309	0.2070
2040-2048	0.00308	0.2547	0.2019

**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road**

**Alternative 1**

**Off-Site Residential Receptors (1.5 meter receptor heights)**

**30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age -->	Infant/Child		Adult	
	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information							
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			Cancer Risk (per million)			
					DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
0	2019	0.25	-0.25 - 0*	10	0.0208	0.0000	0.0000	0.283	0.000	0.000	0.28
1	2019	1	1	10	0.0208	0.0000	0.0000	3.42	0.000	0.000	3.42
2	2020	1	2	10	0.0070	0.2548	0.2102	1.14	0.239	0.012	1.39
3	2021	1	3	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.219
4	2022	1	4	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.219
5	2023	1	5	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.219
6	2024	1	6	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.219
7	2025	1	7	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
8	2026	1	8	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
9	2027	1	9	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
10	2028	1	10	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
11	2029	1	11	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
12	2030	1	12	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
13	2031	1	13	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
14	2032	1	14	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
15	2033	1	15	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
16	2034	1	16	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.145
17	2035	1	17	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.016
18	2036	1	18	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.016
19	2037	1	19	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.016
20	2038	1	20	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.016
21	2039	1	21	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.016
22	2040	1	22	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
23	2041	1	23	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
24	2042	1	24	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
25	2043	1	25	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
26	2044	1	26	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
27	2045	1	27	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
28	2046	1	28	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
29	2047	1	29	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
29	2048	1	29	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.013
<b>Total Increased Cancer Risk</b>			<b>Total</b>					<b>6.80</b>	<b>0.78685</b>	<b>0.03972</b>	<b>7.63</b>

\* Third trimester of pregnancy

**Charcot Ave Extension- Construction & Operation Sources - TACs**  
**Alternative 1**  
**AERMOD Risk Modeling Parameters and Maximum Concentrations**  
**Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Year** 2019 - 2027

**Receptor Information**

Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02498	0.0000	0.0000
2020-2024	0.00738	0.3593	0.2963
2025-2027	0.00449	0.3261	0.2923



**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road  
Alternative 1  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - <2	2 - <9	2 - <16	16 - 30
ASF	10	10	3	3	1
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
EFH =	10	10	10	10	10
ED =	0.25	2	14	14	14
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Construction and Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Maximum - Exposure Information				Cancer Risk (per million)			
			Age* Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	Total
				DPM	TOG	TOG				
1	2019	1	3	0.0250	0.0000	0.0000	0.713	0.000	0.000	0.71
2	2020	1	3	0.0074	0.3593	0.2963	0.088	0.024	0.001	0.11
3	2021	1	3	0.0074	0.3593	0.2963	0.088	0.024	0.001	0.11
4	2022	1	3	0.0074	0.3593	0.2963	0.088	0.024	0.001	0.11
5	2023	1	3	0.0074	0.3593	0.2963	0.088	0.024	0.001	0.11
6	2024	1	3	0.0074	0.3593	0.2963	0.088	0.024	0.001	0.11
7	2025	1	3	0.0045	0.3261	0.2923	0.053	0.022	0.001	0.08
8	2026	1	3	0.0045	0.3261	0.2923	0.053	0.022	0.001	0.08
9	2027	1	3	0.0045	0.3261	0.2923	0.053	0.022	0.001	0.08
<b>Total Increased Cancer Risk</b>			<b>Total</b>				1.31	0.188	0.009	<b>1.51</b>

\* Children assumed to be from 5 to 13 years of age

# Alternative 2 – Charcot Avenue and Oakland Road Traffic Emissions

## Charcot Avenue Traffic Emissions

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2020

### North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles				
										Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	3.4	25	4,000	208.3	46	42	121	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	3.4	25	4,000	208.3	46	42	121	
									Total	8,000	417	91	84	242
* Road segments north of Silk Wood Lane.										Fraction of Total Vehicles =	0.948	0.020	0.032	
										Fraction Diesel in category =	0.012	0.523	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.40
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

### 2020 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.16E-05	9	6.47%	1.91E-05	17	5.49%	11	1.62E-05
2	2.54%	5	7.51E-06	10	7.16%	2.12E-05	18	3.29%	7	9.73E-06
3	2.83%	6	8.36E-06	11	6.35%	1.88E-05	19	2.43%	5	7.17E-06
4	3.41%	7	1.01E-05	12	6.93%	2.05E-05	20	0.98%	2	2.90E-06
5	2.20%	5	6.49E-06	13	6.12%	1.81E-05	21	3.06%	6	9.05E-06
6	3.35%	7	9.90E-06	14	6.12%	1.81E-05	22	4.16%	9	1.23E-05
7	6.07%	13	1.79E-05	15	5.14%	1.52E-05	23	2.37%	5	7.00E-06
8	4.79%	10	1.42E-05	16	3.93%	1.16E-05	24	0.87%	2	2.56E-06
Total									208	

### 2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.16E-05	9	6.47%	1.91E-05	17	5.49%	11	1.62E-05
2	2.54%	5	7.51E-06	10	7.16%	2.12E-05	18	3.29%	7	9.73E-06
3	2.83%	6	8.36E-06	11	6.35%	1.88E-05	19	2.43%	5	7.17E-06
4	3.41%	7	1.01E-05	12	6.93%	2.05E-05	20	0.98%	2	2.90E-06
5	2.20%	5	6.49E-06	13	6.12%	1.81E-05	21	3.06%	6	9.05E-06
6	3.35%	7	9.90E-06	14	6.12%	1.81E-05	22	4.16%	9	1.23E-05
7	6.07%	13	1.79E-05	15	5.14%	1.52E-05	23	2.37%	5	7.00E-06
8	4.79%	10	1.42E-05	16	3.93%	1.16E-05	24	0.87%	2	2.56E-06
Total									208	

South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	4,000	208.3	46	42	121	
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	4,000	208.3	46	42	121	
									Total	8,000	417	91	84	242
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.948	0.020	0.032	
									Fraction Diesel in category =		0.012	0.523	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

2020 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 2-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.75E-05	17	5.49%	11	4.03E-05
2	2.54%	5	1.87E-05	10	7.16%	5.26E-05	18	3.29%	7	2.42E-05
3	2.83%	6	2.08E-05	11	6.35%	4.67E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.09E-05	20	0.98%	2	7.21E-06
5	2.20%	5	1.61E-05	13	6.12%	4.50E-05	21	3.06%	6	2.25E-05
6	3.35%	7	2.46E-05	14	6.12%	4.50E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.45E-05	15	5.14%	3.78E-05	23	2.37%	5	1.74E-05
8	4.79%	10	3.52E-05	16	3.93%	2.88E-05	24	0.87%	2	6.36E-06
Total									208	

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 2-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.75E-05	17	5.49%	11	4.03E-05
2	2.54%	5	1.87E-05	10	7.16%	5.26E-05	18	3.29%	7	2.42E-05
3	2.83%	6	2.08E-05	11	6.35%	4.67E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.09E-05	20	0.98%	2	7.21E-06
5	2.20%	5	1.61E-05	13	6.12%	4.50E-05	21	3.06%	6	2.25E-05
6	3.35%	7	2.46E-05	14	6.12%	4.50E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.45E-05	15	5.14%	3.78E-05	23	2.37%	5	1.74E-05
8	4.79%	10	3.52E-05	16	3.93%	2.88E-05	24	0.87%	2	6.36E-06
Total									208	

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,000	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	4,000	
									Total	8,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and PM2.5 Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	3.71E-05	9	7.11%	2.29E-04	17	7.38%	295	2.37E-04
2	0.42%	17	1.35E-05	10	4.39%	1.41E-04	18	8.17%	327	2.63E-04
3	0.41%	16	1.30E-05	11	4.67%	1.50E-04	19	5.70%	228	1.83E-04
4	0.27%	11	8.67E-06	12	5.89%	1.89E-04	20	4.27%	171	1.37E-04
5	0.50%	20	1.62E-05	13	6.15%	1.98E-04	21	3.26%	130	1.05E-04
6	0.91%	36	2.92E-05	14	6.03%	1.94E-04	22	3.30%	132	1.06E-04
7	3.80%	152	1.22E-04	15	7.01%	2.25E-04	23	2.46%	98	7.89E-05
8	7.76%	311	2.50E-04	16	7.13%	2.29E-04	24	1.87%	75	6.00E-05
									Total	4,000

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	3.71E-05	9	7.11%	2.29E-04	17	7.38%	295	2.37E-04
2	0.42%	17	1.35E-05	10	4.39%	1.41E-04	18	8.17%	327	2.63E-04
3	0.41%	16	1.30E-05	11	4.67%	1.50E-04	19	5.70%	228	1.83E-04
4	0.27%	11	8.67E-06	12	5.89%	1.89E-04	20	4.27%	171	1.37E-04
5	0.50%	20	1.62E-05	13	6.15%	1.98E-04	21	3.26%	130	1.05E-04
6	0.91%	36	2.92E-05	14	6.03%	1.94E-04	22	3.30%	132	1.06E-04
7	3.80%	152	1.22E-04	15	7.01%	2.25E-04	23	2.46%	98	7.89E-05
8	7.76%	311	2.50E-04	16	7.13%	2.29E-04	24	1.87%	75	6.00E-05
									Total	4,000

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,000
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,000
								Total	8,000

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and PM2.5 Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	9.22E-05	9	7.11%	5.68E-04	17	7.38%	295	5.90E-04
2	0.42%	17	3.36E-05	10	4.39%	3.51E-04	18	8.17%	327	6.53E-04
3	0.41%	16	3.24E-05	11	4.67%	3.73E-04	19	5.70%	228	4.55E-04
4	0.27%	11	2.16E-05	12	5.89%	4.71E-04	20	4.27%	171	3.41E-04
5	0.50%	20	4.02E-05	13	6.15%	4.92E-04	21	3.26%	130	2.60E-04
6	0.91%	36	7.26E-05	14	6.03%	4.82E-04	22	3.30%	132	2.63E-04
7	3.80%	152	3.03E-04	15	7.01%	5.60E-04	23	2.46%	98	1.96E-04
8	7.76%	311	6.20E-04	16	7.13%	5.70E-04	24	1.87%	75	1.49E-04
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	9.22E-05	9	7.11%	5.68E-04	17	7.38%	295	5.90E-04
2	0.42%	17	3.36E-05	10	4.39%	3.51E-04	18	8.17%	327	6.53E-04
3	0.41%	16	3.24E-05	11	4.67%	3.73E-04	19	5.70%	228	4.55E-04
4	0.27%	11	2.16E-05	12	5.89%	4.71E-04	20	4.27%	171	3.41E-04
5	0.50%	20	4.02E-05	13	6.15%	4.92E-04	21	3.26%	130	2.60E-04
6	0.91%	36	7.26E-05	14	6.03%	4.82E-04	22	3.30%	132	2.63E-04
7	3.80%	152	3.03E-04	15	7.01%	5.60E-04	23	2.46%	98	1.96E-04
8	7.76%	311	6.20E-04	16	7.13%	5.70E-04	24	1.87%	75	1.49E-04
Total									4,000	

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	3,800	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	3,800	
									Total	7,600

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
Modeled Emission Rate (g/s) =	2.97E-03

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	1.19E-04	9	7.11%	7.31E-04	17	7.38%	280	7.59E-04
2	0.42%	16	4.32E-05	10	4.39%	4.51E-04	18	8.17%	311	8.40E-04
3	0.41%	15	4.17E-05	11	4.67%	4.80E-04	19	5.70%	216	5.85E-04
4	0.27%	10	2.77E-05	12	5.89%	6.05E-04	20	4.27%	162	4.39E-04
5	0.50%	19	5.17E-05	13	6.15%	6.32E-04	21	3.26%	124	3.35E-04
6	0.91%	35	9.34E-05	14	6.03%	6.20E-04	22	3.30%	125	3.39E-04
7	3.80%	144	3.90E-04	15	7.01%	7.21E-04	23	2.46%	93	2.52E-04
8	7.76%	295	7.98E-04	16	7.13%	7.33E-04	24	1.87%	71	1.92E-04
Total										3,800

2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	1.19E-04	9	7.11%	7.31E-04	17	7.38%	280	7.59E-04
2	0.42%	16	4.32E-05	10	4.39%	4.51E-04	18	8.17%	311	8.40E-04
3	0.41%	15	4.17E-05	11	4.67%	4.80E-04	19	5.70%	216	5.85E-04
4	0.27%	10	2.77E-05	12	5.89%	6.05E-04	20	4.27%	162	4.39E-04
5	0.50%	19	5.17E-05	13	6.15%	6.32E-04	21	3.26%	124	3.35E-04
6	0.91%	35	9.34E-05	14	6.03%	6.20E-04	22	3.30%	125	3.39E-04
7	3.80%	144	3.90E-04	15	7.01%	7.21E-04	23	2.46%	93	2.52E-04
8	7.76%	295	7.98E-04	16	7.13%	7.33E-04	24	1.87%	71	1.92E-04
Total										3,800

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	3,800
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
<b>Modeled Emission Rate (g/s) =</b>	<b>2.97E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.95E-04	9	7.11%	1.82E-03	17	7.38%	280	1.89E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.09E-03
3	0.41%	15	1.04E-04	11	4.67%	1.19E-03	19	5.70%	216	1.46E-03
4	0.27%	10	6.89E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.32E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.43E-04
7	3.80%	144	9.70E-04	15	7.01%	1.79E-03	23	2.46%	93	6.27E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.77E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.95E-04	9	7.11%	1.82E-03	17	7.38%	280	1.89E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.09E-03
3	0.41%	15	1.04E-04	11	4.67%	1.19E-03	19	5.70%	216	1.46E-03
4	0.27%	10	6.89E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.32E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.43E-04
7	3.80%	144	9.70E-04	15	7.01%	1.79E-03	23	2.46%	93	6.27E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.77E-04
Total									3,800	

Charcot Ave, San Jose, CA

Operation - Alternative 2

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2020

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	3,800
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	3,800
								Total	7,600

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 2-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	9.79E-05	9	7.11%	6.04E-04	17	7.38%	280	6.27E-04
2	0.42%	16	3.57E-05	10	4.39%	3.73E-04	18	8.17%	311	6.94E-04
3	0.41%	15	3.45E-05	11	4.67%	3.96E-04	19	5.70%	216	4.84E-04
4	0.27%	10	2.29E-05	12	5.89%	5.00E-04	20	4.27%	162	3.63E-04
5	0.50%	19	4.27E-05	13	6.15%	5.22E-04	21	3.26%	124	2.76E-04
6	0.91%	35	7.71E-05	14	6.03%	5.12E-04	22	3.30%	125	2.80E-04
7	3.80%	144	3.22E-04	15	7.01%	5.95E-04	23	2.46%	93	2.08E-04
8	7.76%	295	6.59E-04	16	7.13%	6.06E-04	24	1.87%	71	1.58E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 2-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	9.79E-05	9	7.11%	6.04E-04	17	7.38%	280	6.27E-04
2	0.42%	16	3.57E-05	10	4.39%	3.73E-04	18	8.17%	311	6.94E-04
3	0.41%	15	3.45E-05	11	4.67%	3.96E-04	19	5.70%	216	4.84E-04
4	0.27%	10	2.29E-05	12	5.89%	5.00E-04	20	4.27%	162	3.63E-04
5	0.50%	19	4.27E-05	13	6.15%	5.22E-04	21	3.26%	124	2.76E-04
6	0.91%	35	7.71E-05	14	6.03%	5.12E-04	22	3.30%	125	2.80E-04
7	3.80%	144	3.22E-04	15	7.01%	5.95E-04	23	2.46%	93	2.08E-04
8	7.76%	295	6.59E-04	16	7.13%	6.06E-04	24	1.87%	71	1.58E-04
Total									3,800	



**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	3,800
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.56E-03
2	0.42%	16	8.87E-05	10	4.39%	9.26E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.56E-05	11	4.67%	9.85E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.69E-05	12	5.89%	1.24E-03	20	4.27%	162	9.02E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.87E-04
6	0.91%	35	1.92E-04	14	6.03%	1.27E-03	22	3.30%	125	6.96E-04
7	3.80%	144	8.01E-04	15	7.01%	1.48E-03	23	2.46%	93	5.18E-04
8	7.76%	295	1.64E-03	16	7.13%	1.51E-03	24	1.87%	71	3.94E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.56E-03
2	0.42%	16	8.87E-05	10	4.39%	9.26E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.56E-05	11	4.67%	9.85E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.69E-05	12	5.89%	1.24E-03	20	4.27%	162	9.02E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.87E-04
6	0.91%	35	1.92E-04	14	6.03%	1.27E-03	22	3.30%	125	6.96E-04
7	3.80%	144	8.01E-04	15	7.01%	1.48E-03	23	2.46%	93	5.18E-04
8	7.76%	295	1.64E-03	16	7.13%	1.51E-03	24	1.87%	71	3.94E-04
Total									3,800	

Charcot Ave, San Jose, CA

Operation - Alternative 2

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,000	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	4,000	
									Total	8,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
Modeled Emission Rate (g/s) =	5.66E-04

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	2.26E-05	9	7.11%	1.39E-04	17	7.38%	295	1.44E-04
2	0.42%	17	8.22E-06	10	4.39%	8.59E-05	18	8.17%	327	1.60E-04
3	0.41%	16	7.94E-06	11	4.67%	9.13E-05	19	5.70%	228	1.11E-04
4	0.27%	11	5.28E-06	12	5.89%	1.15E-04	20	4.27%	171	8.36E-05
5	0.50%	20	9.84E-06	13	6.15%	1.20E-04	21	3.26%	130	6.37E-05
6	0.91%	36	1.78E-05	14	6.03%	1.18E-04	22	3.30%	132	6.45E-05
7	3.80%	152	7.43E-05	15	7.01%	1.37E-04	23	2.46%	98	4.81E-05
8	7.76%	311	1.52E-04	16	7.13%	1.40E-04	24	1.87%	75	3.65E-05
									Total	4,000

2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	2.26E-05	9	7.11%	1.39E-04	17	7.38%	295	1.44E-04
2	0.42%	17	8.22E-06	10	4.39%	8.59E-05	18	8.17%	327	1.60E-04
3	0.41%	16	7.94E-06	11	4.67%	9.13E-05	19	5.70%	228	1.11E-04
4	0.27%	11	5.28E-06	12	5.89%	1.15E-04	20	4.27%	171	8.36E-05
5	0.50%	20	9.84E-06	13	6.15%	1.20E-04	21	3.26%	130	6.37E-05
6	0.91%	36	1.78E-05	14	6.03%	1.18E-04	22	3.30%	132	6.45E-05
7	3.80%	152	7.43E-05	15	7.01%	1.37E-04	23	2.46%	98	4.81E-05
8	7.76%	311	1.52E-04	16	7.13%	1.40E-04	24	1.87%	75	3.65E-05
									Total	4,000

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,000
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,000
								Total	8,000

\* Road segments south of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>5.66E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	5.61E-05	9	7.11%	3.46E-04	17	7.38%	295	3.59E-04
2	0.42%	17	2.04E-05	10	4.39%	2.14E-04	18	8.17%	327	3.98E-04
3	0.41%	16	1.97E-05	11	4.67%	2.27E-04	19	5.70%	228	2.77E-04
4	0.27%	11	1.31E-05	12	5.89%	2.87E-04	20	4.27%	171	2.08E-04
5	0.50%	20	2.45E-05	13	6.15%	2.99E-04	21	3.26%	130	1.58E-04
6	0.91%	36	4.42E-05	14	6.03%	2.94E-04	22	3.30%	132	1.60E-04
7	3.80%	152	1.85E-04	15	7.01%	3.41E-04	23	2.46%	98	1.19E-04
8	7.76%	311	3.78E-04	16	7.13%	3.47E-04	24	1.87%	75	9.08E-05
Total									4,000	

**2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	5.61E-05	9	7.11%	3.46E-04	17	7.38%	295	3.59E-04
2	0.42%	17	2.04E-05	10	4.39%	2.14E-04	18	8.17%	327	3.98E-04
3	0.41%	16	1.97E-05	11	4.67%	2.27E-04	19	5.70%	228	2.77E-04
4	0.27%	11	1.31E-05	12	5.89%	2.87E-04	20	4.27%	171	2.08E-04
5	0.50%	20	2.45E-05	13	6.15%	2.99E-04	21	3.26%	130	1.58E-04
6	0.91%	36	4.42E-05	14	6.03%	2.94E-04	22	3.30%	132	1.60E-04
7	3.80%	152	1.85E-04	15	7.01%	3.41E-04	23	2.46%	98	1.19E-04
8	7.76%	311	3.78E-04	16	7.13%	3.47E-04	24	1.87%	75	9.08E-05
Total									4,000	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 2 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2020

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	8,000	0.40	48.9

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles				
										Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	3.4	25	5,000	280.1	62	53	165	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	3.4	25	5,000	280.1	62	53	165	
									Total	10,000	560	123	106	331
* Road segments north of Silk Wood Lane.									Fraction of Total Vehicles =		0.947	0.018	0.035	
									Fraction Diesel in category =		0.013	0.591	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	7.10E-06	9	6.41%	1.16E-05	17	5.55%	16	1.00E-05
2	2.62%	7	4.74E-06	10	7.36%	1.33E-05	18	3.16%	9	5.70E-06
3	2.85%	8	5.15E-06	11	6.34%	1.14E-05	19	2.36%	7	4.26E-06
4	3.31%	9	5.97E-06	12	6.92%	1.25E-05	20	0.87%	2	1.56E-06
5	2.17%	6	3.91E-06	13	6.29%	1.14E-05	21	3.09%	9	5.58E-06
6	3.36%	9	6.07E-06	14	6.23%	1.13E-05	22	4.12%	12	7.43E-06
7	6.00%	17	1.08E-05	15	5.15%	9.30E-06	23	2.58%	7	4.65E-06
8	4.58%	13	8.27E-06	16	3.84%	6.93E-06	24	0.92%	3	1.67E-06
Total									280	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	7.10E-06	9	6.41%	1.16E-05	17	5.55%	16	1.00E-05
2	2.62%	7	4.74E-06	10	7.36%	1.33E-05	18	3.16%	9	5.70E-06
3	2.85%	8	5.15E-06	11	6.34%	1.14E-05	19	2.36%	7	4.26E-06
4	3.31%	9	5.97E-06	12	6.92%	1.25E-05	20	0.87%	2	1.56E-06
5	2.17%	6	3.91E-06	13	6.29%	1.14E-05	21	3.09%	9	5.58E-06
6	3.36%	9	6.07E-06	14	6.23%	1.13E-05	22	4.12%	12	7.43E-06
7	6.00%	17	1.08E-05	15	5.15%	9.30E-06	23	2.58%	7	4.65E-06
8	4.58%	13	8.27E-06	16	3.84%	6.93E-06	24	0.92%	3	1.67E-06
Total									280	

South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles				
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	5,000	280.1	62	53	165
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	5,000	280.1	62	53	165
Total									10,000	560	123	106	331
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.947	0.018	0.035
									Fraction Diesel in category =		0.013	0.591	0.945

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 2-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.87E-05	17	5.55%	16	2.49E-05
2	2.62%	7	1.17E-05	10	7.36%	3.30E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.28E-05	11	6.34%	2.84E-05	19	2.36%	7	1.06E-05
4	3.31%	9	1.48E-05	12	6.92%	3.10E-05	20	0.87%	2	3.87E-06
5	2.17%	6	9.70E-06	13	6.29%	2.82E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.51E-05	14	6.23%	2.79E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.31E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.13E-06
Total									280	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 2-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.87E-05	17	5.55%	16	2.49E-05
2	2.62%	7	1.17E-05	10	7.36%	3.30E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.28E-05	11	6.34%	2.84E-05	19	2.36%	7	1.06E-05
4	3.31%	9	1.48E-05	12	6.92%	3.10E-05	20	0.87%	2	3.87E-06
5	2.17%	6	9.70E-06	13	6.29%	2.82E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.51E-05	14	6.23%	2.79E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.31E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.13E-06
Total									280	

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	5,000
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	5,000
Total									10,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and PM2.5 Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	4.39E-05	9	7.11%	2.72E-04	17	7.39%	369	2.82E-04
2	0.42%	21	1.61E-05	10	4.39%	1.68E-04	18	8.18%	409	3.12E-04
3	0.41%	20	1.56E-05	11	4.66%	1.78E-04	19	5.69%	285	2.18E-04
4	0.26%	13	9.93E-06	12	5.89%	2.25E-04	20	4.28%	214	1.63E-04
5	0.50%	25	1.90E-05	13	6.15%	2.35E-04	21	3.25%	163	1.24E-04
6	0.91%	45	3.47E-05	14	6.04%	2.31E-04	22	3.30%	165	1.26E-04
7	3.79%	189	1.45E-04	15	7.01%	2.68E-04	23	2.46%	123	9.40E-05
8	7.77%	388	2.97E-04	16	7.14%	2.73E-04	24	1.86%	93	7.12E-05
Total									5,000	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	4.39E-05	9	7.11%	2.72E-04	17	7.39%	369	2.82E-04
2	0.42%	21	1.61E-05	10	4.39%	1.68E-04	18	8.18%	409	3.12E-04
3	0.41%	20	1.56E-05	11	4.66%	1.78E-04	19	5.69%	285	2.18E-04
4	0.26%	13	9.93E-06	12	5.89%	2.25E-04	20	4.28%	214	1.63E-04
5	0.50%	25	1.90E-05	13	6.15%	2.35E-04	21	3.25%	163	1.24E-04
6	0.91%	45	3.47E-05	14	6.04%	2.31E-04	22	3.30%	165	1.26E-04
7	3.79%	189	1.45E-04	15	7.01%	2.68E-04	23	2.46%	123	9.40E-05
8	7.77%	388	2.97E-04	16	7.14%	2.73E-04	24	1.86%	93	7.12E-05
Total									5,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	5,000
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	5,000
Total									10,000

\* Road segments south of Silk Wood Lane.

<b>PM2.5 Emissions</b>	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and PM2.5 Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	1.09E-04	9	7.11%	6.74E-04	17	7.39%	369	7.00E-04
2	0.42%	21	3.99E-05	10	4.39%	4.16E-04	18	8.18%	409	7.74E-04
3	0.41%	20	3.87E-05	11	4.66%	4.42E-04	19	5.69%	285	5.39E-04
4	0.26%	13	2.46E-05	12	5.89%	5.58E-04	20	4.28%	214	4.05E-04
5	0.50%	25	4.71E-05	13	6.15%	5.83E-04	21	3.25%	163	3.08E-04
6	0.91%	45	8.59E-05	14	6.04%	5.72E-04	22	3.30%	165	3.12E-04
7	3.79%	189	3.59E-04	15	7.01%	6.64E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.36E-04	16	7.14%	6.76E-04	24	1.86%	93	1.77E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	1.09E-04	9	7.11%	6.74E-04	17	7.39%	369	7.00E-04
2	0.42%	21	3.99E-05	10	4.39%	4.16E-04	18	8.18%	409	7.74E-04
3	0.41%	20	3.87E-05	11	4.66%	4.42E-04	19	5.69%	285	5.39E-04
4	0.26%	13	2.46E-05	12	5.89%	5.58E-04	20	4.28%	214	4.05E-04
5	0.50%	25	4.71E-05	13	6.15%	5.83E-04	21	3.25%	163	3.08E-04
6	0.91%	45	8.59E-05	14	6.04%	5.72E-04	22	3.30%	165	3.12E-04
7	3.79%	189	3.59E-04	15	7.01%	6.64E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.36E-04	16	7.14%	6.76E-04	24	1.86%	93	1.77E-04
Total									5,000	



Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,720
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	4,720
Total									9,440

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	1.08E-04	9	7.11%	6.67E-04	17	7.39%	349	6.92E-04
2	0.42%	20	3.95E-05	10	4.39%	4.11E-04	18	8.18%	386	7.66E-04
3	0.41%	19	3.83E-05	11	4.66%	4.37E-04	19	5.69%	269	5.34E-04
4	0.26%	12	2.44E-05	12	5.89%	5.52E-04	20	4.28%	202	4.01E-04
5	0.50%	23	4.66E-05	13	6.15%	5.76E-04	21	3.25%	154	3.05E-04
6	0.91%	43	8.50E-05	14	6.04%	5.66E-04	22	3.30%	156	3.09E-04
7	3.79%	179	3.55E-04	15	7.01%	6.57E-04	23	2.46%	116	2.31E-04
8	7.77%	367	7.28E-04	16	7.14%	6.69E-04	24	1.86%	88	1.75E-04
Total									4,720	

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	1.08E-04	9	7.11%	6.67E-04	17	7.39%	349	6.92E-04
2	0.42%	20	3.95E-05	10	4.39%	4.11E-04	18	8.18%	386	7.66E-04
3	0.41%	19	3.83E-05	11	4.66%	4.37E-04	19	5.69%	269	5.34E-04
4	0.26%	12	2.44E-05	12	5.89%	5.52E-04	20	4.28%	202	4.01E-04
5	0.50%	23	4.66E-05	13	6.15%	5.76E-04	21	3.25%	154	3.05E-04
6	0.91%	43	8.50E-05	14	6.04%	5.66E-04	22	3.30%	156	3.09E-04
7	3.79%	179	3.55E-04	15	7.01%	6.57E-04	23	2.46%	116	2.31E-04
8	7.77%	367	7.28E-04	16	7.14%	6.69E-04	24	1.86%	88	1.75E-04
Total									4,720	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,720	
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,720	
									Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.67E-04	9	7.11%	1.65E-03	17	7.39%	349	1.72E-03
2	0.42%	20	9.80E-05	10	4.39%	1.02E-03	18	8.18%	386	1.90E-03
3	0.41%	19	9.48E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.04E-05	12	5.89%	1.37E-03	20	4.28%	202	9.93E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.56E-04
6	0.91%	43	2.11E-04	14	6.04%	1.40E-03	22	3.30%	156	7.66E-04
7	3.79%	179	8.80E-04	15	7.01%	1.63E-03	23	2.46%	116	5.72E-04
8	7.77%	367	1.80E-03	16	7.14%	1.66E-03	24	1.86%	88	4.33E-04
									Total	4,720

**2025 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.67E-04	9	7.11%	1.65E-03	17	7.39%	349	1.72E-03
2	0.42%	20	9.80E-05	10	4.39%	1.02E-03	18	8.18%	386	1.90E-03
3	0.41%	19	9.48E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.04E-05	12	5.89%	1.37E-03	20	4.28%	202	9.93E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.56E-04
6	0.91%	43	2.11E-04	14	6.04%	1.40E-03	22	3.30%	156	7.66E-04
7	3.79%	179	8.80E-04	15	7.01%	1.63E-03	23	2.46%	116	5.72E-04
8	7.77%	367	1.80E-03	16	7.14%	1.66E-03	24	1.86%	88	4.33E-04
									Total	4,720

Charcot Ave, San Jose, CA

Operation - Alternative 2

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2025

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,720
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	4,720
Total									9,440

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 2-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	9.65E-05	9	7.11%	5.97E-04	17	7.39%	349	6.20E-04
2	0.42%	20	3.54E-05	10	4.39%	3.68E-04	18	8.18%	386	6.86E-04
3	0.41%	19	3.43E-05	11	4.66%	3.91E-04	19	5.69%	269	4.78E-04
4	0.26%	12	2.18E-05	12	5.89%	4.94E-04	20	4.28%	202	3.59E-04
5	0.50%	23	4.17E-05	13	6.15%	5.16E-04	21	3.25%	154	2.73E-04
6	0.91%	43	7.61E-05	14	6.04%	5.07E-04	22	3.30%	156	2.77E-04
7	3.79%	179	3.18E-04	15	7.01%	5.88E-04	23	2.46%	116	2.07E-04
8	7.77%	367	6.52E-04	16	7.14%	5.99E-04	24	1.86%	88	1.56E-04
Total									4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 2-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	9.65E-05	9	7.11%	5.97E-04	17	7.39%	349	6.20E-04
2	0.42%	20	3.54E-05	10	4.39%	3.68E-04	18	8.18%	386	6.86E-04
3	0.41%	19	3.43E-05	11	4.66%	3.91E-04	19	5.69%	269	4.78E-04
4	0.26%	12	2.18E-05	12	5.89%	4.94E-04	20	4.28%	202	3.59E-04
5	0.50%	23	4.17E-05	13	6.15%	5.16E-04	21	3.25%	154	2.73E-04
6	0.91%	43	7.61E-05	14	6.04%	5.07E-04	22	3.30%	156	2.77E-04
7	3.79%	179	3.18E-04	15	7.01%	5.88E-04	23	2.46%	116	2.07E-04
8	7.77%	367	6.52E-04	16	7.14%	5.99E-04	24	1.86%	88	1.56E-04
Total									4,720	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	4,720	
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	4,720	
									Total	9,440

\* Road segments south of Silk Wood Lane.

<b>TOG Evaporative Emissions</b>	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.54E-03	
2	0.42%	20	8.77E-05	10	4.39%	9.13E-04	18	8.18%	386	1.70E-03	
3	0.41%	19	8.49E-05	11	4.66%	9.70E-04	19	5.69%	269	1.18E-03	
4	0.26%	12	5.41E-05	12	5.89%	1.22E-03	20	4.28%	202	8.89E-04	
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.77E-04	
6	0.91%	43	1.89E-04	14	6.04%	1.26E-03	22	3.30%	156	6.86E-04	
7	3.79%	179	7.88E-04	15	7.01%	1.46E-03	23	2.46%	116	5.12E-04	
8	7.77%	367	1.62E-03	16	7.14%	1.49E-03	24	1.86%	88	3.88E-04	
									Total	4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.54E-03	
2	0.42%	20	8.77E-05	10	4.39%	9.13E-04	18	8.18%	386	1.70E-03	
3	0.41%	19	8.49E-05	11	4.66%	9.70E-04	19	5.69%	269	1.18E-03	
4	0.26%	12	5.41E-05	12	5.89%	1.22E-03	20	4.28%	202	8.89E-04	
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.77E-04	
6	0.91%	43	1.89E-04	14	6.04%	1.26E-03	22	3.30%	156	6.86E-04	
7	3.79%	179	7.88E-04	15	7.01%	1.46E-03	23	2.46%	116	5.12E-04	
8	7.77%	367	1.62E-03	16	7.14%	1.49E-03	24	1.86%	88	3.88E-04	
									Total	4,720	

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	5,000
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	5,000
Total									10,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	2.82E-05	9	7.11%	1.74E-04	17	7.39%	369	1.81E-04
2	0.42%	21	1.03E-05	10	4.39%	1.08E-04	18	8.18%	409	2.01E-04
3	0.41%	20	1.00E-05	11	4.66%	1.14E-04	19	5.69%	285	1.40E-04
4	0.26%	13	6.38E-06	12	5.89%	1.44E-04	20	4.28%	214	1.05E-04
5	0.50%	25	1.22E-05	13	6.15%	1.51E-04	21	3.25%	163	7.98E-05
6	0.91%	45	2.22E-05	14	6.04%	1.48E-04	22	3.30%	165	8.09E-05
7	3.79%	189	9.29E-05	15	7.01%	1.72E-04	23	2.46%	123	6.04E-05
8	7.77%	388	1.90E-04	16	7.14%	1.75E-04	24	1.86%	93	4.57E-05
Total									5,000	

2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	2.82E-05	9	7.11%	1.74E-04	17	7.39%	369	1.81E-04
2	0.42%	21	1.03E-05	10	4.39%	1.08E-04	18	8.18%	409	2.01E-04
3	0.41%	20	1.00E-05	11	4.66%	1.14E-04	19	5.69%	285	1.40E-04
4	0.26%	13	6.38E-06	12	5.89%	1.44E-04	20	4.28%	214	1.05E-04
5	0.50%	25	1.22E-05	13	6.15%	1.51E-04	21	3.25%	163	7.98E-05
6	0.91%	45	2.22E-05	14	6.04%	1.48E-04	22	3.30%	165	8.09E-05
7	3.79%	189	9.29E-05	15	7.01%	1.72E-04	23	2.46%	123	6.04E-05
8	7.77%	388	1.90E-04	16	7.14%	1.75E-04	24	1.86%	93	4.57E-05
Total									5,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	5,000
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	5,000
								Total	10,000

\* Road segments south of Silk Wood Lane.

<b>Road PM2.5 Fugitive Emissions</b>	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	6.99E-05	9	7.11%	4.33E-04	17	7.39%	369	4.49E-04
2	0.42%	21	2.56E-05	10	4.39%	2.67E-04	18	8.18%	409	4.97E-04
3	0.41%	20	2.48E-05	11	4.66%	2.84E-04	19	5.69%	285	3.46E-04
4	0.26%	13	1.58E-05	12	5.89%	3.58E-04	20	4.28%	214	2.60E-04
5	0.50%	25	3.02E-05	13	6.15%	3.74E-04	21	3.25%	163	1.98E-04
6	0.91%	45	5.52E-05	14	6.04%	3.67E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.26E-04	23	2.46%	123	1.50E-04
8	7.77%	388	4.72E-04	16	7.14%	4.34E-04	24	1.86%	93	1.13E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	6.99E-05	9	7.11%	4.33E-04	17	7.39%	369	4.49E-04
2	0.42%	21	2.56E-05	10	4.39%	2.67E-04	18	8.18%	409	4.97E-04
3	0.41%	20	2.48E-05	11	4.66%	2.84E-04	19	5.69%	285	3.46E-04
4	0.26%	13	1.58E-05	12	5.89%	3.58E-04	20	4.28%	214	2.60E-04
5	0.50%	25	3.02E-05	13	6.15%	3.74E-04	21	3.25%	163	1.98E-04
6	0.91%	45	5.52E-05	14	6.04%	3.67E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.26E-04	23	2.46%	123	1.50E-04
8	7.77%	388	4.72E-04	16	7.14%	4.34E-04	24	1.86%	93	1.13E-04
Total									5,000	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 2 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2025

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	10,000	0.40	61.1

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles				
										Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	3.4	25	6,600	395.3	87	71	237	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	3.4	25	6,600	395.3	87	71	237	
									Total	13,200	791	175	141	475
* Road segments north of Silk Wood Lane.									Fraction of Total Vehicles =		0.946	0.016	0.038	
									Fraction Diesel in category =		0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

2040 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.45E-06	9	6.54%	8.67E-06	17	5.65%	22	7.48E-06
2	2.80%	11	3.70E-06	10	7.60%	1.01E-05	18	3.11%	12	4.12E-06
3	2.85%	11	3.77E-06	11	6.39%	8.46E-06	19	2.11%	8	2.80E-06
4	3.11%	12	4.12E-06	12	7.07%	9.36E-06	20	0.84%	3	1.12E-06
5	2.06%	8	2.73E-06	13	6.33%	8.39E-06	21	3.06%	12	4.05E-06
6	3.22%	13	4.26E-06	14	6.17%	8.18E-06	22	4.27%	17	5.66E-06
7	5.96%	24	7.90E-06	15	5.22%	6.92E-06	23	2.69%	11	3.56E-06
8	4.22%	17	5.59E-06	16	3.75%	4.96E-06	24	0.84%	3	1.12E-06
Total									395	

2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.45E-06	9	6.54%	8.67E-06	17	5.65%	22	7.48E-06
2	2.80%	11	3.70E-06	10	7.60%	1.01E-05	18	3.11%	12	4.12E-06
3	2.85%	11	3.77E-06	11	6.39%	8.46E-06	19	2.11%	8	2.80E-06
4	3.11%	12	4.12E-06	12	7.07%	9.36E-06	20	0.84%	3	1.12E-06
5	2.06%	8	2.73E-06	13	6.33%	8.39E-06	21	3.06%	12	4.05E-06
6	3.22%	13	4.26E-06	14	6.17%	8.18E-06	22	4.27%	17	5.66E-06
7	5.96%	24	7.90E-06	15	5.22%	6.92E-06	23	2.69%	11	3.56E-06
8	4.22%	17	5.59E-06	16	3.75%	4.96E-06	24	0.84%	3	1.12E-06
Total									395	



South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	3.4	25	6,600	395.3	87	71	237	
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	3.4	25	6,600	395.3	87	71	237	
									Total	13,200	791	175	141	475
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.946	0.016	0.038	
									Fraction Diesel in category =		0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

2040 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 2-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	1.35E-05	9	6.54%	2.15E-05	17	5.65%	22	1.85E-05
2	2.80%	11	9.18E-06	10	7.60%	2.50E-05	18	3.11%	12	1.02E-05
3	2.85%	11	9.36E-06	11	6.39%	2.10E-05	19	2.11%	8	6.93E-06
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06
5	2.06%	8	6.76E-06	13	6.33%	2.08E-05	21	3.06%	12	1.00E-05
6	3.22%	13	1.06E-05	14	6.17%	2.03E-05	22	4.27%	17	1.40E-05
7	5.96%	24	1.96E-05	15	5.22%	1.72E-05	23	2.69%	11	8.84E-06
8	4.22%	17	1.39E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06
Total										395

2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 2-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	1.35E-05	9	6.54%	2.15E-05	17	5.65%	22	1.85E-05
2	2.80%	11	9.18E-06	10	7.60%	2.50E-05	18	3.11%	12	1.02E-05
3	2.85%	11	9.36E-06	11	6.39%	2.10E-05	19	2.11%	8	6.93E-06
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06
5	2.06%	8	6.76E-06	13	6.33%	2.08E-05	21	3.06%	12	1.00E-05
6	3.22%	13	1.06E-05	14	6.17%	2.03E-05	22	4.27%	17	1.40E-05
7	5.96%	24	1.96E-05	15	5.22%	1.72E-05	23	2.69%	11	8.84E-06
8	4.22%	17	1.39E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06
Total										395

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,600
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	6,600
Total									13,200

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and PM2.5 Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	5.28E-05	9	7.12%	3.30E-04	17	7.40%	488	3.43E-04
2	0.42%	28	1.95E-05	10	4.38%	2.03E-04	18	8.19%	541	3.79E-04
3	0.40%	26	1.85E-05	11	4.66%	2.16E-04	19	5.71%	377	2.64E-04
4	0.24%	16	1.11E-05	12	5.89%	2.73E-04	20	4.28%	282	1.98E-04
5	0.49%	32	2.27E-05	13	6.16%	2.85E-04	21	3.25%	215	1.51E-04
6	0.89%	59	4.12E-05	14	6.03%	2.79E-04	22	3.30%	218	1.53E-04
7	3.78%	249	1.75E-04	15	7.02%	3.25E-04	23	2.46%	162	1.14E-04
8	7.77%	513	3.60E-04	16	7.15%	3.31E-04	24	1.87%	123	8.66E-05
Total									6,600	

2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	5.28E-05	9	7.12%	3.30E-04	17	7.40%	488	3.43E-04
2	0.42%	28	1.95E-05	10	4.38%	2.03E-04	18	8.19%	541	3.79E-04
3	0.40%	26	1.85E-05	11	4.66%	2.16E-04	19	5.71%	377	2.64E-04
4	0.24%	16	1.11E-05	12	5.89%	2.73E-04	20	4.28%	282	1.98E-04
5	0.49%	32	2.27E-05	13	6.16%	2.85E-04	21	3.25%	215	1.51E-04
6	0.89%	59	4.12E-05	14	6.03%	2.79E-04	22	3.30%	218	1.53E-04
7	3.78%	249	1.75E-04	15	7.02%	3.25E-04	23	2.46%	162	1.14E-04
8	7.77%	513	3.60E-04	16	7.15%	3.31E-04	24	1.87%	123	8.66E-05
Total									6,600	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,600	
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,600	
									Total	13,200

\* Road segments south of Silk Wood Lane.

<b>PM2.5 Emissions</b>	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and PM2.5 Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.14%	75	1.31E-04	9	7.12%	8.18E-04	17	7.40%	488	8.50E-04	
2	0.42%	28	4.82E-05	10	4.38%	5.03E-04	18	8.19%	541	9.40E-04	
3	0.40%	26	4.59E-05	11	4.66%	5.35E-04	19	5.71%	377	6.56E-04	
4	0.24%	16	2.76E-05	12	5.89%	6.76E-04	20	4.28%	282	4.91E-04	
5	0.49%	32	5.63E-05	13	6.16%	7.07E-04	21	3.25%	215	3.73E-04	
6	0.89%	59	1.02E-04	14	6.03%	6.92E-04	22	3.30%	218	3.79E-04	
7	3.78%	249	4.34E-04	15	7.02%	8.06E-04	23	2.46%	162	2.82E-04	
8	7.77%	513	8.92E-04	16	7.15%	8.21E-04	24	1.87%	123	2.15E-04	
									Total	6,600	

**2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.14%	75	1.31E-04	9	7.12%	8.18E-04	17	7.40%	488	8.50E-04	
2	0.42%	28	4.82E-05	10	4.38%	5.03E-04	18	8.19%	541	9.40E-04	
3	0.40%	26	4.59E-05	11	4.66%	5.35E-04	19	5.71%	377	6.56E-04	
4	0.24%	16	2.76E-05	12	5.89%	6.76E-04	20	4.28%	282	4.91E-04	
5	0.49%	32	5.63E-05	13	6.16%	7.07E-04	21	3.25%	215	3.73E-04	
6	0.89%	59	1.02E-04	14	6.03%	6.92E-04	22	3.30%	218	3.79E-04	
7	3.78%	249	4.34E-04	15	7.02%	8.06E-04	23	2.46%	162	2.82E-04	
8	7.77%	513	8.92E-04	16	7.15%	8.21E-04	24	1.87%	123	2.15E-04	
									Total	6,600	

Charcot Ave, San Jose, CA  
 Operation - Alternative 2  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,205
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	6,205
Total									12,410

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	1.18E-04	9	7.12%	7.38E-04	17	7.40%	459	7.67E-04
2	0.42%	26	4.35E-05	10	4.38%	4.54E-04	18	8.19%	508	8.49E-04
3	0.40%	25	4.14E-05	11	4.66%	4.83E-04	19	5.71%	354	5.92E-04
4	0.24%	15	2.49E-05	12	5.89%	6.10E-04	20	4.28%	266	4.43E-04
5	0.49%	30	5.08E-05	13	6.16%	6.38E-04	21	3.25%	202	3.37E-04
6	0.89%	55	9.22E-05	14	6.03%	6.25E-04	22	3.30%	205	3.42E-04
7	3.78%	235	3.92E-04	15	7.02%	7.27E-04	23	2.46%	153	2.55E-04
8	7.77%	482	8.05E-04	16	7.15%	7.41E-04	24	1.87%	116	1.94E-04
Total									6,205	

2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	1.18E-04	9	7.12%	7.38E-04	17	7.40%	459	7.67E-04
2	0.42%	26	4.35E-05	10	4.38%	4.54E-04	18	8.19%	508	8.49E-04
3	0.40%	25	4.14E-05	11	4.66%	4.83E-04	19	5.71%	354	5.92E-04
4	0.24%	15	2.49E-05	12	5.89%	6.10E-04	20	4.28%	266	4.43E-04
5	0.49%	30	5.08E-05	13	6.16%	6.38E-04	21	3.25%	202	3.37E-04
6	0.89%	55	9.22E-05	14	6.03%	6.25E-04	22	3.30%	205	3.42E-04
7	3.78%	235	3.92E-04	15	7.02%	7.27E-04	23	2.46%	153	2.55E-04
8	7.77%	482	8.05E-04	16	7.15%	7.41E-04	24	1.87%	116	1.94E-04
Total									6,205	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,205
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.93E-04	9	7.12%	1.83E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.13E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.20E-03	19	5.71%	354	1.47E-03
4	0.24%	15	6.17E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.35E-04
6	0.89%	55	2.29E-04	14	6.03%	1.55E-03	22	3.30%	205	8.48E-04
7	3.78%	235	9.71E-04	15	7.02%	1.80E-03	23	2.46%	153	6.32E-04
8	7.77%	482	2.00E-03	16	7.15%	1.84E-03	24	1.87%	116	4.80E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.93E-04	9	7.12%	1.83E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.13E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.20E-03	19	5.71%	354	1.47E-03
4	0.24%	15	6.17E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.35E-04
6	0.89%	55	2.29E-04	14	6.03%	1.55E-03	22	3.30%	205	8.48E-04
7	3.78%	235	9.71E-04	15	7.02%	1.80E-03	23	2.46%	153	6.32E-04
8	7.77%	482	2.00E-03	16	7.15%	1.84E-03	24	1.87%	116	4.80E-04
Total									6,205	

Charcot Ave, San Jose, CA

Operation - Alternative 2

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2040

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,205
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	6,205
Total									12,410

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 2-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	9.36E-05	9	7.12%	5.85E-04	17	7.40%	459	6.08E-04
2	0.42%	26	3.45E-05	10	4.38%	3.60E-04	18	8.19%	508	6.72E-04
3	0.40%	25	3.28E-05	11	4.66%	3.83E-04	19	5.71%	354	4.69E-04
4	0.24%	15	1.97E-05	12	5.89%	4.84E-04	20	4.28%	266	3.51E-04
5	0.49%	30	4.02E-05	13	6.16%	5.06E-04	21	3.25%	202	2.67E-04
6	0.89%	55	7.31E-05	14	6.03%	4.95E-04	22	3.30%	205	2.71E-04
7	3.78%	235	3.10E-04	15	7.02%	5.76E-04	23	2.46%	153	2.02E-04
8	7.77%	482	6.38E-04	16	7.15%	5.87E-04	24	1.87%	116	1.54E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 2-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	9.36E-05	9	7.12%	5.85E-04	17	7.40%	459	6.08E-04
2	0.42%	26	3.45E-05	10	4.38%	3.60E-04	18	8.19%	508	6.72E-04
3	0.40%	25	3.28E-05	11	4.66%	3.83E-04	19	5.71%	354	4.69E-04
4	0.24%	15	1.97E-05	12	5.89%	4.84E-04	20	4.28%	266	3.51E-04
5	0.49%	30	4.02E-05	13	6.16%	5.06E-04	21	3.25%	202	2.67E-04
6	0.89%	55	7.31E-05	14	6.03%	4.95E-04	22	3.30%	205	2.71E-04
7	3.78%	235	3.10E-04	15	7.02%	5.76E-04	23	2.46%	153	2.02E-04
8	7.77%	482	6.38E-04	16	7.15%	5.87E-04	24	1.87%	116	1.54E-04
Total									6,205	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,205
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.32E-04	9	7.12%	1.45E-03	17	7.40%	459	1.51E-03
2	0.42%	26	8.55E-05	10	4.38%	8.92E-04	18	8.19%	508	1.67E-03
3	0.40%	25	8.14E-05	11	4.66%	9.49E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.89E-05	12	5.89%	1.20E-03	20	4.28%	266	8.71E-04
5	0.49%	30	9.98E-05	13	6.16%	1.25E-03	21	3.25%	202	6.62E-04
6	0.89%	55	1.81E-04	14	6.03%	1.23E-03	22	3.30%	205	6.72E-04
7	3.78%	235	7.70E-04	15	7.02%	1.43E-03	23	2.46%	153	5.01E-04
8	7.77%	482	1.58E-03	16	7.15%	1.46E-03	24	1.87%	116	3.81E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.32E-04	9	7.12%	1.45E-03	17	7.40%	459	1.51E-03
2	0.42%	26	8.55E-05	10	4.38%	8.92E-04	18	8.19%	508	1.67E-03
3	0.40%	25	8.14E-05	11	4.66%	9.49E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.89E-05	12	5.89%	1.20E-03	20	4.28%	266	8.71E-04
5	0.49%	30	9.98E-05	13	6.16%	1.25E-03	21	3.25%	202	6.62E-04
6	0.89%	55	1.81E-04	14	6.03%	1.23E-03	22	3.30%	205	6.72E-04
7	3.78%	235	7.70E-04	15	7.02%	1.43E-03	23	2.46%	153	5.01E-04
8	7.77%	482	1.58E-03	16	7.15%	1.46E-03	24	1.87%	116	3.81E-04
Total									6,205	

Charcot Ave, San Jose, CA

Operation - Alternative 2

Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions

Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,600	
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	2	186	42	12.7	1.3	25	6,600	
									Total	13,200

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
Modeled Emission Rate (g/s) =	9.34E-04

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	3.69E-05	9	7.12%	2.31E-04	17	7.40%	488	2.40E-04
2	0.42%	28	1.36E-05	10	4.38%	1.42E-04	18	8.19%	541	2.65E-04
3	0.40%	26	1.30E-05	11	4.66%	1.51E-04	19	5.71%	377	1.85E-04
4	0.24%	16	7.77E-06	12	5.89%	1.91E-04	20	4.28%	282	1.39E-04
5	0.49%	32	1.59E-05	13	6.16%	1.99E-04	21	3.25%	215	1.05E-04
6	0.89%	59	2.88E-05	14	6.03%	1.95E-04	22	3.30%	218	1.07E-04
7	3.78%	249	1.22E-04	15	7.02%	2.27E-04	23	2.46%	162	7.96E-05
8	7.77%	513	2.52E-04	16	7.15%	2.31E-04	24	1.87%	123	6.05E-05
									Total	6,600

2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	3.69E-05	9	7.12%	2.31E-04	17	7.40%	488	2.40E-04
2	0.42%	28	1.36E-05	10	4.38%	1.42E-04	18	8.19%	541	2.65E-04
3	0.40%	26	1.30E-05	11	4.66%	1.51E-04	19	5.71%	377	1.85E-04
4	0.24%	16	7.77E-06	12	5.89%	1.91E-04	20	4.28%	282	1.39E-04
5	0.49%	32	1.59E-05	13	6.16%	1.99E-04	21	3.25%	215	1.05E-04
6	0.89%	59	2.88E-05	14	6.03%	1.95E-04	22	3.30%	218	1.07E-04
7	3.78%	249	1.22E-04	15	7.02%	2.27E-04	23	2.46%	162	7.96E-05
8	7.77%	513	2.52E-04	16	7.15%	2.31E-04	24	1.87%	123	6.05E-05
									Total	6,600



**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-South	Northbound Charcot Ave*	NW	1	461	31	9.4	1.3	25	6,600
Alt 2-SB Charcot-South	Southbound Charcot Ave*	SE	1	461	31	9.4	1.3	25	6,600
Total									13,200

\* Road segments south of Silk Wood Lane.

<b>Road PM2.5 Fugitive Emissions</b>	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 2-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	9.15E-05	9	7.12%	5.72E-04	17	7.40%	488	5.94E-04
2	0.42%	28	3.37E-05	10	4.38%	3.52E-04	18	8.19%	541	6.57E-04
3	0.40%	26	3.21E-05	11	4.66%	3.74E-04	19	5.71%	377	4.58E-04
4	0.24%	16	1.93E-05	12	5.89%	4.73E-04	20	4.28%	282	3.44E-04
5	0.49%	32	3.93E-05	13	6.16%	4.94E-04	21	3.25%	215	2.61E-04
6	0.89%	59	7.14E-05	14	6.03%	4.84E-04	22	3.30%	218	2.65E-04
7	3.78%	249	3.03E-04	15	7.02%	5.64E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.24E-04	16	7.15%	5.74E-04	24	1.87%	123	1.50E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 2-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	9.15E-05	9	7.12%	5.72E-04	17	7.40%	488	5.94E-04
2	0.42%	28	3.37E-05	10	4.38%	3.52E-04	18	8.19%	541	6.57E-04
3	0.40%	26	3.21E-05	11	4.66%	3.74E-04	19	5.71%	377	4.58E-04
4	0.24%	16	1.93E-05	12	5.89%	4.73E-04	20	4.28%	282	3.44E-04
5	0.49%	32	3.93E-05	13	6.16%	4.94E-04	21	3.25%	215	2.61E-04
6	0.89%	59	7.14E-05	14	6.03%	4.84E-04	22	3.30%	218	2.65E-04
7	3.78%	249	3.03E-04	15	7.02%	5.64E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.24E-04	16	7.15%	5.74E-04	24	1.87%	123	1.50E-04
Total									6,600	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 2 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2040

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	13,200	0.40	80.7

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

***Oakland Road Traffic Emissions***

Oakland Road traffic emissions are the same as listed above for the Proposed Project.

## Alternative 2 – Charcot Avenue and Oakland Road Modeling Information and Health Risk Calculations

### Alternative 2 - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations Residential Receptors (1.5 meter receptor heights)

**Emissions Years** 2020, 2025, and 2040  
**Receptor Information**  
 Number of Receptors 118  
 Receptor Height = 1.5 meters above ground level  
 Receptor distances = at residential locations

#### **Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

#### **MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00718	0.2451	0.2020
2025	0.00456	0.2283	0.1972
2040	0.00327	0.2398	0.1902

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1242	0.0470	0.0772
2025	0.1499	0.0586	0.0912
2040	0.1879	0.0772	0.1107

**Charcot Ave, San Jose, CA - Alternative 2 - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks Residential Receptors (1.5 meter receptor heights) 30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information					Cancer Risk (per million)					
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2020	0.25	-0.25 - 0*	10	0.0072	0.2451	0.2020	0.098	0.019	0.001	0.12			
1	2020	1	1	10	0.0072	0.2451	0.2020	1.18	0.230	0.011	1.42			
2	2021	1	2	10	0.0072	0.2451	0.2020	1.18	0.230	0.011	1.42			
3	2022	1	3	3	0.0072	0.2451	0.2020	0.19	0.036	0.002	0.22			
4	2023	1	4	3	0.0072	0.2451	0.2020	0.19	0.036	0.002	0.22			
5	2024	1	5	3	0.0072	0.2451	0.2020	0.19	0.036	0.002	0.22			
6	2025	1	6	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
7	2026	1	7	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
8	2027	1	8	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
9	2028	1	9	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
10	2029	1	10	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
11	2030	1	11	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
12	2031	1	12	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
13	2032	1	13	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
14	2033	1	14	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
15	2034	1	15	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
16	2035	1	16	3	0.0046	0.2283	0.1972	0.12	0.034	0.002	0.15			
17	2036	1	17	1	0.0046	0.2283	0.1972	0.01	0.0037	0.000	0.017			
18	2037	1	18	1	0.0046	0.2283	0.1972	0.01	0.004	0.000	0.017			
19	2038	1	19	1	0.0046	0.2283	0.1972	0.01	0.004	0.000	0.017			
20	2039	1	20	1	0.0046	0.2283	0.1972	0.01	0.004	0.000	0.017			
21	2040	1	21	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
22	2041	1	22	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
23	2042	1	23	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
24	2043	1	24	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
25	2044	1	25	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
26	2045	1	26	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
27	2046	1	27	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
28	2047	1	28	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
29	2048	1	29	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
30	2049	1	30	1	0.0033	0.2398	0.1902	0.01	0.004	0.000	0.014			
<b>Total Increased Cancer Risk</b>			<b>Total</b>					4.46	1.012	0.050	<b>5.5</b>			

\* Third trimester of pregnancy

**Alternative 2 - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Years** 2020 and 2025  
**Receptor Information**  
 Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**  
 BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00857	0.4086	0.3370
2025	0.00579	0.3850	0.3319

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1999	0.0779	0.12198
2025	0.2485	0.0972	0.15127

**Charcot Ave, San Jose, CA - Alternative 2 - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EFH/24) x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
EFH =	10	10	10	10
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information			Cancer Risk (per million)				
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)		DPM	Exhaust TOG	Evaporative TOG	Total	
					DPM	TOG					TOG
1	2020	1	3	3	0.0086	0.4086	0.3370	0.092	0.025	0.001	0.12
2	2021	1	4	3	0.0086	0.4086	0.3370	0.092	0.025	0.001	0.12
3	2022	1	5	3	0.0086	0.4086	0.3370	0.092	0.025	0.001	0.12
4	2023	1	6	3	0.0086	0.4086	0.3370	0.092	0.025	0.001	0.12
5	2024	1	7	3	0.0086	0.4086	0.3370	0.092	0.025	0.001	0.12
6	2025	1	8	3	0.0058	0.3850	0.3319	0.062	0.024	0.001	0.09
7	2026	1	9	3	0.0058	0.3850	0.3319	0.062	0.024	0.001	0.09
8	2027	1	10	3	0.0058	0.3850	0.3319	0.062	0.024	0.001	0.09
9	2028	1	11	3	0.0058	0.3850	0.3319	0.062	0.024	0.001	0.09
<b>Total Increased Cancer Risk</b>			<b>Total</b>					0.71	0.220	0.019	<b>1.0</b>

**Charcot Ave Extension- Construction & Operation Sources - TACs & PM2.5  
Alternative 2  
AERMOD Risk Modeling Parameters and Maximum Concentrations  
Off-Site Residential Receptors (1.5 meter receptor heights)**

**Emissions Year** 2019 - 2048

**Receptor Information**

Number of Receptors 118  
 Receptor Height = 1.5 meters  
 Receptor distances = at sensitive residential receptor locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02084	0.0000	0.0000
2020-2024	0.00696	0.2548	0.2102
2025-2039	0.00423	0.2309	0.2070
2040-2048	0.00308	0.2547	0.2019

**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road  
Alternative 2**

**Off-Site Residential Receptors (1.5 meter receptor heights)  
30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information						Cancer Risk (per million)				
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2019	0.25	-0.25 - 0*	10	0.0208	0.0000	0.0000	0.283	0.000	0.000	0.000	0.28		
1	2019	1	1	10	0.0208	0.0000	0.0000	3.42	0.000	0.000	0.000	3.42		
2	2020	1	2	10	0.0070	0.2548	0.2102	1.14	0.239	0.012	0.012	1.39		
3	2021	1	3	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
4	2022	1	4	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
5	2023	1	5	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
6	2024	1	6	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
7	2025	1	7	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
8	2026	1	8	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
9	2027	1	9	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
10	2028	1	10	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
11	2029	1	11	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
12	2030	1	12	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
13	2031	1	13	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
14	2032	1	14	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
15	2033	1	15	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
16	2034	1	16	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
17	2035	1	17	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
18	2036	1	18	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
19	2037	1	19	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
20	2038	1	20	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
21	2039	1	21	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
22	2040	1	22	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
23	2041	1	23	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
24	2042	1	24	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
25	2043	1	25	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
26	2044	1	26	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
27	2045	1	27	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
28	2046	1	28	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
29	2047	1	29	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
29	2048	1	29	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
<b>Total Increased Cancer Risk</b>			<b>Total</b>					<b>6.80</b>	<b>0.78685</b>	<b>0.03972</b>		<b>7.63</b>		

\* Third trimester of pregnancy





**Charcot Ave Extension- Construction & Operation Sources - TACs  
 Alternative 2  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Year** 2019 - 2027

**Receptor Information**

Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02498	0.0000	0.0000
2020-2024	0.00751	0.3673	0.3030
2025-2027	0.00466	0.3376	0.2990

**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road  
Alternative 2  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child				Adult
	3rd Trimester	0 - <2	2 - <9	2 - <16	16 - 30
ASF	10	10	3	3	1
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
EFH =	10	10	10	10	10
ED =	0.25	2	14	14	14
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Construction and Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Maximum - Exposure Information				Cancer Risk (per million)			
			Age* Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	Total
				DPM	Exhaust TOG	Evaporative TOG				
1	2019	1	3	0.0250	0.0000	0.0000	0.713	0.000	0.000	0.71
2	2020	1	3	0.0075	0.3673	0.3030	0.089	0.025	0.001	0.12
3	2021	1	3	0.0075	0.3673	0.3030	0.089	0.025	0.001	0.12
4	2022	1	3	0.0075	0.3673	0.3030	0.089	0.025	0.001	0.12
5	2023	1	3	0.0075	0.3673	0.3030	0.089	0.025	0.001	0.12
6	2024	1	3	0.0075	0.3673	0.3030	0.089	0.025	0.001	0.12
7	2025	1	3	0.0047	0.3376	0.2990	0.055	0.023	0.001	0.08
8	2026	1	3	0.0047	0.3376	0.2990	0.055	0.023	0.001	0.08
9	2027	1	3	0.0047	0.3376	0.2990	0.055	0.023	0.001	0.08
<b>Total Increased Cancer Risk</b>			<b>Total</b>				1.32	0.193	0.010	<b>1.53</b>

\* Children assumed to be from 5 to 13 years of age

# Alternative 3 – Charcot Avenue and Oakland Road Traffic Emissions

## Charcot Avenue Traffic Emissions

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2020

### North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles				
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	3.4	25	4,000	208.3	46	42	121
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	3.4	25	4,000	208.3	46	42	121
Total									8,000	417	91	84	242
* Road segments north of Silk Wood Lane.									Fraction of Total Vehicles =		0.948	0.020	0.032
									Fraction Diesel in category =		0.012	0.523	0.945

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.40
Emissions per Diesel Vehicle (g/VMT) =	0.0443
Modeled Emission Rate (g/s) =	8.54E-05

\* daily emissions from CT-EMFAC

### 2020 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.16E-05	9	6.47%	1.91E-05	17	5.49%	11	1.62E-05
2	2.54%	5	7.51E-06	10	7.16%	2.12E-05	18	3.29%	7	9.73E-06
3	2.83%	6	8.36E-06	11	6.35%	1.88E-05	19	2.43%	5	7.17E-06
4	3.41%	7	1.01E-05	12	6.93%	2.05E-05	20	0.98%	2	2.90E-06
5	2.20%	5	6.49E-06	13	6.12%	1.81E-05	21	3.06%	6	9.05E-06
6	3.35%	7	9.90E-06	14	6.12%	1.81E-05	22	4.16%	9	1.23E-05
7	6.07%	13	1.79E-05	15	5.14%	1.52E-05	23	2.37%	5	7.00E-06
8	4.79%	10	1.42E-05	16	3.93%	1.16E-05	24	0.87%	2	2.56E-06
Total										208

### 2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	1.16E-05	9	6.47%	1.91E-05	17	5.49%	11	1.62E-05
2	2.54%	5	7.51E-06	10	7.16%	2.12E-05	18	3.29%	7	9.73E-06
3	2.83%	6	8.36E-06	11	6.35%	1.88E-05	19	2.43%	5	7.17E-06
4	3.41%	7	1.01E-05	12	6.93%	2.05E-05	20	0.98%	2	2.90E-06
5	2.20%	5	6.49E-06	13	6.12%	1.81E-05	21	3.06%	6	9.05E-06
6	3.35%	7	9.90E-06	14	6.12%	1.81E-05	22	4.16%	9	1.23E-05
7	6.07%	13	1.79E-05	15	5.14%	1.52E-05	23	2.37%	5	7.00E-06
8	4.79%	10	1.42E-05	16	3.93%	1.16E-05	24	0.87%	2	2.56E-06
Total										208

South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	3.4	25	4,000	208.3	46	42	121	
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	3.4	25	4,000	208.3	46	42	121	
									Total	8,000	417	91	84	242
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.948	0.020	0.032	
									Fraction Diesel in category =		0.012	0.523	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	7.38
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0443
<b>Modeled Emission Rate (g/s) =</b>	<b>8.54E-05</b>

\* daily emissions from CT-EMFAC

2020 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 3-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	3.93%	8	2.88E-05	9	6.47%	4.74E-05	17	5.49%	11	4.02E-05	
2	2.54%	5	1.86E-05	10	7.16%	5.25E-05	18	3.29%	7	2.41E-05	
3	2.83%	6	2.07E-05	11	6.35%	4.65E-05	19	2.43%	5	1.78E-05	
4	3.41%	7	2.50E-05	12	6.93%	5.08E-05	20	0.98%	2	7.19E-06	
5	2.20%	5	1.61E-05	13	6.12%	4.49E-05	21	3.06%	6	2.24E-05	
6	3.35%	7	2.45E-05	14	6.12%	4.49E-05	22	4.16%	9	3.05E-05	
7	6.07%	13	4.44E-05	15	5.14%	3.77E-05	23	2.37%	5	1.73E-05	
8	4.79%	10	3.51E-05	16	3.93%	2.88E-05	24	0.87%	2	6.35E-06	
									Total	208	

2020 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 3-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	8	2.88E-05	9	6.47%	4.74E-05	17	5.49%	11	4.02E-05
2	2.54%	5	1.86E-05	10	7.16%	5.25E-05	18	3.29%	7	2.41E-05
3	2.83%	6	2.07E-05	11	6.35%	4.65E-05	19	2.43%	5	1.78E-05
4	3.41%	7	2.50E-05	12	6.93%	5.08E-05	20	0.98%	2	7.19E-06
5	2.20%	5	1.61E-05	13	6.12%	4.49E-05	21	3.06%	6	2.24E-05
6	3.35%	7	2.45E-05	14	6.12%	4.49E-05	22	4.16%	9	3.05E-05
7	6.07%	13	4.44E-05	15	5.14%	3.77E-05	23	2.37%	5	1.73E-05
8	4.79%	10	3.51E-05	16	3.93%	2.88E-05	24	0.87%	2	6.35E-06
									Total	208

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,000
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	4,000
Total									8,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and PM2.5 Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	3.71E-05	9	7.11%	2.29E-04	17	7.38%	295	2.37E-04
2	0.42%	17	1.35E-05	10	4.39%	1.41E-04	18	8.17%	327	2.63E-04
3	0.41%	16	1.30E-05	11	4.67%	1.50E-04	19	5.70%	228	1.83E-04
4	0.27%	11	8.67E-06	12	5.89%	1.89E-04	20	4.27%	171	1.37E-04
5	0.50%	20	1.62E-05	13	6.15%	1.98E-04	21	3.26%	130	1.05E-04
6	0.91%	36	2.92E-05	14	6.03%	1.94E-04	22	3.30%	132	1.06E-04
7	3.80%	152	1.22E-04	15	7.01%	2.25E-04	23	2.46%	98	7.89E-05
8	7.76%	311	2.50E-04	16	7.13%	2.29E-04	24	1.87%	75	6.00E-05
Total									4,000	

2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	3.71E-05	9	7.11%	2.29E-04	17	7.38%	295	2.37E-04
2	0.42%	17	1.35E-05	10	4.39%	1.41E-04	18	8.17%	327	2.63E-04
3	0.41%	16	1.30E-05	11	4.67%	1.50E-04	19	5.70%	228	1.83E-04
4	0.27%	11	8.67E-06	12	5.89%	1.89E-04	20	4.27%	171	1.37E-04
5	0.50%	20	1.62E-05	13	6.15%	1.98E-04	21	3.26%	130	1.05E-04
6	0.91%	36	2.92E-05	14	6.03%	1.94E-04	22	3.30%	132	1.06E-04
7	3.80%	152	1.22E-04	15	7.01%	2.25E-04	23	2.46%	98	7.89E-05
8	7.76%	311	2.50E-04	16	7.13%	2.29E-04	24	1.87%	75	6.00E-05
Total									4,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	4,000	
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	4,000	
									Total	8,000

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	80.3
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0251
<b>Modeled Emission Rate (g/s) =</b>	<b>9.29E-04</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and PM2.5 Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.15%	46	9.19E-05	9	7.11%	5.67E-04	17	7.38%	295	5.88E-04	
2	0.42%	17	3.35E-05	10	4.39%	3.50E-04	18	8.17%	327	6.51E-04	
3	0.41%	16	3.23E-05	11	4.67%	3.72E-04	19	5.70%	228	4.54E-04	
4	0.27%	11	2.15E-05	12	5.89%	4.69E-04	20	4.27%	171	3.40E-04	
5	0.50%	20	4.01E-05	13	6.15%	4.90E-04	21	3.26%	130	2.60E-04	
6	0.91%	36	7.24E-05	14	6.03%	4.81E-04	22	3.30%	132	2.63E-04	
7	3.80%	152	3.03E-04	15	7.01%	5.59E-04	23	2.46%	98	1.96E-04	
8	7.76%	311	6.19E-04	16	7.13%	5.68E-04	24	1.87%	75	1.49E-04	
									Total	4,000	

**2020 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.15%	46	9.19E-05	9	7.11%	5.67E-04	17	7.38%	295	5.88E-04	
2	0.42%	17	3.35E-05	10	4.39%	3.50E-04	18	8.17%	327	6.51E-04	
3	0.41%	16	3.23E-05	11	4.67%	3.72E-04	19	5.70%	228	4.54E-04	
4	0.27%	11	2.15E-05	12	5.89%	4.69E-04	20	4.27%	171	3.40E-04	
5	0.50%	20	4.01E-05	13	6.15%	4.90E-04	21	3.26%	130	2.60E-04	
6	0.91%	36	7.24E-05	14	6.03%	4.81E-04	22	3.30%	132	2.63E-04	
7	3.80%	152	3.03E-04	15	7.01%	5.59E-04	23	2.46%	98	1.96E-04	
8	7.76%	311	6.19E-04	16	7.13%	5.68E-04	24	1.87%	75	1.49E-04	
									Total	4,000	

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 2-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	3,800
Alt 2-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	3,800
Total									7,600

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
<b>Modeled Emission Rate (g/s) =</b>	<b>2.97E-03</b>

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 2-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	1.19E-04	9	7.11%	7.31E-04	17	7.38%	280	7.59E-04
2	0.42%	16	4.32E-05	10	4.39%	4.51E-04	18	8.17%	311	8.40E-04
3	0.41%	15	4.17E-05	11	4.67%	4.80E-04	19	5.70%	216	5.85E-04
4	0.27%	10	2.77E-05	12	5.89%	6.05E-04	20	4.27%	162	4.39E-04
5	0.50%	19	5.17E-05	13	6.15%	6.32E-04	21	3.26%	124	3.35E-04
6	0.91%	35	9.34E-05	14	6.03%	6.20E-04	22	3.30%	125	3.39E-04
7	3.80%	144	3.90E-04	15	7.01%	7.21E-04	23	2.46%	93	2.52E-04
8	7.76%	295	7.98E-04	16	7.13%	7.33E-04	24	1.87%	71	1.92E-04
Total									3,800	

2020 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 2-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	1.19E-04	9	7.11%	7.31E-04	17	7.38%	280	7.59E-04
2	0.42%	16	4.32E-05	10	4.39%	4.51E-04	18	8.17%	311	8.40E-04
3	0.41%	15	4.17E-05	11	4.67%	4.80E-04	19	5.70%	216	5.85E-04
4	0.27%	10	2.77E-05	12	5.89%	6.05E-04	20	4.27%	162	4.39E-04
5	0.50%	19	5.17E-05	13	6.15%	6.32E-04	21	3.26%	124	3.35E-04
6	0.91%	35	9.34E-05	14	6.03%	6.20E-04	22	3.30%	125	3.39E-04
7	3.80%	144	3.90E-04	15	7.01%	7.21E-04	23	2.46%	93	2.52E-04
8	7.76%	295	7.98E-04	16	7.13%	7.33E-04	24	1.87%	71	1.92E-04
Total									3,800	



**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	3,800
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	256.8
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0845
Modeled Emission Rate (g/s) =	2.97E-03

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.94E-04	9	7.11%	1.81E-03	17	7.38%	280	1.88E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.08E-03
3	0.41%	15	1.03E-04	11	4.67%	1.19E-03	19	5.70%	216	1.45E-03
4	0.27%	10	6.88E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.30E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.40E-04
7	3.80%	144	9.68E-04	15	7.01%	1.79E-03	23	2.46%	93	6.26E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.76E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.94E-04	9	7.11%	1.81E-03	17	7.38%	280	1.88E-03
2	0.42%	16	1.07E-04	10	4.39%	1.12E-03	18	8.17%	311	2.08E-03
3	0.41%	15	1.03E-04	11	4.67%	1.19E-03	19	5.70%	216	1.45E-03
4	0.27%	10	6.88E-05	12	5.89%	1.50E-03	20	4.27%	162	1.09E-03
5	0.50%	19	1.28E-04	13	6.15%	1.57E-03	21	3.26%	124	8.30E-04
6	0.91%	35	2.32E-04	14	6.03%	1.54E-03	22	3.30%	125	8.40E-04
7	3.80%	144	9.68E-04	15	7.01%	1.79E-03	23	2.46%	93	6.26E-04
8	7.76%	295	1.98E-03	16	7.13%	1.82E-03	24	1.87%	71	4.76E-04
Total									3,800	

Charcot Ave, San Jose, CA

Operation - Alternative 3

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2020

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	3,800
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	3,800
Total									7,600

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 3-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	9.79E-05	9	7.11%	6.04E-04	17	7.38%	280	6.27E-04
2	0.42%	16	3.57E-05	10	4.39%	3.73E-04	18	8.17%	311	6.94E-04
3	0.41%	15	3.45E-05	11	4.67%	3.96E-04	19	5.70%	216	4.84E-04
4	0.27%	10	2.29E-05	12	5.89%	5.00E-04	20	4.27%	162	3.63E-04
5	0.50%	19	4.27E-05	13	6.15%	5.22E-04	21	3.26%	124	2.76E-04
6	0.91%	35	7.71E-05	14	6.03%	5.12E-04	22	3.30%	125	2.80E-04
7	3.80%	144	3.22E-04	15	7.01%	5.95E-04	23	2.46%	93	2.08E-04
8	7.76%	295	6.59E-04	16	7.13%	6.06E-04	24	1.87%	71	1.58E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 3-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	9.79E-05	9	7.11%	6.04E-04	17	7.38%	280	6.27E-04
2	0.42%	16	3.57E-05	10	4.39%	3.73E-04	18	8.17%	311	6.94E-04
3	0.41%	15	3.45E-05	11	4.67%	3.96E-04	19	5.70%	216	4.84E-04
4	0.27%	10	2.29E-05	12	5.89%	5.00E-04	20	4.27%	162	3.63E-04
5	0.50%	19	4.27E-05	13	6.15%	5.22E-04	21	3.26%	124	2.76E-04
6	0.91%	35	7.71E-05	14	6.03%	5.12E-04	22	3.30%	125	2.80E-04
7	3.80%	144	3.22E-04	15	7.01%	5.95E-04	23	2.46%	93	2.08E-04
8	7.76%	295	6.59E-04	16	7.13%	6.06E-04	24	1.87%	71	1.58E-04
Total									3,800	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	3,800
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	3,800
								Total	7,600

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	212.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0698
<b>Modeled Emission Rate (g/s) =</b>	<b>2.45E-03</b>

\* daily emissions from CT-EMFAC

**2020 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.55E-03
2	0.42%	16	8.85E-05	10	4.39%	9.24E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.54E-05	11	4.67%	9.82E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.68E-05	12	5.89%	1.24E-03	20	4.27%	162	8.99E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.86E-04
6	0.91%	35	1.91E-04	14	6.03%	1.27E-03	22	3.30%	125	6.94E-04
7	3.80%	144	7.99E-04	15	7.01%	1.48E-03	23	2.46%	93	5.17E-04
8	7.76%	295	1.63E-03	16	7.13%	1.50E-03	24	1.87%	71	3.93E-04
Total									3,800	

**2020 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	44	2.43E-04	9	7.11%	1.50E-03	17	7.38%	280	1.55E-03
2	0.42%	16	8.85E-05	10	4.39%	9.24E-04	18	8.17%	311	1.72E-03
3	0.41%	15	8.54E-05	11	4.67%	9.82E-04	19	5.70%	216	1.20E-03
4	0.27%	10	5.68E-05	12	5.89%	1.24E-03	20	4.27%	162	8.99E-04
5	0.50%	19	1.06E-04	13	6.15%	1.30E-03	21	3.26%	124	6.86E-04
6	0.91%	35	1.91E-04	14	6.03%	1.27E-03	22	3.30%	125	6.94E-04
7	3.80%	144	7.99E-04	15	7.01%	1.48E-03	23	2.46%	93	5.17E-04
8	7.76%	295	1.63E-03	16	7.13%	1.50E-03	24	1.87%	71	3.93E-04
Total									3,800	

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions  
 Year = 2020

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,000	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	4,000	
									Total	8,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	48.9
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
Modeled Emission Rate (g/s) =	5.66E-04

\* daily emissions from CT-EMFAC

2020 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	46	2.26E-05	9	7.11%	1.39E-04	17	7.38%	295	1.44E-04
2	0.42%	17	8.22E-06	10	4.39%	8.59E-05	18	8.17%	327	1.60E-04
3	0.41%	16	7.94E-06	11	4.67%	9.13E-05	19	5.70%	228	1.11E-04
4	0.27%	11	5.28E-06	12	5.89%	1.15E-04	20	4.27%	171	8.36E-05
5	0.50%	20	9.84E-06	13	6.15%	1.20E-04	21	3.26%	130	6.37E-05
6	0.91%	36	1.78E-05	14	6.03%	1.18E-04	22	3.30%	132	6.45E-05
7	3.80%	152	7.43E-05	15	7.01%	1.37E-04	23	2.46%	98	4.81E-05
8	7.76%	311	1.52E-04	16	7.13%	1.40E-04	24	1.87%	75	3.65E-05
									Total	4,000

2020 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	46	2.26E-05	9	7.11%	1.39E-04	17	7.38%	295	1.44E-04
2	0.42%	17	8.22E-06	10	4.39%	8.59E-05	18	8.17%	327	1.60E-04
3	0.41%	16	7.94E-06	11	4.67%	9.13E-05	19	5.70%	228	1.11E-04
4	0.27%	11	5.28E-06	12	5.89%	1.15E-04	20	4.27%	171	8.36E-05
5	0.50%	20	9.84E-06	13	6.15%	1.20E-04	21	3.26%	130	6.37E-05
6	0.91%	36	1.78E-05	14	6.03%	1.18E-04	22	3.30%	132	6.45E-05
7	3.80%	152	7.43E-05	15	7.01%	1.37E-04	23	2.46%	98	4.81E-05
8	7.76%	311	1.52E-04	16	7.13%	1.40E-04	24	1.87%	75	3.65E-05
									Total	4,000

**Charcot Ave, San Jose, CA**

**Operation - Alternative 3 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2020

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	8,000	0.40	48.9

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles				
										Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	3.4	25	5,000	280.1	62	53	165	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	3.4	25	5,000	280.1	62	53	165	
									Total	10,000	560	123	106	331
* Road segments north of Silk Wood Lane.									Fraction of Total Vehicles =		0.947	0.018	0.035	
									Fraction Diesel in category =		0.013	0.591	0.945	

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	3.93%	11	7.10E-06	9	6.41%	1.16E-05	17	5.55%	16	1.00E-05	
2	2.62%	7	4.74E-06	10	7.36%	1.33E-05	18	3.16%	9	5.70E-06	
3	2.85%	8	5.15E-06	11	6.34%	1.14E-05	19	2.36%	7	4.26E-06	
4	3.31%	9	5.97E-06	12	6.92%	1.25E-05	20	0.87%	2	1.56E-06	
5	2.17%	6	3.91E-06	13	6.29%	1.14E-05	21	3.09%	9	5.58E-06	
6	3.36%	9	6.07E-06	14	6.23%	1.13E-05	22	4.12%	12	7.43E-06	
7	6.00%	17	1.08E-05	15	5.15%	9.30E-06	23	2.58%	7	4.65E-06	
8	4.58%	13	8.27E-06	16	3.84%	6.93E-06	24	0.92%	3	1.67E-06	
									Total	280	

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	3.93%	11	7.10E-06	9	6.41%	1.16E-05	17	5.55%	16	1.00E-05	
2	2.62%	7	4.74E-06	10	7.36%	1.33E-05	18	3.16%	9	5.70E-06	
3	2.85%	8	5.15E-06	11	6.34%	1.14E-05	19	2.36%	7	4.26E-06	
4	3.31%	9	5.97E-06	12	6.92%	1.25E-05	20	0.87%	2	1.56E-06	
5	2.17%	6	3.91E-06	13	6.29%	1.14E-05	21	3.09%	9	5.58E-06	
6	3.36%	9	6.07E-06	14	6.23%	1.13E-05	22	4.12%	12	7.43E-06	
7	6.00%	17	1.08E-05	15	5.15%	9.30E-06	23	2.58%	7	4.65E-06	
8	4.58%	13	8.27E-06	16	3.84%	6.93E-06	24	0.92%	3	1.67E-06	
									Total	280	

South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	3.4	25	5,000	280.1	62	53	165	
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	3.4	25	5,000	280.1	62	53	165	
									Total	10,000	560	123	106	331
									Fraction of Total Vehicles =		0.947	0.018	0.035	
									Fraction Diesel in category =		0.013	0.591	0.945	

\* Road segments south of Silk Wood Lane.

DPM Emissions	
Daily Emissions (g/day)* =	4.5
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0201
<b>Modeled Emission Rate (g/s) =</b>	<b>5.21E-05</b>

\* daily emissions from CT-EMFAC

2025 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 3-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.86E-05	17	5.55%	16	2.48E-05
2	2.62%	7	1.17E-05	10	7.36%	3.29E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.27E-05	11	6.34%	2.83E-05	19	2.36%	7	1.05E-05
4	3.31%	9	1.48E-05	12	6.92%	3.09E-05	20	0.87%	2	3.86E-06
5	2.17%	6	9.68E-06	13	6.29%	2.81E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.50E-05	14	6.23%	2.78E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.30E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.12E-06
Total										280

2025 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 3-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	11	1.76E-05	9	6.41%	2.86E-05	17	5.55%	16	2.48E-05
2	2.62%	7	1.17E-05	10	7.36%	3.29E-05	18	3.16%	9	1.41E-05
3	2.85%	8	1.27E-05	11	6.34%	2.83E-05	19	2.36%	7	1.05E-05
4	3.31%	9	1.48E-05	12	6.92%	3.09E-05	20	0.87%	2	3.86E-06
5	2.17%	6	9.68E-06	13	6.29%	2.81E-05	21	3.09%	9	1.38E-05
6	3.36%	9	1.50E-05	14	6.23%	2.78E-05	22	4.12%	12	1.84E-05
7	6.00%	17	2.68E-05	15	5.15%	2.30E-05	23	2.58%	7	1.15E-05
8	4.58%	13	2.05E-05	16	3.84%	1.72E-05	24	0.92%	3	4.12E-06
Total										280

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	5,000	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	5,000	
									Total	10,000

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and PM2.5 Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	
1	1.15%	57	4.39E-05	9	7.11%	2.72E-04	17	7.39%	369	2.82E-04	
2	0.42%	21	1.61E-05	10	4.39%	1.68E-04	18	8.18%	409	3.12E-04	
3	0.41%	20	1.56E-05	11	4.66%	1.78E-04	19	5.69%	285	2.18E-04	
4	0.26%	13	9.93E-06	12	5.89%	2.25E-04	20	4.28%	214	1.63E-04	
5	0.50%	25	1.90E-05	13	6.15%	2.35E-04	21	3.25%	163	1.24E-04	
6	0.91%	45	3.47E-05	14	6.04%	2.31E-04	22	3.30%	165	1.26E-04	
7	3.79%	189	1.45E-04	15	7.01%	2.68E-04	23	2.46%	123	9.40E-05	
8	7.77%	388	2.97E-04	16	7.14%	2.73E-04	24	1.86%	93	7.12E-05	
									Total	5,000	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.15%	57	4.39E-05	9	7.11%	2.72E-04	17	7.39%	369	2.82E-04	
2	0.42%	21	1.61E-05	10	4.39%	1.68E-04	18	8.18%	409	3.12E-04	
3	0.41%	20	1.56E-05	11	4.66%	1.78E-04	19	5.69%	285	2.18E-04	
4	0.26%	13	9.93E-06	12	5.89%	2.25E-04	20	4.28%	214	1.63E-04	
5	0.50%	25	1.90E-05	13	6.15%	2.35E-04	21	3.25%	163	1.24E-04	
6	0.91%	45	3.47E-05	14	6.04%	2.31E-04	22	3.30%	165	1.26E-04	
7	3.79%	189	1.45E-04	15	7.01%	2.68E-04	23	2.46%	123	9.40E-05	
8	7.77%	388	2.97E-04	16	7.14%	2.73E-04	24	1.86%	93	7.12E-05	
									Total	5,000	



**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	5,000
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	5,000
Total									10,000

\* Road segments south of Silk Wood Lane.

<b>PM2.5 Emissions</b>	
Daily Emissions (g/day)* =	95.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0238
<b>Modeled Emission Rate (g/s) =</b>	<b>1.10E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and PM2.5 Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	1.09E-04	9	7.11%	6.72E-04	17	7.39%	369	6.98E-04
2	0.42%	21	3.98E-05	10	4.39%	4.14E-04	18	8.18%	409	7.73E-04
3	0.41%	20	3.86E-05	11	4.66%	4.40E-04	19	5.69%	285	5.38E-04
4	0.26%	13	2.46E-05	12	5.89%	5.56E-04	20	4.28%	214	4.04E-04
5	0.50%	25	4.69E-05	13	6.15%	5.81E-04	21	3.25%	163	3.07E-04
6	0.91%	45	8.57E-05	14	6.04%	5.71E-04	22	3.30%	165	3.11E-04
7	3.79%	189	3.58E-04	15	7.01%	6.62E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.34E-04	16	7.14%	6.75E-04	24	1.86%	93	1.76E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	1.09E-04	9	7.11%	6.72E-04	17	7.39%	369	6.98E-04
2	0.42%	21	3.98E-05	10	4.39%	4.14E-04	18	8.18%	409	7.73E-04
3	0.41%	20	3.86E-05	11	4.66%	4.40E-04	19	5.69%	285	5.38E-04
4	0.26%	13	2.46E-05	12	5.89%	5.56E-04	20	4.28%	214	4.04E-04
5	0.50%	25	4.69E-05	13	6.15%	5.81E-04	21	3.25%	163	3.07E-04
6	0.91%	45	8.57E-05	14	6.04%	5.71E-04	22	3.30%	165	3.11E-04
7	3.79%	189	3.58E-04	15	7.01%	6.62E-04	23	2.46%	123	2.33E-04
8	7.77%	388	7.34E-04	16	7.14%	6.75E-04	24	1.86%	93	1.76E-04
Total									5,000	

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,720	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	4,720	
									Total	9,440

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	1.08E-04	9	7.11%	6.67E-04	17	7.39%	349	6.92E-04
2	0.42%	20	3.95E-05	10	4.39%	4.11E-04	18	8.18%	386	7.66E-04
3	0.41%	19	3.83E-05	11	4.66%	4.37E-04	19	5.69%	269	5.34E-04
4	0.26%	12	2.44E-05	12	5.89%	5.52E-04	20	4.28%	202	4.01E-04
5	0.50%	23	4.66E-05	13	6.15%	5.76E-04	21	3.25%	154	3.05E-04
6	0.91%	43	8.50E-05	14	6.04%	5.66E-04	22	3.30%	156	3.09E-04
7	3.79%	179	3.55E-04	15	7.01%	6.57E-04	23	2.46%	116	2.31E-04
8	7.77%	367	7.28E-04	16	7.14%	6.69E-04	24	1.86%	88	1.75E-04
									Total	4,720

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	1.08E-04	9	7.11%	6.67E-04	17	7.39%	349	6.92E-04
2	0.42%	20	3.95E-05	10	4.39%	4.11E-04	18	8.18%	386	7.66E-04
3	0.41%	19	3.83E-05	11	4.66%	4.37E-04	19	5.69%	269	5.34E-04
4	0.26%	12	2.44E-05	12	5.89%	5.52E-04	20	4.28%	202	4.01E-04
5	0.50%	23	4.66E-05	13	6.15%	5.76E-04	21	3.25%	154	3.05E-04
6	0.91%	43	8.50E-05	14	6.04%	5.66E-04	22	3.30%	156	3.09E-04
7	3.79%	179	3.55E-04	15	7.01%	6.57E-04	23	2.46%	116	2.31E-04
8	7.77%	367	7.28E-04	16	7.14%	6.69E-04	24	1.86%	88	1.75E-04
									Total	4,720

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	4,720
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	233.5
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0618
<b>Modeled Emission Rate (g/s) =</b>	<b>2.70E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.66E-04	9	7.11%	1.65E-03	17	7.39%	349	1.71E-03
2	0.42%	20	9.77E-05	10	4.39%	1.02E-03	18	8.18%	386	1.89E-03
3	0.41%	19	9.46E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.02E-05	12	5.89%	1.36E-03	20	4.28%	202	9.91E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.54E-04
6	0.91%	43	2.10E-04	14	6.04%	1.40E-03	22	3.30%	156	7.64E-04
7	3.79%	179	8.78E-04	15	7.01%	1.62E-03	23	2.46%	116	5.70E-04
8	7.77%	367	1.80E-03	16	7.14%	1.65E-03	24	1.86%	88	4.32E-04
Total									4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.66E-04	9	7.11%	1.65E-03	17	7.39%	349	1.71E-03
2	0.42%	20	9.77E-05	10	4.39%	1.02E-03	18	8.18%	386	1.89E-03
3	0.41%	19	9.46E-05	11	4.66%	1.08E-03	19	5.69%	269	1.32E-03
4	0.26%	12	6.02E-05	12	5.89%	1.36E-03	20	4.28%	202	9.91E-04
5	0.50%	23	1.15E-04	13	6.15%	1.43E-03	21	3.25%	154	7.54E-04
6	0.91%	43	2.10E-04	14	6.04%	1.40E-03	22	3.30%	156	7.64E-04
7	3.79%	179	8.78E-04	15	7.01%	1.62E-03	23	2.46%	116	5.70E-04
8	7.77%	367	1.80E-03	16	7.14%	1.65E-03	24	1.86%	88	4.32E-04
Total									4,720	

Charcot Ave, San Jose, CA

Operation - Alternative 3

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2025

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	4,720	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	4,720	
									Total	9,440

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 3-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	9.65E-05	9	7.11%	5.97E-04	17	7.39%	349	6.20E-04
2	0.42%	20	3.54E-05	10	4.39%	3.68E-04	18	8.18%	386	6.86E-04
3	0.41%	19	3.43E-05	11	4.66%	3.91E-04	19	5.69%	269	4.78E-04
4	0.26%	12	2.18E-05	12	5.89%	4.94E-04	20	4.28%	202	3.59E-04
5	0.50%	23	4.17E-05	13	6.15%	5.16E-04	21	3.25%	154	2.73E-04
6	0.91%	43	7.61E-05	14	6.04%	5.07E-04	22	3.30%	156	2.77E-04
7	3.79%	179	3.18E-04	15	7.01%	5.88E-04	23	2.46%	116	2.07E-04
8	7.77%	367	6.52E-04	16	7.14%	5.99E-04	24	1.86%	88	1.56E-04
									Total	4,720

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 3-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	9.65E-05	9	7.11%	5.97E-04	17	7.39%	349	6.20E-04
2	0.42%	20	3.54E-05	10	4.39%	3.68E-04	18	8.18%	386	6.86E-04
3	0.41%	19	3.43E-05	11	4.66%	3.91E-04	19	5.69%	269	4.78E-04
4	0.26%	12	2.18E-05	12	5.89%	4.94E-04	20	4.28%	202	3.59E-04
5	0.50%	23	4.17E-05	13	6.15%	5.16E-04	21	3.25%	154	2.73E-04
6	0.91%	43	7.61E-05	14	6.04%	5.07E-04	22	3.30%	156	2.77E-04
7	3.79%	179	3.18E-04	15	7.01%	5.88E-04	23	2.46%	116	2.07E-04
8	7.77%	367	6.52E-04	16	7.14%	5.99E-04	24	1.86%	88	1.56E-04
									Total	4,720

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	4,720
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	4,720
								Total	9,440

\* Road segments south of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	209.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0554
<b>Modeled Emission Rate (g/s) =</b>	<b>2.42E-03</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.53E-03
2	0.42%	20	8.75E-05	10	4.39%	9.10E-04	18	8.18%	386	1.70E-03
3	0.41%	19	8.47E-05	11	4.66%	9.68E-04	19	5.69%	269	1.18E-03
4	0.26%	12	5.40E-05	12	5.89%	1.22E-03	20	4.28%	202	8.87E-04
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.75E-04
6	0.91%	43	1.88E-04	14	6.04%	1.25E-03	22	3.30%	156	6.84E-04
7	3.79%	179	7.86E-04	15	7.01%	1.46E-03	23	2.46%	116	5.11E-04
8	7.77%	367	1.61E-03	16	7.14%	1.48E-03	24	1.86%	88	3.87E-04
Total									4,720	

**2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	54	2.39E-04	9	7.11%	1.48E-03	17	7.39%	349	1.53E-03
2	0.42%	20	8.75E-05	10	4.39%	9.10E-04	18	8.18%	386	1.70E-03
3	0.41%	19	8.47E-05	11	4.66%	9.68E-04	19	5.69%	269	1.18E-03
4	0.26%	12	5.40E-05	12	5.89%	1.22E-03	20	4.28%	202	8.87E-04
5	0.50%	23	1.03E-04	13	6.15%	1.28E-03	21	3.25%	154	6.75E-04
6	0.91%	43	1.88E-04	14	6.04%	1.25E-03	22	3.30%	156	6.84E-04
7	3.79%	179	7.86E-04	15	7.01%	1.46E-03	23	2.46%	116	5.11E-04
8	7.77%	367	1.61E-03	16	7.14%	1.48E-03	24	1.86%	88	3.87E-04
Total									4,720	

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions  
 Year = 2025

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	5,000
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	5,000
Total									10,000

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	2.82E-05	9	7.11%	1.74E-04	17	7.39%	369	1.81E-04
2	0.42%	21	1.03E-05	10	4.39%	1.08E-04	18	8.18%	409	2.01E-04
3	0.41%	20	1.00E-05	11	4.66%	1.14E-04	19	5.69%	285	1.40E-04
4	0.26%	13	6.38E-06	12	5.89%	1.44E-04	20	4.28%	214	1.05E-04
5	0.50%	25	1.22E-05	13	6.15%	1.51E-04	21	3.25%	163	7.98E-05
6	0.91%	45	2.22E-05	14	6.04%	1.48E-04	22	3.30%	165	8.09E-05
7	3.79%	189	9.29E-05	15	7.01%	1.72E-04	23	2.46%	123	6.04E-05
8	7.77%	388	1.90E-04	16	7.14%	1.75E-04	24	1.86%	93	4.57E-05
Total									5,000	

2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	2.82E-05	9	7.11%	1.74E-04	17	7.39%	369	1.81E-04
2	0.42%	21	1.03E-05	10	4.39%	1.08E-04	18	8.18%	409	2.01E-04
3	0.41%	20	1.00E-05	11	4.66%	1.14E-04	19	5.69%	285	1.40E-04
4	0.26%	13	6.38E-06	12	5.89%	1.44E-04	20	4.28%	214	1.05E-04
5	0.50%	25	1.22E-05	13	6.15%	1.51E-04	21	3.25%	163	7.98E-05
6	0.91%	45	2.22E-05	14	6.04%	1.48E-04	22	3.30%	165	8.09E-05
7	3.79%	189	9.29E-05	15	7.01%	1.72E-04	23	2.46%	123	6.04E-05
8	7.77%	388	1.90E-04	16	7.14%	1.75E-04	24	1.86%	93	4.57E-05
Total									5,000	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	5,000
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	5,000
Total									10,000

\* Road segments south of Silk Wood Lane.

<b>Road PM2.5 Fugitive Emissions</b>	
Daily Emissions (g/day)* =	61.1
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>7.07E-04</b>

\* daily emissions from CT-EMFAC

**2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	57	6.97E-05	9	7.11%	4.32E-04	17	7.39%	369	4.48E-04
2	0.42%	21	2.56E-05	10	4.39%	2.66E-04	18	8.18%	409	4.96E-04
3	0.41%	20	2.48E-05	11	4.66%	2.83E-04	19	5.69%	285	3.45E-04
4	0.26%	13	1.58E-05	12	5.89%	3.57E-04	20	4.28%	214	2.59E-04
5	0.50%	25	3.01E-05	13	6.15%	3.73E-04	21	3.25%	163	1.97E-04
6	0.91%	45	5.50E-05	14	6.04%	3.66E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.25E-04	23	2.46%	123	1.49E-04
8	7.77%	388	4.71E-04	16	7.14%	4.33E-04	24	1.86%	93	1.13E-04
Total									5,000	

**2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	57	6.97E-05	9	7.11%	4.32E-04	17	7.39%	369	4.48E-04
2	0.42%	21	2.56E-05	10	4.39%	2.66E-04	18	8.18%	409	4.96E-04
3	0.41%	20	2.48E-05	11	4.66%	2.83E-04	19	5.69%	285	3.45E-04
4	0.26%	13	1.58E-05	12	5.89%	3.57E-04	20	4.28%	214	2.59E-04
5	0.50%	25	3.01E-05	13	6.15%	3.73E-04	21	3.25%	163	1.97E-04
6	0.91%	45	5.50E-05	14	6.04%	3.66E-04	22	3.30%	165	2.00E-04
7	3.79%	189	2.30E-04	15	7.01%	4.25E-04	23	2.46%	123	1.49E-04
8	7.77%	388	4.71E-04	16	7.14%	4.33E-04	24	1.86%	93	1.13E-04
Total									5,000	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 3 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2025

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	10,000	0.40	61.1

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69



Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	Average VPH Diesel Vehicles				
										Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	3.4	25	6,600	395.3	87	71	237	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	3.4	25	6,600	395.3	87	71	237	
									Total	13,200	791	175	141	475
* Road segments north of Silk Wood Lane.									Fraction of Total Vehicles =		0.946	0.016	0.038	
									Fraction Diesel in category =		0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

2040 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.45E-06	9	6.54%	8.67E-06	17	5.65%	22	7.48E-06
2	2.80%	11	3.70E-06	10	7.60%	1.01E-05	18	3.11%	12	4.12E-06
3	2.85%	11	3.77E-06	11	6.39%	8.46E-06	19	2.11%	8	2.80E-06
4	3.11%	12	4.12E-06	12	7.07%	9.36E-06	20	0.84%	3	1.12E-06
5	2.06%	8	2.73E-06	13	6.33%	8.39E-06	21	3.06%	12	4.05E-06
6	3.22%	13	4.26E-06	14	6.17%	8.18E-06	22	4.27%	17	5.66E-06
7	5.96%	24	7.90E-06	15	5.22%	6.92E-06	23	2.69%	11	3.56E-06
8	4.22%	17	5.59E-06	16	3.75%	4.96E-06	24	0.84%	3	1.12E-06
Total									395	

2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	5.45E-06	9	6.54%	8.67E-06	17	5.65%	22	7.48E-06
2	2.80%	11	3.70E-06	10	7.60%	1.01E-05	18	3.11%	12	4.12E-06
3	2.85%	11	3.77E-06	11	6.39%	8.46E-06	19	2.11%	8	2.80E-06
4	3.11%	12	4.12E-06	12	7.07%	9.36E-06	20	0.84%	3	1.12E-06
5	2.06%	8	2.73E-06	13	6.33%	8.39E-06	21	3.06%	12	4.05E-06
6	3.22%	13	4.26E-06	14	6.17%	8.18E-06	22	4.27%	17	5.66E-06
7	5.96%	24	7.90E-06	15	5.22%	6.92E-06	23	2.69%	11	3.56E-06
8	4.22%	17	5.59E-06	16	3.75%	4.96E-06	24	0.84%	3	1.12E-06
Total									395	

South Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average VPH Diesel Vehicles					
									Average Vehicles per Day	Diesel Vehicles/Day	Non-Truck	MDT	HDT	
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	3.4	25	6,600	395.3	87	71	237	
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	3.4	25	6,600	395.3	87	71	237	
									Total	13,200	791	175	141	475
* Road segments south of Silk Wood Lane.									Fraction of Total Vehicles =		0.946	0.016	0.038	
									Fraction Diesel in category =		0.014	0.669	0.946	

DPM Emissions	
Daily Emissions (g/day)* =	3.3
Total Road Length (mi) =	0.4
Emissions per Diesel Vehicle (g/VMT) =	0.0104
<b>Modeled Emission Rate (g/s) =</b>	<b>3.82E-05</b>

\* daily emissions from CT-EMFAC

2040 Hourly Diesel Traffic Volumes and DPM Emissions - Alt 3-NB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	1.35E-05	9	6.54%	2.14E-05	17	5.65%	22	1.85E-05
2	2.80%	11	9.16E-06	10	7.60%	2.49E-05	18	3.11%	12	1.02E-05
3	2.85%	11	9.33E-06	11	6.39%	2.09E-05	19	2.11%	8	6.91E-06
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06
5	2.06%	8	6.74E-06	13	6.33%	2.07E-05	21	3.06%	12	1.00E-05
6	3.22%	13	1.05E-05	14	6.17%	2.02E-05	22	4.27%	17	1.40E-05
7	5.96%	24	1.95E-05	15	5.22%	1.71E-05	23	2.69%	11	8.81E-06
8	4.22%	17	1.38E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06
Total										395

2040 Hourly Diesel Traffic Volumes Per Direction and DPM Emissions - Alt 3-SB Charcot-South

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	4.12%	16	1.35E-05	9	6.54%	2.14E-05	17	5.65%	22	1.85E-05
2	2.80%	11	9.16E-06	10	7.60%	2.49E-05	18	3.11%	12	1.02E-05
3	2.85%	11	9.33E-06	11	6.39%	2.09E-05	19	2.11%	8	6.91E-06
4	3.11%	12	1.02E-05	12	7.07%	2.32E-05	20	0.84%	3	2.77E-06
5	2.06%	8	6.74E-06	13	6.33%	2.07E-05	21	3.06%	12	1.00E-05
6	3.22%	13	1.05E-05	14	6.17%	2.02E-05	22	4.27%	17	1.40E-05
7	5.96%	24	1.95E-05	15	5.22%	1.71E-05	23	2.69%	11	8.81E-06
8	4.22%	17	1.38E-05	16	3.75%	1.23E-05	24	0.84%	3	2.77E-06
Total										395

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,600
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	6,600
Total									13,200

\* Road segments north of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and PM2.5 Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	5.28E-05	9	7.12%	3.30E-04	17	7.40%	488	3.43E-04
2	0.42%	28	1.95E-05	10	4.38%	2.03E-04	18	8.19%	541	3.79E-04
3	0.40%	26	1.85E-05	11	4.66%	2.16E-04	19	5.71%	377	2.64E-04
4	0.24%	16	1.11E-05	12	5.89%	2.73E-04	20	4.28%	282	1.98E-04
5	0.49%	32	2.27E-05	13	6.16%	2.85E-04	21	3.25%	215	1.51E-04
6	0.89%	59	4.12E-05	14	6.03%	2.79E-04	22	3.30%	218	1.53E-04
7	3.78%	249	1.75E-04	15	7.02%	3.25E-04	23	2.46%	162	1.14E-04
8	7.77%	513	3.60E-04	16	7.15%	3.31E-04	24	1.87%	123	8.66E-05
Total									6,600	

2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	5.28E-05	9	7.12%	3.30E-04	17	7.40%	488	3.43E-04
2	0.42%	28	1.95E-05	10	4.38%	2.03E-04	18	8.19%	541	3.79E-04
3	0.40%	26	1.85E-05	11	4.66%	2.16E-04	19	5.71%	377	2.64E-04
4	0.24%	16	1.11E-05	12	5.89%	2.73E-04	20	4.28%	282	1.98E-04
5	0.49%	32	2.27E-05	13	6.16%	2.85E-04	21	3.25%	215	1.51E-04
6	0.89%	59	4.12E-05	14	6.03%	2.79E-04	22	3.30%	218	1.53E-04
7	3.78%	249	1.75E-04	15	7.02%	3.25E-04	23	2.46%	162	1.14E-04
8	7.77%	513	3.60E-04	16	7.15%	3.31E-04	24	1.87%	123	8.66E-05
Total									6,600	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	6,600
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	6,600
Total									13,200

\* Road segments south of Silk Wood Lane.

PM2.5 Emissions	
Daily Emissions (g/day)* =	115.4
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0219
<b>Modeled Emission Rate (g/s) =</b>	<b>1.34E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and PM2.5 Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	1.31E-04	9	7.12%	8.15E-04	17	7.40%	488	8.48E-04
2	0.42%	28	4.81E-05	10	4.38%	5.02E-04	18	8.19%	541	9.38E-04
3	0.40%	26	4.58E-05	11	4.66%	5.34E-04	19	5.71%	377	6.54E-04
4	0.24%	16	2.75E-05	12	5.89%	6.75E-04	20	4.28%	282	4.90E-04
5	0.49%	32	5.61E-05	13	6.16%	7.06E-04	21	3.25%	215	3.72E-04
6	0.89%	59	1.02E-04	14	6.03%	6.91E-04	22	3.30%	218	3.78E-04
7	3.78%	249	4.33E-04	15	7.02%	8.04E-04	23	2.46%	162	2.82E-04
8	7.77%	513	8.90E-04	16	7.15%	8.19E-04	24	1.87%	123	2.14E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	1.31E-04	9	7.12%	8.15E-04	17	7.40%	488	8.48E-04
2	0.42%	28	4.81E-05	10	4.38%	5.02E-04	18	8.19%	541	9.38E-04
3	0.40%	26	4.58E-05	11	4.66%	5.34E-04	19	5.71%	377	6.54E-04
4	0.24%	16	2.75E-05	12	5.89%	6.75E-04	20	4.28%	282	4.90E-04
5	0.49%	32	5.61E-05	13	6.16%	7.06E-04	21	3.25%	215	3.72E-04
6	0.89%	59	1.02E-04	14	6.03%	6.91E-04	22	3.30%	218	3.78E-04
7	3.78%	249	4.33E-04	15	7.02%	8.04E-04	23	2.46%	162	2.82E-04
8	7.77%	513	8.90E-04	16	7.15%	8.19E-04	24	1.87%	123	2.14E-04
Total									6,600	

Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,205
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments north of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and TOG Exhaust Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	1.18E-04	9	7.12%	7.38E-04	17	7.40%	459	7.67E-04
2	0.42%	26	4.35E-05	10	4.38%	4.54E-04	18	8.19%	508	8.49E-04
3	0.40%	25	4.14E-05	11	4.66%	4.83E-04	19	5.71%	354	5.92E-04
4	0.24%	15	2.49E-05	12	5.89%	6.10E-04	20	4.28%	266	4.43E-04
5	0.49%	30	5.08E-05	13	6.16%	6.38E-04	21	3.25%	202	3.37E-04
6	0.89%	55	9.22E-05	14	6.03%	6.25E-04	22	3.30%	205	3.42E-04
7	3.78%	235	3.92E-04	15	7.02%	7.27E-04	23	2.46%	153	2.55E-04
8	7.77%	482	8.05E-04	16	7.15%	7.41E-04	24	1.87%	116	1.94E-04
Total									6,205	

2040 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	1.18E-04	9	7.12%	7.38E-04	17	7.40%	459	7.67E-04
2	0.42%	26	4.35E-05	10	4.38%	4.54E-04	18	8.19%	508	8.49E-04
3	0.40%	25	4.14E-05	11	4.66%	4.83E-04	19	5.71%	354	5.92E-04
4	0.24%	15	2.49E-05	12	5.89%	6.10E-04	20	4.28%	266	4.43E-04
5	0.49%	30	5.08E-05	13	6.16%	6.38E-04	21	3.25%	202	3.37E-04
6	0.89%	55	9.22E-05	14	6.03%	6.25E-04	22	3.30%	205	3.42E-04
7	3.78%	235	3.92E-04	15	7.02%	7.27E-04	23	2.46%	153	2.55E-04
8	7.77%	482	8.05E-04	16	7.15%	7.41E-04	24	1.87%	116	1.94E-04
Total									6,205	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	6,205
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments south of Silk Wood Lane.

TOG Exhaust Emissions	
Daily Emissions (g/day)* =	258.2
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0520
<b>Modeled Emission Rate (g/s) =</b>	<b>2.99E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.92E-04	9	7.12%	1.82E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.12E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.19E-03	19	5.71%	354	1.46E-03
4	0.24%	15	6.15E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.33E-04
6	0.89%	55	2.28E-04	14	6.03%	1.55E-03	22	3.30%	205	8.46E-04
7	3.78%	235	9.69E-04	15	7.02%	1.80E-03	23	2.46%	153	6.30E-04
8	7.77%	482	1.99E-03	16	7.15%	1.83E-03	24	1.87%	116	4.79E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.92E-04	9	7.12%	1.82E-03	17	7.40%	459	1.90E-03
2	0.42%	26	1.08E-04	10	4.38%	1.12E-03	18	8.19%	508	2.10E-03
3	0.40%	25	1.03E-04	11	4.66%	1.19E-03	19	5.71%	354	1.46E-03
4	0.24%	15	6.15E-05	12	5.89%	1.51E-03	20	4.28%	266	1.10E-03
5	0.49%	30	1.26E-04	13	6.16%	1.58E-03	21	3.25%	202	8.33E-04
6	0.89%	55	2.28E-04	14	6.03%	1.55E-03	22	3.30%	205	8.46E-04
7	3.78%	235	9.69E-04	15	7.02%	1.80E-03	23	2.46%	153	6.30E-04
8	7.77%	482	1.99E-03	16	7.15%	1.83E-03	24	1.87%	116	4.79E-04
Total									6,205	

Charcot Ave, San Jose, CA

Operation - Alternative 3

TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions

Year = 2040

**North Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,205
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments north of Silk Wood Lane.

TOG Evaporative Emissions	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 3-NB Charcot-North**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	9.36E-05	9	7.12%	5.85E-04	17	7.40%	459	6.08E-04
2	0.42%	26	3.45E-05	10	4.38%	3.60E-04	18	8.19%	508	6.72E-04
3	0.40%	25	3.28E-05	11	4.66%	3.83E-04	19	5.71%	354	4.69E-04
4	0.24%	15	1.97E-05	12	5.89%	4.84E-04	20	4.28%	266	3.51E-04
5	0.49%	30	4.02E-05	13	6.16%	5.06E-04	21	3.25%	202	2.67E-04
6	0.89%	55	7.31E-05	14	6.03%	4.95E-04	22	3.30%	205	2.71E-04
7	3.78%	235	3.10E-04	15	7.02%	5.76E-04	23	2.46%	153	2.02E-04
8	7.77%	482	6.38E-04	16	7.15%	5.87E-04	24	1.87%	116	1.54E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 3-SB Charcot-North**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	9.36E-05	9	7.12%	5.85E-04	17	7.40%	459	6.08E-04
2	0.42%	26	3.45E-05	10	4.38%	3.60E-04	18	8.19%	508	6.72E-04
3	0.40%	25	3.28E-05	11	4.66%	3.83E-04	19	5.71%	354	4.69E-04
4	0.24%	15	1.97E-05	12	5.89%	4.84E-04	20	4.28%	266	3.51E-04
5	0.49%	30	4.02E-05	13	6.16%	5.06E-04	21	3.25%	202	2.67E-04
6	0.89%	55	7.31E-05	14	6.03%	4.95E-04	22	3.30%	205	2.71E-04
7	3.78%	235	3.10E-04	15	7.02%	5.76E-04	23	2.46%	153	2.02E-04
8	7.77%	482	6.38E-04	16	7.15%	5.87E-04	24	1.87%	116	1.54E-04
Total									6,205	

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	6,205
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	6,205
Total									12,410

\* Road segments south of Silk Wood Lane.

<b>TOG Evaporative Emissions</b>	
Daily Emissions (g/day)* =	204.6
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0412
<b>Modeled Emission Rate (g/s) =</b>	<b>2.37E-03</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and TOG Evaporative Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	71	2.31E-04	9	7.12%	1.45E-03	17	7.40%	459	1.50E-03
2	0.42%	26	8.53E-05	10	4.38%	8.89E-04	18	8.19%	508	1.66E-03
3	0.40%	25	8.12E-05	11	4.66%	9.46E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.87E-05	12	5.89%	1.20E-03	20	4.28%	266	8.69E-04
5	0.49%	30	9.95E-05	13	6.16%	1.25E-03	21	3.25%	202	6.60E-04
6	0.89%	55	1.81E-04	14	6.03%	1.22E-03	22	3.30%	205	6.70E-04
7	3.78%	235	7.68E-04	15	7.02%	1.43E-03	23	2.46%	153	5.00E-04
8	7.77%	482	1.58E-03	16	7.15%	1.45E-03	24	1.87%	116	3.80E-04
Total									6,205	

**2040 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	71	2.31E-04	9	7.12%	1.45E-03	17	7.40%	459	1.50E-03
2	0.42%	26	8.53E-05	10	4.38%	8.89E-04	18	8.19%	508	1.66E-03
3	0.40%	25	8.12E-05	11	4.66%	9.46E-04	19	5.71%	354	1.16E-03
4	0.24%	15	4.87E-05	12	5.89%	1.20E-03	20	4.28%	266	8.69E-04
5	0.49%	30	9.95E-05	13	6.16%	1.25E-03	21	3.25%	202	6.60E-04
6	0.89%	55	1.81E-04	14	6.03%	1.22E-03	22	3.30%	205	6.70E-04
7	3.78%	235	7.68E-04	15	7.02%	1.43E-03	23	2.46%	153	5.00E-04
8	7.77%	482	1.58E-03	16	7.15%	1.45E-03	24	1.87%	116	3.80E-04
Total									6,205	



Charcot Ave, San Jose, CA  
 Operation - Alternative 3  
 Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions  
 Year = 2040

North Charcot

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day	
Alt 3-NB Charcot-North	Northbound Charcot Ave*	NW	1	186	31	9.4	1.3	25	6,600	
Alt 3-SB Charcot-North	Southbound Charcot Ave*	SE	1	186	31	9.4	1.3	25	6,600	
									Total	13,200

\* Road segments north of Silk Wood Lane.

Road PM2.5 Fugitive Emissions	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 3-NB Charcot-North

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	3.69E-05	9	7.12%	2.31E-04	17	7.40%	488	2.40E-04
2	0.42%	28	1.36E-05	10	4.38%	1.42E-04	18	8.19%	541	2.65E-04
3	0.40%	26	1.30E-05	11	4.66%	1.51E-04	19	5.71%	377	1.85E-04
4	0.24%	16	7.77E-06	12	5.89%	1.91E-04	20	4.28%	282	1.39E-04
5	0.49%	32	1.59E-05	13	6.16%	1.99E-04	21	3.25%	215	1.05E-04
6	0.89%	59	2.88E-05	14	6.03%	1.95E-04	22	3.30%	218	1.07E-04
7	3.78%	249	1.22E-04	15	7.02%	2.27E-04	23	2.46%	162	7.96E-05
8	7.77%	513	2.52E-04	16	7.15%	2.31E-04	24	1.87%	123	6.05E-05
									Total	6,600

2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 3-SB Charcot-North

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	3.69E-05	9	7.12%	2.31E-04	17	7.40%	488	2.40E-04
2	0.42%	28	1.36E-05	10	4.38%	1.42E-04	18	8.19%	541	2.65E-04
3	0.40%	26	1.30E-05	11	4.66%	1.51E-04	19	5.71%	377	1.85E-04
4	0.24%	16	7.77E-06	12	5.89%	1.91E-04	20	4.28%	282	1.39E-04
5	0.49%	32	1.59E-05	13	6.16%	1.99E-04	21	3.25%	215	1.05E-04
6	0.89%	59	2.88E-05	14	6.03%	1.95E-04	22	3.30%	218	1.07E-04
7	3.78%	249	1.22E-04	15	7.02%	2.27E-04	23	2.46%	162	7.96E-05
8	7.77%	513	2.52E-04	16	7.15%	2.31E-04	24	1.87%	123	6.05E-05
									Total	6,600

**South Charcot**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Width (ft)	Link Width (m)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
Alt 3-NB Charcot-South	Northbound Charcot Ave*	NW	1	460	31	9.4	1.3	25	6,600
Alt 3-SB Charcot-South	Southbound Charcot Ave*	SE	1	460	31	9.4	1.3	25	6,600
Total									13,200

\* Road segments south of Silk Wood Lane.

<b>Road PM2.5 Fugitive Emissions</b>	
Daily Emissions (g/day)* =	80.7
Road Length (mi) =	0.4
Emissions per Vehicle (g/VMT) =	0.0153
<b>Modeled Emission Rate (g/s) =</b>	<b>9.34E-04</b>

\* daily emissions from CT-EMFAC

**2040 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - Alt 3-NB Charcot-South**

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	75	9.13E-05	9	7.12%	5.70E-04	17	7.40%	488	5.93E-04
2	0.42%	28	3.36E-05	10	4.38%	3.51E-04	18	8.19%	541	6.56E-04
3	0.40%	26	3.20E-05	11	4.66%	3.73E-04	19	5.71%	377	4.57E-04
4	0.24%	16	1.92E-05	12	5.89%	4.72E-04	20	4.28%	282	3.43E-04
5	0.49%	32	3.92E-05	13	6.16%	4.93E-04	21	3.25%	215	2.60E-04
6	0.89%	59	7.13E-05	14	6.03%	4.83E-04	22	3.30%	218	2.64E-04
7	3.78%	249	3.03E-04	15	7.02%	5.62E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.22E-04	16	7.15%	5.73E-04	24	1.87%	123	1.50E-04
Total									6,600	

**2040 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - Alt 3-SB Charcot-South**

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	75	9.13E-05	9	7.12%	5.70E-04	17	7.40%	488	5.93E-04
2	0.42%	28	3.36E-05	10	4.38%	3.51E-04	18	8.19%	541	6.56E-04
3	0.40%	26	3.20E-05	11	4.66%	3.73E-04	19	5.71%	377	4.57E-04
4	0.24%	16	1.92E-05	12	5.89%	4.72E-04	20	4.28%	282	3.43E-04
5	0.49%	32	3.92E-05	13	6.16%	4.93E-04	21	3.25%	215	2.60E-04
6	0.89%	59	7.13E-05	14	6.03%	4.83E-04	22	3.30%	218	2.64E-04
7	3.78%	249	3.03E-04	15	7.02%	5.62E-04	23	2.46%	162	1.97E-04
8	7.77%	513	6.22E-04	16	7.15%	5.73E-04	24	1.87%	123	1.50E-04
Total									6,600	

**Charcot Ave, San Jose, CA**

**Operation - Alternative 3 Traffic Data and Entrained PM2.5 Road Dust Emission Factors**

Year = 2040

$$E_{2.5} = [k(sL)^{0.91} \times (W)^{1.02} \times (1-P/4N) \times 453.59]$$

where:

$E_{2.5}$  = PM<sub>2.5</sub> emission factor (g/VMT)

k = particle size multiplier (g/VMT) [ $k_{PM2.5} = k_{PM10} \times (0.0686/0.4572) = 1.0 \times 0.15 = 0.15$  g/VMT]<sup>a</sup>

sL = roadway specific silt loading (g/m<sup>2</sup>)

W = average weight of vehicles on road (Bay Area default = 2.4 tons)<sup>a</sup>

P = number of days with at least 0.01 inch of precipitation in the annual averaging period

N = number of days in the annual averaging period (default = 365)

Notes: <sup>a</sup> CARB 2014, Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust (Revised and updated, April 2014)

Road Type	Silt Loading (g/m <sup>2</sup> )	Average Weight (tons)	County	No. Days ppt > 0.01"	PM <sub>2.5</sub> Emission Factor (g/VMT)	Vehicles per Day	Modeled Road Length (mi)	Daily PM <sub>2.5</sub> Emissions (g/day)
Major	0.032	2.4	Santa Clara	64	0.01528	13,200	0.40	80.7

**SFBAAB<sup>a</sup>**

Road Type	Silt Loading (g/m <sup>2</sup> )
Collector	0.032
Freeway	0.02
Local	0.32
Major	0.032

**SFBAAB<sup>a</sup>**

County	>0.01 inch precipitation
Alameda	61
Contra Costa	60
Marin	66
Napa	68
San Francisco	67
San Mateo	60
Santa Clara	64
Solano	54
Sonoma	69

***Oakland Road Traffic Emissions***

Oakland Road traffic emissions are the same as listed above for the Proposed Project.

## Alternative 3 – Charcot Avenue and Oakland Road Modeling Information and Health Risk Calculations

### Alternative 3 - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations Residential Receptors (1.5 meter receptor heights)

**Emissions Years** 2020, 2025, and 2040

**Receptor Information**

Number of Receptors 118  
Receptor Height = 1.5 meters above ground level  
Receptor distances = at residential locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
Land Use Classification urban  
Wind speed = variable  
Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00734	0.2537	0.2151
2025	0.00442	0.2280	0.2043
2040	0.00317	0.2485	0.1971

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1313	0.0497	0.0816
2025	0.1585	0.0620	0.0965
2040	0.1987	0.0816	0.1171

**Charcot Ave, San Jose, CA - Alternative 3 - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks Residential Receptors (1.5 meter receptor heights) 30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age -->	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information					Cancer Risk (per million)					
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2020	0.25	-0.25 - 0*	10	0.0073	0.2537	0.2151	0.100	0.020	0.001	0.12			
1	2020	1	1	10	0.0073	0.2537	0.2151	1.21	0.238	0.012	1.46			
2	2021	1	2	10	0.0073	0.2537	0.2151	1.21	0.238	0.012	1.46			
3	2022	1	3	3	0.0073	0.2537	0.2151	0.19	0.037	0.002	0.23			
4	2023	1	4	3	0.0073	0.2537	0.2151	0.19	0.037	0.002	0.23			
5	2024	1	5	3	0.0073	0.2537	0.2151	0.19	0.037	0.002	0.23			
6	2025	1	6	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
7	2026	1	7	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
8	2027	1	8	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
9	2028	1	9	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
10	2029	1	10	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
11	2030	1	11	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
12	2031	1	12	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
13	2032	1	13	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
14	2033	1	14	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
15	2034	1	15	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
16	2035	1	16	3	0.0044	0.2280	0.2043	0.11	0.034	0.002	0.15			
17	2036	1	17	1	0.0044	0.2280	0.2043	0.01	0.0037	0.000	0.017			
18	2037	1	18	1	0.0044	0.2280	0.2043	0.01	0.004	0.000	0.017			
19	2038	1	19	1	0.0044	0.2280	0.2043	0.01	0.004	0.000	0.017			
20	2039	1	20	1	0.0044	0.2280	0.2043	0.01	0.004	0.000	0.017			
21	2040	1	21	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
22	2041	1	22	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
23	2042	1	23	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
24	2043	1	24	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
25	2044	1	25	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
26	2045	1	26	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
27	2046	1	27	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
28	2047	1	28	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
29	2048	1	29	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
30	2049	1	30	1	0.0032	0.2485	0.1971	0.01	0.004	0.000	0.013			
<b>Total Increased Cancer Risk</b>			<b>Total</b>					4.48	1.034	0.053	<b>5.6</b>			

\* Third trimester of pregnancy

**Alternative 3 - New Charcot Ave & Oakland Rd Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Years** 2020 and 2025  
**Receptor Information**  
 Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**  
 BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2020	0.00827	0.3841	0.3168
2025	0.00502	0.3480	0.3118

**At School PM2.5 MEI**

Emission Years	PM2.5 Concentrations ( $\mu\text{g}/\text{m}^3$ )		
	Total PM2.5	Road Dust PM2.5	Vehicle PM2.5
2020	0.1933	0.0732	0.12013
2025	0.2329	0.0911	0.1418

**Charcot Ave, San Jose, CA - Alternative 3 - New Charcot Ave & Oakland Rd Traffic Maximum Cancer Risks  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EFH/24) x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age --> Parameter	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
EFH =	10	10	10	10
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information				Cancer Risk (per million)			
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG				
1	2020	1	3	3	0.0083	0.3841	0.3168	0.089	0.024	0.001	0.11
2	2021	1	4	3	0.0083	0.3841	0.3168	0.089	0.024	0.001	0.11
3	2022	1	5	3	0.0083	0.3841	0.3168	0.089	0.024	0.001	0.11
4	2023	1	6	3	0.0083	0.3841	0.3168	0.089	0.024	0.001	0.11
5	2024	1	7	3	0.0083	0.3841	0.3168	0.089	0.024	0.001	0.11
6	2025	1	8	3	0.0050	0.3480	0.3118	0.054	0.021	0.001	0.08
7	2026	1	9	3	0.0050	0.3480	0.3118	0.054	0.021	0.001	0.08
8	2027	1	10	3	0.0050	0.3480	0.3118	0.054	0.021	0.001	0.08
9	2028	1	11	3	0.0050	0.3480	0.3118	0.054	0.021	0.001	0.08
<b>Total Increased Cancer Risk</b>			<b>Total</b>					0.66	0.204	0.018	<b>0.9</b>

**Charcot Ave Extension- Construction & Operation Sources - TACs & PM2.5  
Alternative 3  
AERMOD Risk Modeling Parameters and Maximum Concentrations  
Off-Site Residential Receptors (1.5 meter receptor heights)**

**Emissions Year** 2019 - 2048

**Receptor Information**

Number of Receptors 118  
 Receptor Height = 1.5 meters  
 Receptor distances = at sensitive residential receptor locations

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02084	0.0000	0.0000
2020-2024	0.00696	0.2548	0.2102
2025-2039	0.00423	0.2309	0.2070
2040-2048	0.00308	0.2547	0.2019



**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road**

**Alternative 3**

**Off-Site Residential Receptors (1.5 meter receptor heights)**

**30-Year Residential Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Age -->	Infant/Child			Adult
	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Age	Maximum - Exposure Information						Cancer Risk (per million)				
				Age Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
					DPM	TOG	TOG							
0	2019	0.25	-0.25 - 0*	10	0.0208	0.0000	0.0000	0.283	0.000	0.000	0.000	0.28		
1	2019	1	1	10	0.0208	0.0000	0.0000	3.42	0.000	0.000	0.000	3.42		
2	2020	1	2	10	0.0070	0.2548	0.2102	1.14	0.239	0.012	0.012	1.39		
3	2021	1	3	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
4	2022	1	4	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
5	2023	1	5	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
6	2024	1	6	3	0.0070	0.2548	0.2102	0.18	0.038	0.002	0.002	0.219		
7	2025	1	7	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
8	2026	1	8	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
9	2027	1	9	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
10	2028	1	10	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
11	2029	1	11	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
12	2030	1	12	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
13	2031	1	13	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
14	2032	1	14	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
15	2033	1	15	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
16	2034	1	16	3	0.0042	0.2309	0.2070	0.11	0.034	0.002	0.002	0.145		
17	2035	1	17	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
18	2036	1	18	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
19	2037	1	19	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
20	2038	1	20	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
21	2039	1	21	1	0.0042	0.2309	0.2070	0.01	0.00	0.000	0.000	0.016		
22	2040	1	22	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
23	2041	1	23	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
24	2042	1	24	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
25	2043	1	25	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
26	2044	1	26	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
27	2045	1	27	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
28	2046	1	28	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
29	2047	1	29	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
29	2048	1	29	1	0.0031	0.2547	0.2019	0.01	0.00	0.000	0.000	0.013		
<b>Total Increased Cancer Risk</b>			<b>Total</b>					<b>6.80</b>	<b>0.78685</b>	<b>0.03972</b>		<b>7.63</b>		

\* Third trimester of pregnancy

**Charcot Ave Extension- Construction & Operation Sources - TACs**  
**Alternative 3**  
**AERMOD Risk Modeling Parameters and Maximum Concentrations**  
**Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)**

**Emissions Year** 2019 - 2027

**Receptor Information**

Number of Receptors 125  
 Receptor Height = 1.0 meters  
 Receptor distances = receptors in school and yard areas

**Meteorological Conditions**

BAAQMD San Jose Airport Met Data 2006-2010  
 Land Use Classification urban  
 Wind speed = variable  
 Wind direction = variable

**School MEI Maximum Concentrations**

Emission Years	Concentration ( $\mu\text{g}/\text{m}^3$ )		
	DPM	Exhaust TOG	Evaporative TOG
2019	0.02820	0.0000	0.0000
2020-2024	0.00735	0.3559	0.2935
2025-2027	0.00448	0.3231	0.2896

**Charcot Avenue Extension -Maximum Combined Cancer Risks From Construction, Cahrcot Ave & Oakland Road  
Alternative 3  
Orchard Elementary School (K - 8) - Child Exposure (1.0 meter receptor heights)  
9-Year Child Exposure**

**Cancer Risk Calculation Method**

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 ASF = Age sensitivity factor for specified age group  
 ED = Exposure duration (years)  
 AT = Averaging time for lifetime cancer risk (years)  
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 EFH = Daily exposure (hours/day)  
 10<sup>-6</sup> = Conversion factor

**Values**

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

2 - <16

Age -->	Infant/Child				Adult
	3rd Trimester	0 - <2	2 - <9	2 - <16	16 - 30
Parameter					
ASF	10	10	3	3	1
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
EFH =	10	10	10	10	10
ED =	0.25	2	14	14	14
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

\* 95th percentile breathing rates

**Construction and Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Year	Exposure Duration (years)	Maximum - Exposure Information				Cancer Risk (per million)			
			Age* Sensitivity Factor	Annual TAC Conc (ug/m3)			DPM	Exhaust TOG	Evaporative TOG	Total
				DPM	TOG	TOG				
1	2019	1	3	0.0282	0.0000	0.0000	0.804	0.000	0.000	0.80
2	2020	1	3	0.0074	0.3559	0.2935	0.087	0.024	0.001	0.11
3	2021	1	3	0.0074	0.3559	0.2935	0.087	0.024	0.001	0.11
4	2022	1	3	0.0074	0.3559	0.2935	0.087	0.024	0.001	0.11
5	2023	1	3	0.0074	0.3559	0.2935	0.087	0.024	0.001	0.11
6	2024	1	3	0.0074	0.3559	0.2935	0.087	0.024	0.001	0.11
7	2025	1	3	0.0045	0.3231	0.2896	0.053	0.022	0.001	0.08
8	2026	1	3	0.0045	0.3231	0.2896	0.053	0.022	0.001	0.08
9	2027	1	3	0.0045	0.3231	0.2896	0.053	0.022	0.001	0.08
<b>Total Increased Cancer Risk</b>			<b>Total</b>				<b>1.40</b>	<b>0.187</b>	<b>0.009</b>	<b>1.60</b>

\* Children assumed to be from 5 to 13 years of age

# Attachment 6: Screening Community Risk Calculations

Bay Area Air Quality Management District

## Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

**INSTRUCTIONS:**

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

- County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>.

Notes and References listed below the Search Boxes

<p><b>Search Parameters</b></p> <p>County: Santa Clara</p> <p>Roadway Direction: North-South</p> <p>Side of the Roadway: West</p> <p>Distance from Roadway: 500 feet</p> <p>Annual Average Daily Traffic (ADT): 41,450</p>	<p><b>Results</b></p> <p><b>Santa Clara County</b></p> <p><b>NORTH-SOUTH DIRECTIONAL ROADWAY</b></p> <p>PM2.5 annual average: <b>0.063</b> (<math>\mu\text{g}/\text{m}^3</math>)</p> <p>Cancer Risk: <b>3.19</b> (per million)</p> <p><b>Oakland Rd, Residential</b></p> <p>Traffic from 2040 Project Roadway Segment Volumes Difference Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997</p>	<p>Adjusted for 2015 OEHHA and EMFAC2014 for 2018</p> <p><b>2.19</b></p> <p>(per million)</p> <p>Note that EMFAC2014 predicts DSL PM2.5 aggregate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehicles traveling at 30 mph for Bay Area</p>
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**Notes and References:**

- Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
- Roadways were modeled using CALINE4-CAL3qhc air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
- Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

## Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

**INSTRUCTIONS:**

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

- County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>.

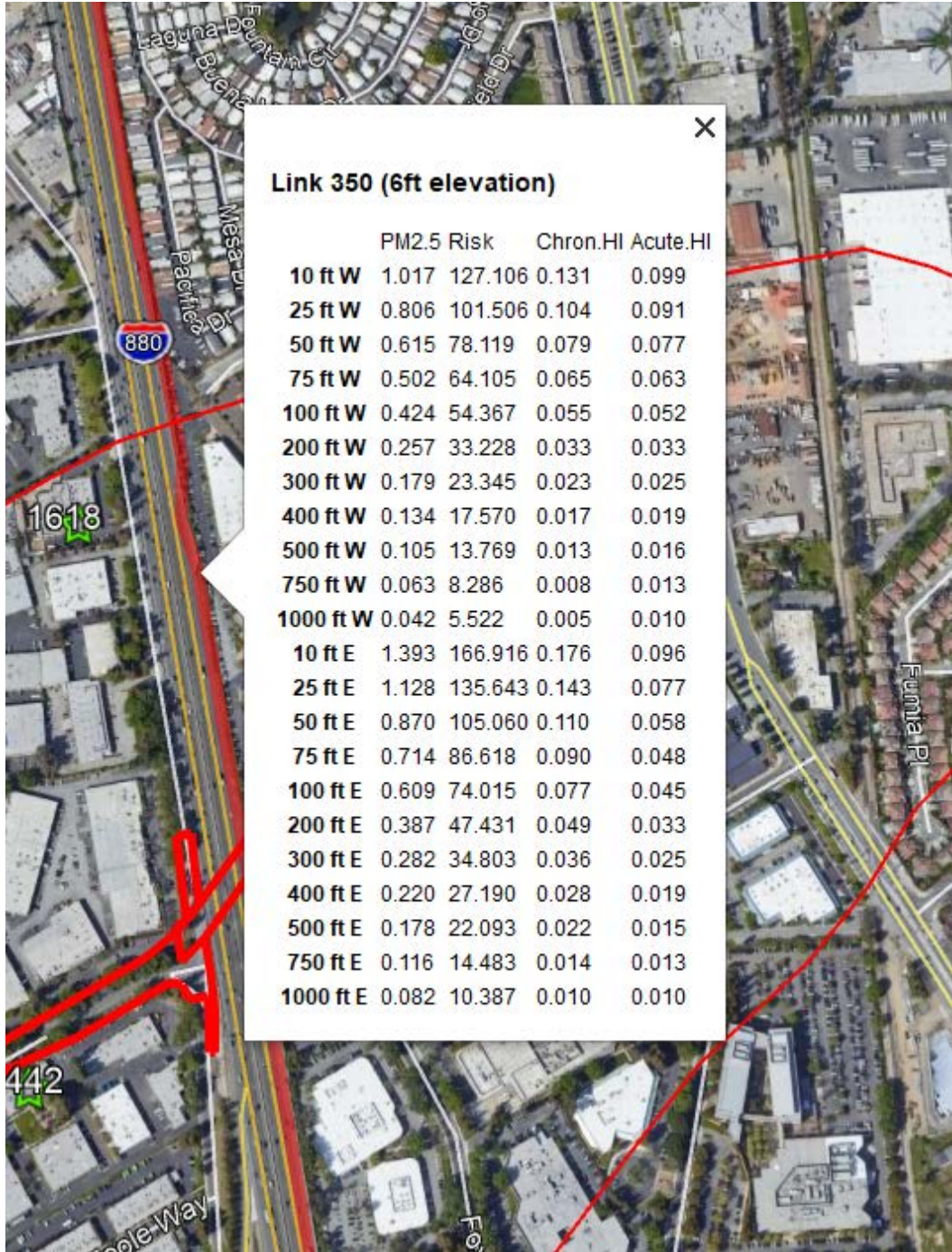
Notes and References listed below the Search Boxes

<p><b>Search Parameters</b></p> <p>County: Santa Clara</p> <p>Roadway Direction: North-South</p> <p>Side of the Roadway: West</p> <p>Distance from Roadway: 400 feet</p> <p>Annual Average Daily Traffic (ADT): 41,450</p>	<p><b>Results</b></p> <p><b>Santa Clara County</b></p> <p><b>NORTH-SOUTH DIRECTIONAL ROADWAY</b></p> <p>PM2.5 annual average: <b>0.074</b> (<math>\mu\text{g}/\text{m}^3</math>)</p> <p>Cancer Risk: <b>3.77</b> (per million)</p> <p><b>Oakland Rd, School</b></p> <p>Traffic from 2040 Project Roadway Segment Volumes Difference Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997</p>	<p>Adjusted for 2015 OEHHA and EMFAC2014 for 2018</p> <p><b>2.59</b></p> <p>(per million)</p> <p>Note that EMFAC2014 predicts DSL PM2.5 aggregate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehicles traveling at 30 mph for Bay Area</p>
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**Notes and References:**

- Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
- Roadways were modeled using CALINE4-CAL3qhc air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
- Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

## Interstate 880 BAAQMD Highway Screening Table Google Earth Tool



**Link 350 (6ft elevation)**

	PM2.5 Risk	Chron.HI	Acute.HI
<b>10 ft W</b>	1.017	127.106	0.131
<b>25 ft W</b>	0.806	101.506	0.104
<b>50 ft W</b>	0.615	78.119	0.079
<b>75 ft W</b>	0.502	64.105	0.065
<b>100 ft W</b>	0.424	54.367	0.055
<b>200 ft W</b>	0.257	33.228	0.033
<b>300 ft W</b>	0.179	23.345	0.023
<b>400 ft W</b>	0.134	17.570	0.017
<b>500 ft W</b>	0.105	13.769	0.013
<b>750 ft W</b>	0.063	8.286	0.008
<b>1000 ft W</b>	0.042	5.522	0.005
<b>10 ft E</b>	1.393	166.916	0.176
<b>25 ft E</b>	1.128	135.643	0.143
<b>50 ft E</b>	0.870	105.060	0.110
<b>75 ft E</b>	0.714	86.618	0.090
<b>100 ft E</b>	0.609	74.015	0.077
<b>200 ft E</b>	0.387	47.431	0.049
<b>300 ft E</b>	0.282	34.803	0.036
<b>400 ft E</b>	0.220	27.190	0.028
<b>500 ft E</b>	0.178	22.093	0.022
<b>750 ft E</b>	0.116	14.483	0.014
<b>1000 ft E</b>	0.082	10.387	0.010



# BAY AREA AIR QUALITY MANAGEMENT DISTRICT

## Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

[Click here for guidance on conducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.](#)

[Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.](#)

Table A: Requester Contact Information	
Date of Request	1/10/2019
Contact Name	Mimi McNamara
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-040 X111
Email	<a href="mailto:mmcnamara@illingworthrodkin.com">mmcnamara@illingworthrodkin.com</a>
Project Name	Charcot Road Extension
Address	
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Roadway extension
Project Size (# of units or building square feet)	
Comments:	

### For Air District assistance, the following steps must be completed:

- Complete all the contact and project information requested [Table A](#). Incomplete forms will not be processed. Please include a project site map.
- Download and install the free program Google Earth, <http://www.google.com/earth/download/ge/>, and then download the county specific Google Earth stationary source application files from the District's website, <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
- Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
- Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.
- List the stationary source information in [Table B](#) blue section only.
- Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
- Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or [aflores@baaqmd.gov](mailto:aflores@baaqmd.gov)

Table B: Google Earth data

Distance from Receptor (feet) or MEI <sup>1</sup>	Facility Name	Address	Plant No.	Cancer Risk <sup>2</sup>	Hazard Risk <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	Source No. <sup>3</sup>	Type of Source <sup>4</sup>	Fuel Code <sup>5</sup>	Status/Comments
>1000	Southwest Offset Printing Co.	587 Charcot Avenue	20285		0.0712		S1-S3	Surface coating (3)		
>1000	Applied Anodize Inc	622 Charcot Ave, Unit D	6919	58.924	0.0008	0.01012	S1-S5	Evaporative Tank (1), Boiler (4)		
>1000	EpiPhotonics Corp	770 Charcot Avenue	20442		0.0002	0.0001	S1	Solvent Cleaning		
950	Micrus Endovascular, LLC	821 Fox Lane	21487		0.0011					Shutdown
1000	Sanmina Corporation	2101 O'Toole Avenue	1618		0.2043		S2, S18, S19	Ammonia Etcher, Process Tank (2)		
>1000	SFPP, LP	2150 Kruse Drive	4020	100.146	0.5010			Multiple		Emissions file attached

#### Footnotes:

- Maximally exposed individual
- These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
- Each plant may have multiple permits and sources.
- Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
- Fuel codes: 98 = diesel, 189 = Natural Gas.
- If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
- The date that the HRSA was completed.
- Engineer who completed the HRSA. For District purposes only.
- All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
- The HRSA "Chronic Health" number represents the Hazard Index.
- Further information about common sources:
  - Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier
  - The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a
  - BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
  - Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year
  - Gas stations can be adjusted using BAAQMD's Gas Station Distance Multiplier worksheet.
  - Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
  - This spray booth is considered to be insignificant.

Date last updated:  
03/13/2018



# BAY AREA AIR QUALITY MANAGEMENT DISTRICT

### Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD  
This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

[Click here for guidance on conducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.](#)  
[Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.](#)

#### Table A: Requester Contact Information

Date of Request	1/10/2019
Contact Name	Mimi McNamara
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x111
Email	mmcnamara@illingworthrodin.com
Project Name	Charcot Road Extension
Address	
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Roadway extension
Project Size (# of units or building square feet)	
Comments:	

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in [Table A](#). Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth. <http://www.google.com/earth/download/ge/>, and then download the county specific Google Earth stationary source application file, from the District's website, <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.
5. List the stationary source information in [Table B](#) blue section only.
6. Note that a small percentage of the state's new Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.  
Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

#### Table B: Google Earth data

Distance from Receptor (feet) or MEI <sup>1</sup>	Facility Name	Address	Plant No.	Cancer Risk <sup>2</sup>	Hazard Risk <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	Source No. <sup>3</sup>	Type of Source <sup>4</sup>	Fuel Code <sup>5</sup>	Status/Comments	Construction MEI				
											Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5	
No distance adjustment	Southwest Offset Printing Co.	587 Charcot Avenue	20285	0.0712			S1-53	Surface coating (3)			With Beta Calculator Modeling				
No distance adjustment	Applied Anodize Inc	622 Charcot Ave, Unit D	6919	58.924	0.0008	0.0101	S1-55	Evaporative Tank (1), Boiler (4)				0.0052	1.26E-04	0.01	
No distance adjustment	Epiphonics Corp	770 Charcot Avenue	20442	0.0002	0.0001		S1	Solvent Cleaning							
No distance adjustment	Sarmina Corporation	2101 O'Toole Avenue	1618		0.2043		S3, S18, S19	Ammonia Etcher, Process Tank (2)							
>1000	SFPD LP	2150 Knue Drive	4020	100.146	0.5010			Multiple		Emissions file attached	0.014964725	1.50	0.750796		

Distance from Receptor (feet) or MEI <sup>1</sup>	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5	School Children				
					Distance from Receptor (feet) or MEI <sup>1</sup>	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	
No distance adjustment									
	With Beta Calculator Modeling	0.0052	1.26E-04						
No distance adjustment									
No distance adjustment									
>1000	0.014964725	1.50	0.750796045						

#### Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
  - a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier
  - b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a
  - c. BAAQMD Reg 11 Rule 15 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
  - d. Non-co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year
  - e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Multiplier worksheet.
  - f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
  - g. This spray booth is considered to be insignificant.

Date last updated:  
01/13/2018

BAY AREA AIR QUALITY MANAGEMENT DISTRICT  
 DETAIL POLLUTANTS - ABATED  
 MOST RECENT P/O APPROVED (2018)

Printed: JAN 14, 2019

Applied Anodize Inc (P# 6919)

S#	SOURCE NAME	SOURCE CODE	POLLUTANT	CODE	LBS/DAY
MATERIAL	THROUGHPUT	DATE			
1	Evaporative Tank	G7110504	Organics (other, including	990	0.00E+00
			Chromium (hexavalent)	1095	8.13E-05
2	Proheco Gas Burner	C1760189	Benzene	41	2.83E-06
			Formaldehyde	124	3.32E-05
			Toluene	293	1.51E-06
			Organics (other, including	990	2.54E-03
			Particulates (part not spe	1990	1.33E-03
			Nitrous Oxide (N2O)	2030	1.02E-04
			Nitrogen Oxides (part not	2990	6.21E-02
			Sulfur Dioxide (SO2)	3990	2.52E-04
			Carbon Monoxide (CO) pollu	4990	1.55E-02
			Carbon Dioxide, non-biogen	6960	5.43E+01
			Methane (CH4)	6970	8.42E-04
3	Proheco Gas Burner	C1760189	Benzene	41	2.83E-06
			Formaldehyde	124	3.32E-05
			Toluene	293	1.51E-06
			Organics (other, including	990	2.54E-03
			Particulates (part not spe	1990	1.33E-03
			Nitrous Oxide (N2O)	2030	1.02E-04
			Nitrogen Oxides (part not	2990	6.21E-02
			Sulfur Dioxide (SO2)	3990	2.52E-04
			Carbon Monoxide (CO) pollu	4990	1.55E-02
			Carbon Dioxide, non-biogen	6960	5.43E+01
			Methane (CH4)	6970	8.42E-04
4	Proheco Gas Burner	C1760189	Benzene	41	2.83E-06
			Formaldehyde	124	3.32E-05
			Toluene	293	1.51E-06
			Organics (other, including	990	2.54E-03
			Particulates (part not spe	1990	1.33E-03
			Nitrous Oxide (N2O)	2030	1.02E-04



emissions_6919_2018			
	Nitrogen Oxides (part not	2990	6.21E-02
	Sulfur Dioxide (SO2)	3990	2.52E-04
	Carbon Monoxide (CO) pollu	4990	1.55E-02
	Carbon Dioxide, non-biogen	6960	5.43E+01
	Methane (CH4)	6970	8.42E-04

5 Proheco Gas Burner

C1760189

	Benzene	41	2.83E-06
	Formaldehyde	124	3.32E-05
	Toluene	293	1.51E-06
	Organics (other, including	990	2.54E-03
	Particulates (part not spe	1990	1.33E-03
	Nitrous Oxide (N2O)	2030	1.02E-04
	Nitrogen Oxides (part not	2990	6.21E-02
	Sulfur Dioxide (SO2)	3990	2.52E-04
	Carbon Monoxide (CO) pollu	4990	1.55E-02
	Carbon Dioxide, non-biogen	6960	5.43E+01
	Methane (CH4)	6970	8.42E-04

PLANT TOTAL:

lbs/day Pollutant

1.13E-05	Benzene (41)
2.17E+02	Carbon Dioxide, non-biogenic CO2 (6960)
6.21E-02	Carbon Monoxide (CO) pollutant (4990)
8.13E-05	Chromium (hexavalent) (1095)
1.33E-04	Formaldehyde (124)
3.37E-03	Methane (CH4) (6970)
2.48E-01	Nitrogen Oxides (part not spec elsewhere) (2990)
4.10E-04	Nitrous Oxide (N2O) (2030)
1.01E-02	Organics (other, including CH4) (990)
5.32E-03	Particulates (part not spec elsewhere) (1990)
1.01E-03	Sulfur Dioxide (SO2) (3990)
6.03E-06	Toluene (293)

**BAAQMD Risk and Hazards Emissions Screening Calculator Instructions (Beta Version)**

Based on emissions data provided by BAAQMD, this calculator will estimate screening-level cancer risk, PM2.5 concentrations, and non-cancer acute/chronic indices. This method should only be used for permitted facilities where screening-level risks have not already been calculated by BAAQMD and BAAQMD Health Risk Screening Assessments have not been completed.

BAAQMD staff will provide emissions information for each requested permitted facility. If a facility contains more than one permitted source, the plant's total emissions can be used, which BAAQMD staff will provide.

Below, note that there are individual worksheets for estimating cancer risk, non-cancer chronic hazard, non-cancer acute hazard and PM2.5 concentrations. To calculate risks, etc., enter daily emissions in each worksheet in column B for each chemical in the emissions printout. Sum the individual risk and hazard from each chemical to determine the total risks and hazards at the facility.

**EXAMPLE:**

BAY AREA AIR QUALITY MANAGEMENT DISTRICT  
 DETAIL POLLUTANTS - ABATED  
 MOST RECENT P/O APPROVED (2011)

Printed: DEC 22, 2011

Plant Name: Example 1

S#	SOURCE NAME	SOURCE CODE	DATE	POLLUTANT	CODE	LBS/ DAY
	MATERIAL THROUGHPUT					

**This plant contains 4 permitted sources. These source emissions are combined and presented in the plant total:**

PLANT TOTAL:

**Daily emissions**

Lbs/day	Pollutant
Benzene	41 1.26E-03
Formaldehyde	124 1.04E-04
Organics (part not spec el)	990 6.06E-02
Arsenic (all)	1030 1.09E-06
Beryllium (all) pollutant	1040 6.41E-07
Cadmium	1070 2.73E-06
Chromium (hexavalent)	1095 5.65E-08
Lead (all) pollutant	1140 2.32E-06
Manganese	1160 3.64E-06
Nickel pollutant	1180 4.42E-05
Mercury (all) pollutant	1190 7.73E-07
Diesel Engine Exhaust Part	1350 6.31E-02
PAHs (non-specified)	1840 5.77E-06
Nitrous Oxide (N2O)	2030 3.36E-04
Nitrogen Oxides (part not)	2990 8.84E-01
Sulfur Dioxide (SO2)	3990 4.10E-04
Carbon Monoxide (CO) pollu	4990 1.92E-01
Carbon Dioxide, non-biogen	6960 4.20E+01
Methane (CH4)	6970 1.68E-03

Pollutant Name	Emission/lbs per day	Cancer Risk
ARSENIC	1.09E-06	5.50E-08
BENZENE	1.26E-03	1.22E-07
BERYLLIUM	6.41E-07	4.98E-09
CADMIUM	2.73E-06	3.79E-08
CHROMIUM	5.65E-08	2.67E-08
DIESEL PM	6.31E-02	6.70E-05
FORMALDEHYDE	1.04E-04	2.11E-09
LEAD	2.32E-06	2.65E-10
NICKEL	4.42E-05	3.73E-08
PAH'S	5.77E-06	5.77E-06
<b>TOTAL:</b>		<b>7.31E-05</b>

Using this screening approach, the cancer risk associated with this facility is estimated to be 7.31E-05, also expressed as **73 in a million**. If the facility contains only diesel back-up engines, the distance multiplier can be used to adjust the estimated cancer risk.

**Note:** Not all of the chemicals being emitted by the plant in this example are associated with cancer risk, therefore those chemicals are not included in the cancer risk estimation. Similarly, not all of the chemicals emitted by the plant in this example are associated with acute or chronic hazards.

Plug in the emissions in column B in the remaining tabs in the same fashion to estimate chronic and acute hazards, and PM2.5 concentrations.

Notes: Created 7/11/2012. Version 1.3 Beta. This calculator will create screening level values. More detailed modeling methods will result in more accurate values. For questions and comments contact Alison Kirk at akirk@baaqmd.gov.

Plant #: 6919  
 Plant Name: Applied Anodize Inc  
 Number of Sources: 5

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC) <sup>1,2</sup>		0.00E+00
ASBESTOS <sup>1</sup>		0.00E+00
BENZENE <sup>1</sup>	1.13E-05	1.09E-09
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 85 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS <sup>2</sup>		0.00E+00
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS <sup>2</sup>		0.00E+00
CARBON TETRACHLORIDE <sup>1</sup> (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM <sup>1</sup>		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2		0.00E+00
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINODANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DIO-ETHYLHEXYLPHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIKROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE	1.33E-04	2.70E-09
HEXACHLOROBENZENE		0.00E+00
HEXACHLORO-CYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLORO-CYCLOHEXANE		0.00E+00
beta-HEXACHLORO-CYCLOHEXANE		0.00E+00
gamma-HEXACHLORO-CYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2.4 (inorganic) values also apply to:		0.00E+00
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSO-ORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPIRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)		0.00E+00
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES		0.00E+00
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS)		0.00E+00
2,3,7,8-PCDD EQUIV 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS)		0.00E+00
2,3,7,8-PCDF EQUIV 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS)		0.00E+00
BaP-EQUIV2		0.00E+00
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULFONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOAZETAMIDE		0.00E+00
Toluene diisocyanates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URBANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
<b>TOTAL:</b>		<b>3.79E-09</b>

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN	0	0
ACRYLONITRILE	0	0
AMMONIA	0	0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	0	0
ARSENIC	1.13E-05	3.55532E-01
BENZENE	0	0
BERYLLIUM AND COMPOUNDS2	0	0
1,3-BUTADIENE	0	0
CADMIUM AND COMPOUNDS2	0	0
CARBON DISULFIDE	0	0
CARBON TETRACHLORIDE1 (Tetrachloromethane)	0	0
CHLORINE	0	0
CHLORINE DIOXIDE	0	0
CHLOROBENZENE	0	0
CHLOROFORM1	0	0
2,3,4,6-Tetrachlorophenol	0	0
CHLOROPICRIN	0	0
CHROMIUM 6+2	0	0
Barium chromate2	0	0
Calcium chromate2	0	0
Lead chromate2	0	0
Sodium dichromate2	0	0
Strontium chromate2	0	0
CHROMIUM TRIOXIDE (as chromic acid mist)	0	0
CRESOLS	0	0
m-CRESOL	0	0
p-CRESOL	0	0
Cyanide And Compounds (inorganic)	0	0
HYDROGEN CYANIDE (hydrocyanic acid)	0	0
1,4-CHLOROBENZENE	0	0
DIETHANLAMINE	0	0
DIMETHYLAMINE	0	0
N,N-DIMETHYL FORMAMIDE	0	0
1,4-DIOXANE (1,4-Dioxolene dioxide)	0	0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	0	0
1,2-EPOXYBUTANE	0	0
ETHYL BENZENE	0	0
ETHYL CHLORIDE (Chloroethane)	0	0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)	0	0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)	0	0
ETHYLENE GLYCOL	0	0
ETHYLENE OXIDE (1,2-Epoxyethane)	0	0
Fluorides	0	0
HYDROGEN FLUORIDE (Hydrofluoric acid)	0	0
FORMALDEHYDE	1.33E-04	2.78972E-05
GASEOUS NAPHTHS	0	0
GLUTARALDEHYDE	0	0
ETHYLENE GLYCOL ETHYL ETHER - EGEE1	0	0
ETHYLENE GLYCOL ETHYL ETHER ACETATE - EGEEA1	0	0
ETHYLENE GLYCOL METHYL ETHER - EGME1	0	0
ETHYLENE GLYCOL METHYL ETHER ACETATE - EGMEA	0	0
n-HEXANE	0	0
HYDRAZINE	0	0
HYDROCHLORIC ACID (Hydrogen chloride)	0	0
HYDROGEN SULFIDE	0	0
ISOPHORONE	0	0
ISOPROPYL ALCOHOL (isopropanol)	0	0
MALIC ANHYDRIDE	0	0
MANGANESE AND COMPOUNDS	0	0
MERCURY AND COMPOUNDS (INORGANIC) values	0	0
also apply to:	0	0
Mercuric chloride	0	0
METHANOL	0	0
METHYL BROMIDE (Bromomethane)	0	0
METHYL TERTIARY-BUTYL ETHER	0	0
METHYL CHLOROPFORM (1,1,1-Trichloroethane)	0	0
METHYL ISOCYANATE	0	0
METHYLENE CHLORIDE (Dichloromethane)	0	0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)	0	0
METHYLENE DIISOBUTYL ISOCYANATE	0	0
NICKEL AND COMPOUNDS2 (values also apply to:)	0	0
Nickel acetate2	0	0
Nickel carbonate2	0	0
Nickel carbonyl2	0	0
Nickel hydroxide2	0	0
Nickel nitrate2	0	0
NICKEL OXIDE2	0	0
Nickel refinery dust from the pyrometallurgical process2	0	0
Nickel subsulfide2	0	0
NITROGEN DIOXIDE	0	0
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	0	0
PERCHLOROETHYLENE (Tetrachloroethylene)	0	0
PHENOL	0	0
PHOSPHINE	0	0
PHOSPHORIC ACID	0	0
PHOSPHORUS (WHITE)	0	0
PHTHALIC ANHYDRIDE	0	0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS	0	0
2,3,7,8-PCDD EQUIV) 2,7	0	0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7	0	0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7	0	0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7	0	0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7	0	0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7	0	0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7	0	0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7	0	0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS	0	0
2,3,7,8-PCDF EQUIV) 2,7	0	0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7	0	0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7	0	0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7	0	0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7	0	0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7	0	0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7	0	0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7	0	0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7	0	0
NAPHTHALENE	0	0
PROPYLENE (PROPENE)	0	0
PROPYLENE GLYCOL MONOMETHYL ETHER	0	0
PROPYLENE OXIDE	0	0
SELENIUM AND COMPOUNDS	0	0
Selenium sulfide	0	0
SILICA (Crystalline, Respirable)	0	0
STYRENE	1.01E-03	2.88887E-05
SULFUR DIOXIDE	0	0
SULFURIC ACID AND OLEUM	0	0
SULFURIC ACID	0	0
SULFUR TRIOXIDE	0	0
OLEUM	6.03E-06	3.79443E-08
TOLUENE	0	0
Toluene diisocyanates	0	0
TOLUENE-2,4-DIISOCYANATE	0	0
TOLUENE-2,6-DIISOCYANATE	0	0
TRICHLOROETHYLENE	0	0
TRIETHYLAMINE	0	0
VINYL ACETATE	0	0
VINYLDENE CHLORIDE (1,1-Dichloroethylene)	0	0
XYLENES (mixed isomers)	0	0
m-XYLENE	0	0
p-XYLENE	0	0
o-XYLENE	0	0
TOTAL:		3.12E-05

Plant #:

6919

Plant Name:

Applied Anodize Inc

Number of Sources:

5

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2		0
ARSINE		0
BENZENE1	1.13E-05	1.64092E-07
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE	6.21E-02	5.097E-05
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
<i>Cyanide And Compounds (inorganic)</i>		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
<i>Fluorides</i>		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.33E-04	4.56499E-05
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:		0
<i>Mercuric chloride</i>		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)		0
<i>Nickel acetate2</i>		0
<i>Nickel carbonate2</i>		0
<i>Nickel carbonyl2</i>		0
<i>Nickel hydroxide2</i>		0
<i>Nickelocene2</i>		0
NICKEL OXIDE2		0
<i>Nickel refinery dust from the pyrometallurgical process2</i>		0
<i>Nickel subsulfide2</i>		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE	1.01E-03	2.88887E-05
SULFURIC ACID AND OLEUM		0
<i>SULFURIC ACID</i>		0
<i>SULFUR TRIOXIDE</i>		0
<i>OLEUM</i>		0
TOLUENE	6.03E-06	3.07657E-09
TRIETHYLAMINE		0
<i>Vanadium (fume or dust)</i>		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
<b>TOTAL:</b>		<b>1.26E-04</b>

[Empty box]

**Plant #:** 6919  
**Plant Name:** Applied Anodize Inc  
**Number of Sources:** 5

<b>Diesel PM Concentrations</b>	<b>Emissions (lbs/day)</b>	<b>12.5 Concentration (ug/m3)</b>
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
<b>TOTAL:</b>		<b>0</b>

Distance meters	Distance feet	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard
20	66	1.000		0
25	82	0.728		0
30	98	0.559		0
35	115	0.445		0
40	131	0.365		0
45	148	0.305		0
50	164	0.260		0
55	180	0.225		0
60	197	0.197		0
65	213	0.174		0
70	230	0.155		0
75	246	0.139		0
80	262	0.126		0
85	279	0.114		0
90	295	0.104		0
95	312	0.096		0
100	328	0.088		0
105	344	0.082		0
110	361	0.076		0
115	377	0.071		0
120	394	0.066		0
125	410	0.062		0
130	426	0.058		0
135	443	0.055		0
140	459	0.052		0
145	476	0.049		0
150	492	0.046		0
155	508	0.044		0
160	525	0.042		0
165	541	0.040		0
170	558	0.038		0
175	574	0.036		0
180	590	0.034		0
185	607	0.033		0
190	623	0.031		0
195	640	0.030		0
200	656	0.029		0
205	672	0.028		0
210	689	0.027		0
215	705	0.026		0
220	722	0.025		0
225	738	0.024		0
230	754	0.023		0
235	771	0.022		0
240	787	0.022		0
245	804	0.021		0
250	820	0.020		0
255	836	0.020		0
260	853	0.019		0
265	869	0.018		0
270	886	0.018		0
275	902	0.017		0
280	918	0.017		0
285	935	0.016		0
290	951	0.016		0
295	968	0.015		0
300	984	0.015		0

Distance meters	Distance feet	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
25	82	0.85		0		0
30	98	0.73		0		0
35	115	0.64		0		0
40	131	0.58		0		0
50	164	0.5		0		0
60	197	0.41		0		0
70	230	0.31		0		0
80	262	0.28		0		0
90	295	0.25		0		0
100	328	0.22		0		0
110	361	0.18		0		0
120	394	0.16		0		0
130	426	0.15		0		0
140	459	0.14		0		0
150	492	0.12		0		0
160	525	0.1		0		0
180	590	0.09		0		0
200	656	0.08		0		0
220	722	0.07		0		0
240	787	0.06		0		0
260	853	0.05		0		0
280	918	0.04		0		0



## Orchard School: Child Care Center and Elementary School in San Jose, CA

Screening Community Risk Assessment - Child Exposures			
<b>BAAQMD Screening Tools</b>			<b>Adjusted for Exposure*</b>
<b>Source</b>	<b>Daily Exposure Duration (hours)</b>	<b>Screening Cancer Risk (per million)</b>	<b>Lifetime Cancer Risk for Students Attending Orchard School (per million)</b>
Interstate 880 at 800 feet east	Child (3-13)	19.91	2.83
Oakland Road at 400 feet (ADT 41,450)	Child (3-13)	3.77	0.54
<b>Cumulative Levels</b>			<b>16.2</b>
<b>* Adjustments</b>			
<b>Child (3-13)</b>			
Breathing rate adjustment (CR)	2.09	, where old lifetime risk = 302, new OEHHA = 631 L/kg-day	
Age sensitivity factor (CR)	1.76	, lifetime risk = 1.7 and child = 3	
Exposure duration (hrs/day) (CR )	0.42	, lifetime = 24 hours and school = 10 hours	
Exposure duration (days/year) (CR)	0.72	, where lifetime risk = 350 days, care center = 252 days open	
Exposure duration (years) (CR)	0.13	, where lifetime risk = 70 years, school = 9 years	