Los Angeles County
Metropolitan Transportation Authority

West Santa Ana Branch Transit Corridor

Draft EIS/EIR Appendix J
Final Air Quality Impact Analysis Report

Metro

WEST SANTA ANA BRANCH TRANSIT CORRIDOR PROJECT

Draft EIS/EIR Appendix J Final Air Quality Impact Analysis Report

Prepared for:

Metro

Los Angeles County
Metropolitan Transportation Authority

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ACRONYMS AND ABBREVIATIONS

µm	Micrometer
AA	Alternatives Analysis
AAQS	Ambient Air Quality Standards
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
Basin	South Coast Air Basin
BRT	Bus Rapid Transit
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emission Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CHSRA	California High-Speed Rail Authority
CNG	Compressed Natural Gas
CO	Carbon Monoxide
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FTA	Federal Transit Administration
GCCOG	Gateway Cities Council of Governments
H_2S	Hydrogen Sulfide
LA County	Los Angeles County
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
LST	Localized Significance Threshold
MATES IV	Multiple Air Toxics Exposure Study IV
Metro	Los Angeles County Metropolitan Transportation Authority
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

Nm	Nanometer
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_3	Ozone
OCTA	Orange County Transportation Authority
OLDA	Orange Line Development Authority
Pb	Lead
PEROW	Pacific Electric Right-of-Way
PM	Particulate Matter
PM_{10}	Respirable Particulate Matter of Diameter Less Than 10 Microns
$PM_{2.5}$	Fine Particulate Matter of Diameter Less Than 2.5 Microns
ppm	Parts Per Million
RCEM	Roadway Construction Emissions Model
ROG	Reactive Organic Gases
ROW	Right-of-Way
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
SRA	Source Receptor Areas
TAC	Toxic Air Contaminants
TRS	Technical Refinement Study
UPRR	Union Pacific Railroad
USEPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WSAB	West Santa Ana Branch

1 INTRODUCTION

1.1 Study Background

The West Santa Ana Branch (WSAB) Transit Corridor (Project) is a proposed light rail transit (LRT) line that would extend from four possible northern termini in southeast Los Angeles (LA) County to a southern terminus in the City of Artesia, traversing densely populated, low-income, and heavily transit-dependent communities. The Project would provide reliable, fixed guideway transit service that would increase mobility and connectivity for historically underserved, transit-dependent, and environmental justice communities; reduce travel times on local and regional transportation networks; and accommodate substantial future employment and population growth.

1.2 Alternatives Evaluation, Screening and Selection Process

A wide range of potential alternatives have been considered and screened through the alternatives analysis processes. In March 2010, the Southern California Association of Governments (SCAG) initiated the Pacific Electric Right-of-Way (PEROW)/WSAB Alternatives Analysis (AA) Study (SCAG 2013) in coordination with the relevant cities, Orangeline Development Authority (now known as Eco-Rapid Transit), the Gateway Cities Council of Governments, the Los Angeles County Metropolitan Transportation Authority (Metro), the Orange County Transportation Authority, and the owners of the right-of-way (ROW)—Union Pacific Railroad (UPRR), BNSF Railway, and the Ports of Los Angeles and Long Beach. The AA Study evaluated a wide variety of transit connections and modes for a broader 34-mile corridor from Union Station in downtown Los Angeles to the City of Santa Ana in Orange County. In February 2013, SCAG completed the PEROW/WSAB Corridor Alternatives Analysis Report[1] and recommended two LRT alternatives for further study: West Bank 3 and the East Bank.

Following completion of the AA, Metro completed the WSAB Technical Refinement Study in 2015 focusing on the design and feasibility of five key issue areas along the 19-mile portion of the WSAB Transit Corridor within LA County:

- Access to Union Station in downtown Los Angeles
- Northern Section Options
- Huntington Park Alignment and Stations
- New Metro C (Green) Line Station
- Southern Terminus at Pioneer Station in Artesia

In September 2016, Metro initiated the WSAB Transit Corridor Environmental Study with the goal of obtaining environmental clearance of the Project under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

[1] Initial concepts evaluated in the SCAG report included transit connections and modes for the 34-mile corridor from Union Station in downtown Los Angeles to the City of Santa Ana. Modes included low speed magnetic levitation (maglev) heavy rail, light rail, and bus rapid transit (BRT).

Metro issued a Notice of Preparation (NOP) on May 25, 2017, with a revised NOP issued on June 14, 2017, extending the comment period. In June 2017, Metro held public scoping meetings in the Cities of Bellflower, Los Angeles, South Gate, and Huntington Park. Metro provided Project updates and information to stakeholders with the intent to receive comments and questions through a comment period that ended in August 2017. A total of 1,122 comments were received during the public scoping period from May through August 2017. The comments focused on concerns regarding the Northern Alignment options, with specific concerns related to potential impacts to Alameda Street with an aerial alignment. Given potential visual and construction issues raised through public scoping, additional Northern Alignment concepts were evaluated.

In February 2018, the Metro Board of Directors approved further study of the alignment in the Northern Section due to community input during the 2017 scoping meetings. A second alternatives screening process was initiated to evaluate the original four Northern Alignment options and four new Northern Alignment concepts. The *Final Northern Alignment Alternatives and Concepts Updated Screening Report* was completed in May 2018 (Metro 2018a). The alternatives were further refined and, based on the findings of the second screening analysis and the input gathered from the public outreach meetings, the Metro Board of Directors approved Build Alternatives E and G for further evaluation (now referred to as Alternatives 1 and 2, respectively, in this report).

On July 11, 2018, Metro issued a revised and recirculated CEQA NOP, thereby initiating a scoping comment period. The purpose of the revised NOP was to inform the public of the Metro Board's decision to carry forward Alternatives 1 and 2 into the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). During the scoping period, one agency and three public scoping meetings were held in the Cities of Los Angeles, Cudahy, and Bellflower. The meetings provided Project updates and information to stakeholders with the intent to receive comments and questions to support the environmental process. The comment period for scoping ended in August 24, 2018; over 250 comments were received.

Following the July 2018 scoping period, a number of Project refinements were made to address comments received, including additional grade separations, removing certain stations with low ridership, and removing the Bloomfield extension option. The Metro Board adopted these refinements to the project description at their November 2018 meeting.

1.3 Report Purpose and Structure

This Impact Analysis Report examines the environmental effects of the Project as it relates to air quality. The report is organized into nine sections:

- Section 1 – Introduction
- Section 2 – Project Description
- Section 3 – Regulatory Framework
- Section 4 – Affected Environment / Existing Conditions
- Section 5 – Environmental Consequences / Environmental Impacts
- Section 6 – California Environmental Quality Act Determination
- Section 7 – Construction Impacts
- Section 8 – Project Measures and Mitigation Measures
- Section 9 – References

1.4 General Topic Background

The California Health and Safety Code defines air pollution as any discharge, release, or other propagation into the atmosphere, and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof. Sources of air pollution can be classified as stationary sources (e.g., industrial processes, generators), mobile sources (e.g., automobiles, trucks) or area sources (e.g., residential water heaters).

Criteria air pollutants are pollutants for which the federal and state governments have established ambient air quality standards (AAQS) to protect public health. The federal and state standards have been set at concentrations designed to prevent environmental exposures that would be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Criteria air pollutants that are regulated by the federal and state governments include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter ten microns or less in diameter (PM_{10}), fine particulate matter 2.5 microns or less in diameter ($PM_{2.5}$) and lead (Pb). The properties and associated health effects of exposure to these pollutants are discussed below; also provided are descriptions of ultrafine particulate matter (ultrafine PM), diesel PM and toxic air contaminants (TACs) as pollutants of air quality concern for which air quality standards have not been specifically established.

CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas such as the Project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of human health, CO competes with oxygen—often replacing it in the blood—thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue and impairment of central nervous system functions.

O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG)—which include volatile organic compounds (VOC) and nitrogen oxides (NO_X)—react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant directly emitted to the atmosphere; it is a secondary pollutant formed by complex interactions involving two or more chemical compounds. Emissions of ROG and NO_X that drive atmospheric O_3 formation are primarily attributed to automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and clear skies. Automobile travel serves as the greatest source of ozone-producing gases. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

NO_2, like O_3, is formed in the atmosphere through a chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10} (discussed below). High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million (ppm).

Particulate matter (PM) comprises very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids and metals. Particulate matter also forms when gases, emitted from industries and motor vehicles, undergo chemical reactions in the atmosphere. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter classified by particle size. PM_{10} is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. $PM_{2.5}$ is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation and industrial facilities), residential fireplaces and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_X and VOC.

Ultrafine PM emissions form during engine combustion and in the atmosphere immediately after leaving exhaust pipes as emitted gases. Ultrafine PM emissions then condense and rapidly dilute and cool. Internal combustion engines have been identified as significant sources of ultrafine PM. A significant proportion of diesel emission particles have diameters smaller than 100 nanometer (nm) or 0.1 micrometer (µm). Particles emitted from gasoline-powered engines are generally less than 80 nm (0.08 µm) in diameter. Particles from compressed natural gas (CNG) fueled engines are smaller than from diesel emissions, with the majority between 20 nm and 60 nm (0.02 µm – 0.06 µm). In laboratory toxicity studies, a greater inflammatory and oxidative stress response has been elicited from ultrafine particles compared to larger particles at comparable mass doses. Oxidative stress is a term to describe cell, tissue or organ damage caused by reactive oxygen species. After inhalation, ultrafine particles may penetrate rapidly into lung tissue; and some portions may be translocated to other organs of the body. Additionally, ultrafine particles have been found to penetrate cells and subcellular organelles. In cell cultures exposed to ambient particles, ultrafine particles have been found in mitochondria where they induced structural damage.

$PM_{2.5}$ poses greater risks to human health than large particulate matter. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM_{10} and $PM_{2.5}$ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage throughout the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

SO_2 is a colorless, pungent gas that forms primarily through the combustion of sulfur-containing fossil fuels. Main sources of SO_2 emissions are coal and oil used in power plants and industries. Generally, the highest levels of SO_2 are found near large industrial complexes. In recent years, atmospheric SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also harm plant leaves and erode iron and steel. Sulfur oxides (SO_X) refer to any of several compounds of sulfur and oxygen, the most important of which is SO_2.

Pb in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline combustion, the manufacture of batteries, paint, ink, ceramics, and ammunition, and secondary lead smelting facilities. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall prevalence of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become emission sources of greater concern. Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth.

TACs are generally defined as those contaminants that are known or suspected to cause serious health problems but do not have a corresponding ambient air quality standard. These air pollutants may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors such as the concentration of the chemical and its toxicity, meteorological conditions at the time of release, and the terrain all influence whether the emissions could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. TACs can exist as PM_{10} and $PM_{2.5}$ or as vapors (gases), and include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

Diesel exhaust is composed of two phases, gas and particle, both of which contribute to human health risk upon exposure. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultrafine diesel particulates are of the greatest health concern and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on-road diesel engines of trucks, buses and cars, and the off-road diesel engines that include locomotives, marine vessels and heavy-duty equipment. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil and whether an emission control system is present.

Diesel exhaust causes health effects from both short-term (acute) exposures and long-term (chronic) exposures. The nature and severity of health effects depends upon several factors including the dose and duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to diesel PM specifically but there is substantial evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects. Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic inhalation exposure to diesel PM in experimental animal studies has shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.

1.5 Methodology

The Study Area is located within the LA County portion of the South Coast Air Basin (Basin). The Basin represents the Affected Area for air at the regional scale because all sources of emissions associated with construction and operations would be located within it, and the attainment status of the LA County portion is most representative of regional air quality conditions. The assessment of potential air quality impacts associated with implementation of the Project considers both direct and indirect sources of air pollutant emissions during temporary construction activities and future operation. Under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), air quality impacts are typically characterized by estimates of air pollutant emissions within the Affected Area for air quality that are analyzed on either daily or annual timescales in terms of pounds per day (lbs/day) or tons per year (tons/year) of pollutants emitted, respectively. Defining a baseline year for emissions comparisons is typically necessary for analyzing potential impacts. The Existing Conditions are established in the 2017 analysis year based on the CEQA NOP date, and the horizon year of the Project is 2042. The NEPA assessment quantifies daily air pollutant emissions from direct and indirect sources that would be generated by the Build Alternatives–including induced changes in regional on-road vehicle emissions due to transportation mode shift—in the horizon year of 2042 relative to the future No Build Alternative. The NEPA assessment also qualitatively addresses the induced changes to daily vehicle miles traveled (VMT) within the Affected Area under a hypothetical operational condition in the 2017 Existing Conditions year for informational purposes.

Definition of the baseline year under CEQA has been the subject of several State appellate court and Supreme Court cases, and the preferred presentation of impacts analyses for projects with extended construction periods and opening years considerably set back from the Existing Conditions has evolved over time. Spurred by Senate Bill (SB) 743—originally adopted in 2013 and discussed further in 3.2 State Regulatory Framework—the CEQA Guidelines were updated in 2018 to incorporate VMT as the preferred metric for analyzing transportation impacts under CEQA. In response to the updated CEQA Guidelines, the Office of Planning and Research (OPR) published a *Technical Advisory on Evaluating Transportation Impacts in CEQA* in December 2018 (OPR 2018), and the California Department of Transportation (Caltrans) has published draft guidance for analyzing transportation impacts for state highway system projects under CEQA that is expected to be finalized in 2020. The OPR guidance relates directly to the Project, while the draft Caltrans

guidance provides insight as to the direction Caltrans is taking with assessing CEQA impacts from long-range transportation projects.

Generally, LRT projects are understood to improve regional connectivity and air quality through induced changes to mobility patterns spurred by the provision of an alternative mode of transportation that replaces and reduces vehicle trips. The OPR guidance recommends streamlining CEQA analyses of potential impacts to transportation and transportation-related emissions for transit and active transportation projects that are widely recognized to reduce on-road VMT and associated vehicle emissions. The OPR recommendation is based on programmatic review of public transit and active transportation projects, which consistently demonstrate reductions in pollutant emissions from on-road vehicles. The determination of potentially significant operational air quality impacts is streamlined for the Project, as it would not introduce a new substantial permanent source of air pollutant emissions into the Affected Area and would induce changes to regional transportation patterns that would decrease VMT and associated air pollutant emissions. For informational disclosure, direct and indirect emissions attributed to operation of the maintenance and storage facility (MSF) are quantified and presented in the Existing Conditions year of 2017, as the MSF would be an essential component of each of the Build Alternatives. Consistent with the draft Caltrans guidance, a holistic presentation of operational MSF emissions in combination with induced changes to regional transportation emissions are presented in the horizon baseline year of 2042 for informational disclosure.

The Project is located in the Los Angeles County portion of the South Coast Air Basin (Basin), which is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD has established guidance for assessing air quality impacts under CEQA that recommends an analysis of construction and operational emissions at both regional and localized scales. Regional emissions refer to all emissions that would be produced within the SCAQMD jurisdiction—the Affected Area of the Project—by sources located on and off the project site. Localized emissions refer exclusively to those emissions generated by sources located on the project site. Both the construction and operational analyses address Project air pollutant emissions at the regional and localized levels. The following discussions provide an overview of the sources of Project emissions that are accounted for in the air quality impacts assessment. Construction of the Project is anticipated to last up to six years, with daily activities varying throughout the duration and along the alignment. Operational emissions would commence following completion of construction.

1.5.1 Operational Activity Emissions

The OPR recommends streamlining the emissions impact analysis for transit and active transportation projects that displace vehicle trips and reduce on-road VMT; therefore, operational emissions are quantified and disclosed for informational purposes. Implementation of the Project would introduce new direct and indirect sources of operational air pollutant emissions associated with the MSF (i.e., vehicle trips, fugitive/area sources, energy consumption), which is an essential component of each of the Build Alternatives. Using preliminary site plans for the Bellflower and Paramount options, estimates of MSF operational emissions were produced using CalEEMod in the analysis years 2017 and 2042. It is anticipated that the MSF, regardless of location selected, would generate up to approximately 250 daily vehicle trips between Metro employees and commercial deliveries. The emissions associated with MSF operations were estimated in 2017 and 2042 and are discussed in the context of SCAQMD Air Quality Significance Thresholds for typical land use developments projects under CEQA.

In addition to operational MSF emissions, implementation of the Project would displace on-road vehicle trips and travel, inducing changes to regional transportation patterns and associated emissions. Changes to regional transportation patterns resulting from Project implementation are quantified for informational disclosure using VMT produced by the regional transportation model. Datasets of daily VMT within the Affected Area were provided by the transportation engineering team for Existing Conditions in 2017, Existing Conditions with each of the Build Alternatives and Design Options if operational in 2017, the No Build Alternative in 2042, and with implementation of the Build Alternatives and Design Options in 2042. The daily VMT are divided into speed bins that show the distribution of vehicle travel in 5 mile per hour (mph) increments. Table 1.1 presents a summary of the daily VMT for the 2017 scenarios and Table 1.2 presents a summary of the daily VMT for the 2042 scenarios. If operational in 2017, the Build Alternatives or Design Options would reduce daily VMT within the Affected Area by between approximately 0.008 percent – 0.051 percent relative to Existing Conditions. By 2042, implementation of the Build Alternatives or Design Options would reduce daily VMT within the Affected Area by between approximately 0.012 percent – 0.072 percent relative to the No Build Alternative. Emissions generated by regional VMT within the Affected Area were quantified and disclosed using the CARB Emission Factor (EMFAC) model for the 2042 scenarios.

Mobile source air pollutant emissions from on-road vehicle traffic under the No Build Alternative, Build Alternatives, and Design Options in 2042 were quantified using the CARB EMFAC2017 model and are disclosed for informational purposes to demonstrate the long-term benefits associated with Project implementation. The model is built upon the statewide mobile source emissions inventory and produces emission rates in units of grams of pollutant emitted per VMT based on the year of analysis, regional location, vehicle fleet mix, local meteorology, and speed of travel. Emission rates were produced for the SCAG region in 2042 corresponding to the speed bins presented in Table 1.1 and Table 1.2. To estimate daily emissions under each scenario, the daily VMT in each speed bin was multiplied by the corresponding emission factor for each pollutant, and then the total emissions across all speed bins were summed. The emission factors used in the demonstrative analysis apply to exhaust emissions per VMT, with the exception of particulate matter emission rates that account for brake wear, tire wear, and resuspended road dust. Regional VMT emissions modeling files can be found in the Appendix.

Table 1.1. Affected Area Vehicle Miles Traveled – 2017 Existing Scenarios

Speed Range (mph)	Existing Conditions	Existing + Alternative 1	Existing + Alternative 2	Existing + Alternative 3	Existing + Alternative 4	Existing + Design Option 1	Existing + Design Option 2
0-5	2,925,006	2,960,404	2,904,885	2,924,597	2,902,543	2,914,748	2,952,156
5-10	5,252,940	5,135,693	5,327,926	5,245,489	5,241,972	5,171,794	5,241,438
10-15	13,759,521	13,549,801	13,784,688	13,715,106	13,693,896	13,651,586	13,680,521
15-20	29,405,409	29,520,014	30,308,033	29,510,250	29,389,972	29,390,153	29,388,274
20-25	62,189,909	62,152,575	61,570,496	62,022,759	62,190,366	62,053,112	62,111,838
25-30	67,226,815	67,296,154	67,258,685	67,573,243	67,586,343	67,500,634	67,387,762
30-35	59,226,864	59,091,447	58,994,050	58,873,089	58,824,774	59,065,464	59,035,996
35-40	36,971,117	37,145,781	36,867,141	36,979,119	37,163,297	36,973,742	37,028,304
40-45	22,813,405	22,920,460	22,495,581	22,776,688	22,748,496	22,718,068	22,795,467
45-50	16,937,617	16,774,220	17,100,215	16,951,438	16,942,814	16,961,810	16,951,683
50-55	16,868,433	16,892,338	17,010,389	16,947,536	16,801,762	17,023,388	16,804,628
55-60	16,152,280	16,107,319	16,068,320	16,129,597	16,165,746	16,079,420	16,153,335
60-65	21,987,684	22,021,681	21,913,928	22,051,930	22,058,049	21,927,829	21,946,747
65-70	35,691,030	35,568,027	35,508,837	35,592,063	35,635,813	35,700,482	35,675,836
70-75	55,649,717	55,705,898	55,729,862	55,693,001	55,675,646	55,689,356	55,685,459
75-80	188,076	187,852	187,737	188,070	187,993	187,956	187,927
Total (Daily)	**463,245,820**	**463,029,665**	**463,030,772**	**463,173,975**	**463,209,482**	**463,009,541**	**463,027,369**
Change vs. Existing Conditions	**--**	**-216,155**	**-215,048**	**-71,845**	**-36,338**	**-236,279**	**-218,451**
% Change vs. Existing Condition	**--**	**-0.047%**	**-0.046%**	**-0.016%**	**-0.008%**	**-0.051%**	**-0.047%**

Source: WSP, 2020
Note: mph = Miles Per Hour, (#) = Negative Value

Table 1.2. Affected Area Vehicle Miles Traveled – 2042 Scenarios

Speed Range (mph)	No Build (2042)	Alternative 1 (2042)	Alternative 2 (2042)	Alternative 3 (2042)	Alternative 4 (2042)	Design Option 1 (2042)	Design Option 2 (2042)
0-5	8,161,300	8,074,614	8,166,799	8,120,095	8,053,500	8,000,989	8,144,726
5-10	22,192,831	22,107,135	22,136,969	22,245,691	22,229,614	22,099,971	22,138,082
10-15	37,570,046	37,647,774	37,720,605	37,558,820	37,510,367	37,880,426	37,514,461
15-20	58,002,358	57,983,192	57,712,253	57,936,698	58,155,189	57,722,685	57,847,372
20-25	85,809,742	85,721,421	85,729,611	86,039,526	86,503,235	86,813,193	85,972,147
25-30	87,812,528	88,014,920	87,609,115	87,751,214	86,627,756	86,128,622	87,264,226
30-35	69,039,178	68,672,917	69,035,806	68,783,376	69,207,341	69,052,745	69,343,773
35-40	45,115,846	45,018,534	45,360,914	45,312,052	46,099,921	45,972,566	45,179,744
40-45	20,004,278	20,132,841	19,881,122	19,936,347	19,769,841	19,427,023	20,024,992
45-50	16,888,941	17,126,088	17,009,770	17,054,865	16,408,919	17,586,013	16,887,253
50-55	15,149,076	14,903,294	15,115,485	14,888,433	15,057,952	14,682,118	15,092,566
55-60	20,835,805	20,754,100	20,733,207	20,854,238	21,055,689	20,678,448	20,802,896
60-65	28,725,713	28,810,940	28,715,217	28,572,364	28,356,609	29,059,703	28,716,231
65-70	48,972,338	49,017,502	48,975,235	49,191,189	49,344,816	48,346,604	48,880,364
70-75	41,911,351	41,814,825	41,911,942	41,815,668	41,740,111	42,291,149	41,984,125
75-80	138,580	138,311	138,460	138,464	138,224	149,857	138,550
Total (Daily)	**606,329,911**	**605,938,408**	**605,952,510**	**606,199,041**	**606,259,084**	**605,892,112**	**605,931,508**
Change vs. No Build	—	**(391,500)**	**(377,400)**	**(130,870)**	**(70,826)**	**(437,800)**	**(398,400)**
% Change vs. No Build	—	**(0.065%)**	**(0.062%)**	**(0.022%)**	**(0.012%)**	**(0.072%)**	**(0.066%)**
Change vs. Existing Conditions	**143,084,090**	**142,692,590**	**142,706,690**	**142,953,220**	**143,013,264**	**142,646,290**	**142,685,690**
% Change vs. Existing Conditions	**30.89%**	**30.80%**	**30.81%**	**30.86%**	**30.87%**	**30.79%**	**30.80%**

Source: WSP, 2020
Note: mph = Miles Per Hour, (#) = Negative Value

1.5.2 CEQA Thresholds of Significance for Pollutant Emissions

The SCAQMD is charged with regulatory jurisdiction over air quality in the Basin and has developed Air Quality Significance Thresholds and analysis methodologies in the SCAQMD CEQA Air Quality Handbook to guide air quality impact assessments for CEQA purposes. As mentioned above, air pollutant emissions from land use development projects are evaluated on both regional and localized scales. Regional-scale Air Quality Significance Thresholds developed by the SCAQMD are shown in Table 1.3. Maximum daily air pollutant emissions during construction of the Project are compared to the Air Quality Significance Thresholds to determine the potential for significant environmental impacts related to air quality.

Table 1.3. SCAQMD Air Quality Significance Thresholds – Regional Mass Daily Thresholds

Pollutant	Construction (Pounds/Day)	Operation (Pounds/Day)
Volatile Organic Compounds (VOC)	75	55
Nitrogen Oxides (NO_X)	100	55
Carbon Monoxide (CO)	550	550
Sulfur Oxides (SO_X)	150	150
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Lead (Pb)	3	3

Source: SCAQMD, 2019.

In addition to regional significance thresholds, SCAQMD has developed specific CEQA localized significance thresholds (LSTs) that apply to only sources of emissions situated on the Project site. According to the SCAQMD, localized emissions at project sites would result in a significant air quality impact if air pollutant concentrations exceed the following threshold values presented in Table 1.4. Since the Basin is in nonattainment for PM_{10} and $PM_{2.5}$ under the California standards, the threshold is established as an incremental "allowable change" in concentration resulting from Project implementation. Therefore, background concentration is irrelevant.

Table 1.4. SCAQMD Air Quality Significance Thresholds – Localized Significance Thresholds

Pollutants and Averaging Times	Construction	Operation
Nitrogen Dioxide (NO_2) – Annual Average	0.03 ppm (CAAQS)	0.03 ppm (CAAQS)
Nitrogen Dioxide (NO_2) – 1-Hour Average	0.18 ppm (CAAQS)	0.18 ppm (CAAQS)
Carbon Monoxide (CO) – 8-Hour Average	9.0 ppm (CAAQS)	9.0 ppm (CAAQS)
Carbon Monoxide (CO) – 1-Hour Average	20 ppm (CAAQS)	20 ppm (CAAQS)
Sulfur Dioxide (SO_2) – 24-Hour Average	0.04 ppm (CAAQS)	0.04 ppm (CAAQS)
Sulfur Dioxide (SO_2) – 1-Hour Average	0.075 ppm (NAAQS)	0.075 ppm (NAAQS)
Respirable Particulate Matter (PM_{10}) – Annual Average[1]	1.0 µg/m³	1.0 µg/m³
Respirable Particulate Matter (PM_{10}) – 24-Hour Average[1]	10.4 µg/m³	2.5 µg/m³
Fine Particulate Matter ($PM_{2.5}$) – 24-Hour Average[1]	10.4 µg/m³	2.5 µg/m³

Source: SCAQMD, 2019.
Note: [1] Threshold is based on SCAQMD Rule 403.

The SCAQMD devised regionally specific Mass Rate Look-Up Tables based on the Project Source-Receptor Area (SRA), Project site size, and proximity of sensitive receptors to the Project site. The Mass Rate Look-Up Tables are provided in Appendix C of the *SCAQMD Final Localized Significance Threshold Methodology* and represent maximum allowable daily emissions from sources situated on the Project site that will not result in AAQS being exceeded at sensitive receptor locations. Applicable LST values are referenced for each Section of the Project under the appropriate impact criteria discussions. The Project corridor transects portions of SRA 1 – Central Los Angeles County, SRA 4 – South Coastal Los Angeles County, SRA 5 – Southeast Los Angeles County, and SRA 12 – South Central Los Angeles County. Operation of the Project will not introduce a new substantial stationary source of air pollutant emissions into the Affected Area. Therefore, the localized emissions analysis focuses on construction only (see Table 1.5).

Table 1.5. SCAQMD Localized Significance Thresholds – Construction

Source Receptor Area	Site Size (Acres)	Receptor Distance (m)	(lbs/day)			
			CO	NO_x	PM_{10}	$PM_{2.5}$
1 (Central LA County)	≤1	25	680	74	5	3
		50	882	74	15	5
		100	1,259	82	33	10
		200	2,406	106	70	24
		500	7,911	168	179	102
	2	25	1,048	108	8	5
		50	1,368	106	25	7
		100	1,799	110	43	12
		200	3,016	126	80	28
		500	8,637	179	190	110
	5	25	1,861	161	16	8
		50	2,331	157	50	11
		100	3,030	165	69	18
		200	4,547	173	107	36
		500	10,666	212	219	126
4 (South Coastal LA County)	≤1	25	585	57	4	3
		50	789	58	13	5
		100	1,180	68	29	10
		200	2,296	90	61	26
		500	7,558	142	158	93
	2	25	842	82	7	5
		50	1,158	80	21	7
		100	1,611	87	37	13
		200	2,869	106	70	30
		500	8,253	151	167	101
	5	25	1,530	123	14	8

Source Receptor Area	Site Size (Acres)	Receptor Distance (m)	(lbs/day)			
			CO	NO_X	PM_{10}	$PM_{2.5}$
		50	1,982	118	42	10
		100	2,613	126	58	18
		200	4,184	141	92	39
		500	10,198	179	191	120
5 (Southeast LA County)	≤1	25	571	80	4	3
		50	735	81	13	4
		100	1,088	94	30	8
		200	2,104	123	66	19
		500	6,854	192	173	86
	2	25	681	114	7	4
		50	1,082	111	21	6
		100	1,496	121	39	10
		200	2,625	145	74	22
		500	7,500	205	182	92
	5	25	1,480	172	14	7
		50	1,855	165	42	10
		100	2,437	176	60	15
		200	3,867	194	95	30
		500	9,312	244	203	103
12 (South Central LA County)	≤1	25	231	46	4	3
		50	342	46	12	4
		100	632	54	26	7
		200	1,545	70	54	17
		500	5,452	109	139	70
	2	25	346	65	7	4
		50	515	64	20	6
		100	841	69	34	9
		200	1,817	82	62	19
		500	5,962	117	146	74
	5	25	630	98	13	7
		50	879	84	41	10
		100	1,368	101	55	15
		200	2,514	111	83	27
		500	7,389	139	166	86

Source: SCAQMD 2009
Notes: LA = Los Angeles; SRA = Source Receptor Area; lbs/day = pounds per day; m = meters; CO = carbon monoxide; NO_X = nitrogen oxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = nitrogen oxide less than 2.5 microns

The localized emissions analysis for construction determined the applicable LST values based on SRA, receptor proximity, and maximum daily ground area disturbance for each site analyzed.

Additionally, the SCAQMD has stated that a proposed project would generate significant emissions of TACs if exposures to a sensitive receptor exceeds a Maximum Incremental Cancer Risk of 10 in one million, a Cancer Burden of 0.5 excess cancer cases, or a Chronic or Acute Hazard Index of 1.0. No specific threshold has been established for assessing potential impacts from odors.

2 PROJECT DESCRIPTION

This section describes the No Build Alternative and the four Build Alternatives studied in the WSAB Transit Corridor Draft EIS/EIR, including design options, station locations, and maintenance and storage facility (MSF) site options. The Build Alternatives were developed through a comprehensive alternatives analysis process and meet the purpose and need of the Project.

The No Build Alternative and four Build Alternatives are generally defined as follows:

- **No Build Alternative** - Reflects the transportation network in the 2042 horizon year without the proposed Build Alternatives. The No Build Alternative includes the existing transportation network along with planned transportation improvements that have been committed to and identified in the constrained Metro 2009 Long Range Transportation Plan (2009 LRTP) (Metro 2009) and SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2016), as well as additional projects funded by Measure M that would be completed by 2042.
- **Build Alternatives**: The Build Alternatives consist of a new LRT line that would extend from different termini in the north to the same terminus in the City of Artesia in the south. The Build Alternatives are referred to as:
  - Alternative 1: Los Angeles Union Station to Pioneer Station; the northern terminus would be located underground at Los Angeles Union Station (LAUS) Forecourt
  - Alternative 2: 7th Street/Metro Center to Pioneer Station; the northern terminus would be located underground at 8th Street between Figueroa Street and Flower Street near 7th Street/Metro Center Station
  - Alternative 3: Slauson/A (Blue) Line to Pioneer Station; the northern terminus would be located just north of the intersection of Long Beach Avenue and Slauson Avenue in the City of Los Angeles, connecting to the current A (Blue) Line Slauson Station
  - Alternative 4: I-105/C (Green) Line to Pioneer Station; the northern terminus would be located at I-105 in the city of South Gate, connecting to the C (Green) Line along the I-105

Two design options are under consideration for Alternative 1. Design Option 1 would locate the northern terminus station box at the LAUS Metropolitan Water District (MWD) east of LAUS and the MWD building, below the baggage area parking facility. Design Option 2 would add the Little Tokyo Station along the WSAB alignment. The Design Options are further discussed in Section 2.3.6.

Figure 2-1 presents the four Build Alternatives and the design options. In the north, Alternative 1 would terminate at LAUS and primarily follow Alameda Street south underground to the proposed Arts/Industrial District Station. Alternative 2 would terminate near the existing 7th Street/Metro Center Station in the Downtown Transit Core and would primarily follow 8th Street east underground to the proposed Arts/Industrial District Station.

Figure 2-1. Project Alternatives

Source: Metro, 2020

From the Arts/Industrial District Station to the southern terminus at Pioneer Station, Alternatives 1 and 2 share a common alignment. South of Olympic Boulevard, the Alternatives 1 and 2 would transition from an underground configuration to an aerial configuration, cross over the Interstate (I-) 10 freeway and then parallel the existing Metro A (Blue) Line along the Wilmington Branch ROW as it proceeds south. South of Slauson Avenue, which would serve as the northern terminus for Alternative 3, Alternatives 1, 2, and 3 would turn east and transition to an at-grade configuration to follow the La Habra Branch ROW along Randolph Street. At the San Pedro Subdivision ROW, Alternatives 1, 2, and 3 would turn southeast to follow the San Pedro Subdivision ROW and then transition to the Pacific Electric Right-of-Way (PEROW), south of the I-105 freeway. The northern terminus for Alternative 4 would be located at the I-105/C (Green) Line. Alternatives 1, 2, 3, and 4 would then follow the PEROW to the southern terminus at the proposed Pioneer Station in Artesia. The Build Alternatives would be grade-separated where warranted, as indicated on Figure 2-2.

Figure 2-2. Project Alignment by Alignment Type

Source: Metro, 2020

2.1 Geographic Sections

The approximately 19-mile corridor is divided into two geographic sections—the Northern and Southern Sections. The boundary between the Northern and Southern Sections occurs at Florence Avenue in the City of Huntington Park.

2.1.1 Northern Section

The Northern Section includes approximately 8 miles of Alternatives 1 and 2 and 3.8 miles of Alternative 3. Alternative 4 is not within the Northern Section. The Northern Section covers the geographic area from downtown Los Angeles to Florence Avenue in the City of Huntington Park and would generally traverse the Cities of Los Angeles, Vernon, Huntington Park, and Bell, and the unincorporated Florence-Firestone community of LA County (Figure 2-3). Alternatives 1 and 2 would traverse portions of the Wilmington Branch (between approximately Martin Luther King Jr Boulevard along Long Beach Avenue to Slauson Avenue). Alternatives 1, 2, and 3 would traverse portions of the La Habra Branch ROW (between Slauson Avenue along Randolph Street to Salt Lake Avenue) and San Pedro Subdivision ROW (between Randolph Street to approximately Paramount Boulevard).

Figure 2-3. Northern Section

Source: Metro, 2020

2.1.2 Southern Section

The Southern Section includes approximately 11 miles of Alternatives 1, 2, and 3 and includes all 6.6 miles of Alternative 4. The Southern Section covers the geographic area from south of Florence Avenue in the City of Huntington Park to the City of Artesia and would generally traverse the Cities of Huntington Park, Cudahy, South Gate, Downey, Paramount, Bellflower, Cerritos, and Artesia (Figure 2-4). In the Southern Section, all four Build Alternatives would utilize portions of the San Pedro Subdivision and the Metro-owned PEROW (between approximately Paramount Boulevard to South Street).

Figure 2-4. Southern Section

Source: Metro, 2020

2.2 No Build Alternative

For the NEPA evaluation, the No Build Alternative is evaluated in the context of the existing transportation facilities in the Study Area (the Study Area extends approximately 2 miles from either side of the proposed alignment) and other capital transportation improvements and/or transit and highway operational enhancements that are reasonably foreseeable. Because the No Build Alternative provides the background transportation network, against

which the Build Alternatives' impacts are identified and evaluated, the No Build Alternative does not include the Project. The No Build Alternative reflects the transportation network in 2042 and includes the existing transportation network along with planned transportation improvements that have been committed to and identified in the constrained Metro 2009 LRTP and the SCAG 2016 RTP/SCS, as well as additional projects funded by Measure M, a sales tax initiative approved by voters in November 2016. The No Build Alternative includes Measure M projects that are scheduled to be completed by 2042. Table 2.1 lists the existing transportation network and planned improvements included as part of the No Build Alternative.

Table 2.1. No Build Alternative – Existing Transportation Network and Planned Improvements

Project	To / From	Location Relative to Study Area
Rail (Existing)		
Metro Rail System (LRT and Heavy Rail Transit)	Various locations	Within Study Area
Metrolink (Southern California Regional Rail Authority) System	Various locations	Within Study Area
Rail (Under Construction/Planned)[1]		
Metro Westside D (Purple) Line Extension	Wilshire/Western to Westwood/VA Hospital	Outside Study Area
Metro C (Green) Line Extension[2] to Torrance	96th Street Station to Torrance	Outside Study Area
Metro C (Green) Line Extension	Norwalk to Expo/Crenshaw[3]	Outside Study Area
Metro East-West Line/Regional Connector/Eastside Phase 2	Santa Monica to Lambert Santa Monica to Peck Road	Within Study Area
Metro North-South Line/Regional Connector/Foothill Extension to Claremont Phase 2B	Long Beach to Claremont	Within Study Area
Metro Sepulveda Transit Corridor	Metro G (Orange) Line to Metro E (Expo) Line	Outside Study Area
Metro East San Fernando Valley Transit Corridor	Sylmar to Metro G (Orange) Line	Outside Study Area
Los Angeles World Airport Automated People Mover	96th Street Station to LAX Terminals	Outside Study Area
Metrolink Capital Improvement Projects	Various projects	Within Study Area
California High-Speed Rail	Burbank to LA LA to Anaheim	Within Study Area
Link US[4]	LAUS	Within Study Area

Project	To / From	Location Relative to Study Area
Bus (Existing)		
Metro Bus System (including BRT, Express, and local)	Various locations	Within Study Area
Municipality Bus System[5]	Various locations	Within Study Area
Bus (Under Construction/Planned)		
Metro G (Orange) Line (BRT)	Del Mar (Pasadena) to Chatsworth Del Mar (Pasadena) to Canoga Canoga to Chatsworth	Outside Study Area
Vermont Transit Corridor (BRT)	120th Street to Sunset Boulevard	Outside Study Area
North San Fernando Valley BRT	Chatsworth to North Hollywood	Outside Study Area
North Hollywood to Pasadena	North Hollywood to Pasadena	Outside Study Area
Highway (Existing)		
Highway System	Various locations	Within Study Area
Highway (Under Construction/Planned)		
High Desert Multi-Purpose Corridor	SR-14 to SR-18	Outside Study Area
I-5 North Capacity Enhancements	SR-14 to Lake Hughes Rd	Outside Study Area
SR-71 Gap Closure	I-10 to Rio Rancho Rd	Outside Study Area
Sepulveda Pass Express Lane	I-10 to US-101	Outside Study Area
SR-57/SR-60 Interchange Improvements	SR-70/SR-60	Outside Study Area
I-710 South Corridor Project (Phase 1 & 2)	Ports of Long Beach and LA to SR-60	Within Study Area
I-105 Express Lane	I-405 to I-605	Within Study Area
I-5 Corridor Improvements	I-605 to I-710	Outside Study Area

Source: Metro 2018, WSP 2019
Notes: BRT = Bus Rapid Transit; LAUS = Los Angeles Union Station; LAX = Los Angeles International Airport; VA = Veterans Affairs
[1] Where extensions are proposed for existing Metro rail lines, the origin/destination is defined for the operating scheme of the entire rail line following completion of the proposed extensions and not just the extension itself.
[2] Metro C (Green) Line extension to Torrance includes new construction from Redondo Beach to Torrance; however, the line will operate from Torrance to 96th Street.
[3] The currently under construction Metro Crenshaw/LAX Line will operate as the Metro C (Green) Line.
[4] Link US rail walk times included only.
[5] The municipality bus network system is based on service patterns for Bellflower Bus, Cerritos on Wheels, Cudahy Area Rapid Transit, Get Around Town Express, Huntington Park Express, La Campana, Long Beach Transit, Los Angeles Department of Transportation, Norwalk Transit System and the Orange County Transportation Authority.

2.3 Build Alternatives

2.3.1 Proposed Alignment Configuration for the Build Alternatives

This section describes the alignment for each of the Build Alternatives. The general characteristics of the four Build Alternatives are summarized in Table 2.2. Figure 2-5 illustrates the freeway crossings along the alignment. Additionally, the Build Alternatives would require relocation of existing freight rail tracks within the ROW to maintain existing operations where there would be overlap with the proposed light rail tracks. Figure 2-6 depicts the alignment sections that would share operation with freight and the corresponding ownership.

Table 2.2. Summary of Build Alternative Components

Component	Quantity			
Alternatives	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**
Alignment Length	19.3 miles	19.3 miles	14.8 miles	6.6 miles
Stations Configurations	11 3 aerial; 6 at-grade; 2 underground[3]	12 3 aerial; 6 at-grade; 3 underground	9 3 aerial; 6 at-grade	4 1 aerial; 3 at-grade
Parking Facilities	5 (approximately 2,780 spaces)	5 (approximately 2,780 spaces)	5 (approximately 2,780 spaces)	4 (approximately 2,180 spaces)
Length of underground, at-grade, and aerial	2.3 miles underground; 12.3 miles at-grade; 4.7 miles aerial[1]	2.3 miles underground; 12.3 miles at-grade; 4.7 miles aerial[1]	12.2 miles at-grade; 2.6 miles aerial[1]	5.6 miles at-grade; 1.0 miles aerial[1]
At-grade crossings	31	31	31	11
Freight crossings	10	10	9	2
Freeway Crossings	6 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	6 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	4 (3 freeway undercrossings[2] at I-710; I-605, SR-91)	3 (2 freeway undercrossings[2] at I-605, SR-91)
Elevated Street Crossings	25	25	15	7
River Crossings	3	3	3	1
TPSS Facilities	22[3]	23	17	7
Maintenance and Storage Facility site options	2	2	2	2

Source: WSP, 2020

Notes: [1] Alignment configuration measurements count retained fill embankments as at-grade.

[2] The light rail tracks crossing beneath freeway structures.

[3] Under Design Option 2 – Add Little Tokyo Station, an additional underground station and TPSS site would be added under Alternative 1

Figure 2-5. Freeway Crossings

Source: WSP, 2020

Figure 2-6. Existing Rail Right-of-Way Ownership and Relocation

Source: WSP, 2020

2.3.2 Alternative 1

The total alignment length of Alternative 1 would be approximately 19.3 miles, consisting of approximately 2.3 miles of underground, 12.3 miles of at-grade, and 4.7 miles of aerial alignment. Alternative 1 would include 11 new LRT stations, 2 of which would be underground, 6 would be at-grade, and 3 would be aerial. Under Design Option 2, Alternative 1 would have 12 new LRT stations, and the Little Tokyo Station would be an additional underground station. Five of the stations would include parking facilities, providing a total of up to 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 2 aerial freeway crossings, 1 underground freeway crossing, 3 river crossings, 25 aerial road crossings, and 10 freight crossings.

In the north, Alternative 1 would begin at a proposed underground station at/near LAUS either beneath the LAUS Forecourt or, under Design Option 1, east of the MWD building beneath the baggage area parking facility (Section 2.3.6). Crossovers would be located on the north and south ends of the station box with tail tracks extending approximately 1,200 feet north of the station box. A tunnel extraction portal would be located within the tail tracks for both Alternative 1 terminus station options.

From LAUS, the alignment would continue underground crossing under the US-101 freeway and the existing Metro L (Gold) Line aerial structure and continue south beneath Alameda Street to the optional Little Tokyo Station between 1st Street and 2nd Street (note: under Design Option 2, Little Tokyo Station would be constructed). From the optional Little Tokyo Station, the alignment would continue underground beneath Alameda Street to the proposed Arts/Industrial District Station under Alameda Street between 6th Street and Industrial Street. (Note, Alternative 2 would have the same alignment as Alternative 1 from this point south. Refer to Section 2.3.3 for additional information on Alternative 2.)

The underground alignment would continue south under Alameda Street to 8th Street, where the alignment would curve to the west and transition to an aerial alignment south of Olympic Boulevard. The alignment would cross over the I-10 freeway in an aerial viaduct structure and continue south, parallel to the existing Metro A (Blue) Line at Washington Boulevard. The alignment would continue in an aerial configuration along the eastern half of Long Beach Avenue within the UPRR-owned Wilmington Branch ROW, east of the existing Metro A (Blue) Line and continue south to the proposed Slauson/A Line Station. The aerial alignment would pass over the existing pedestrian bridge at E. 53rd Street. The Slauson/A Line Station would serve as a transfer point to the Metro A (Blue) Line via a pedestrian bridge. The vertical circulation would be connected at street level on the north side of the station via stairs, escalators, and elevators. (The Slauson/A Line Station would serve as the northern terminus for Alternative 3; refer to Section 2.3.4 for additional information on Alternative 3.)

South of the Slauson/A Line Station, the alignment would turn east along the existing La Habra Branch ROW (also owned by UPRR) in the median of Randolph Street. The alignment would be on the north side of the La Habra Branch ROW and would require the relocation of existing freight tracks to the southern portion of the ROW. The alignment would transition to an at-grade configuration at Alameda Street and would proceed east along the Randolph Street median. Wilmington Avenue, Regent Street, Albany Street, and Rugby Avenue would be closed to traffic crossing the ROW, altering

the intersection design to a right-in, right-out configuration. The proposed Pacific/Randolph Station would be located just east of Pacific Boulevard.

From the Pacific/Randolph Station, the alignment would continue east at-grade. Rita Avenue would be closed to traffic crossing the ROW, altering the intersection design to a right-in, right-out configuration. At the San Pedro Subdivision ROW, the alignment would transition to an aerial configuration and turn south to cross over Randolph Street and the freight tracks, returning to an at-grade configuration north of Gage Avenue. The alignment would be located on the east side of the existing San Pedro Subdivision ROW freight tracks, and the existing tracks would be relocated to the west side of the ROW. The alignment would continue at-grade within the San Pedro Subdivision ROW to the proposed at-grade Florence/Salt Lake Station south of the Salt Lake Avenue/Florence Avenue intersection.

South of Florence Avenue, the alignment would extend from the proposed Florence/Salt Lake Station in the City of Huntington Park to the proposed Pioneer Station in the City of Artesia, as shown in Figure 2-4. The alignment would continue southeast from the proposed at-grade Florence/Salt Lake Station within the San Pedro Subdivision ROW, crossing Otis Avenue, Santa Ana Street, and Ardine Street at-grade. The alignment would be located on the east side of the existing San Pedro Subdivision freight tracks and the existing tracks would be relocated to the west side of the ROW. South of Ardine Street, the alignment would transition to an aerial structure to cross over the existing UPRR tracks and Atlantic Avenue. The proposed Firestone Station would be located on an aerial structure between Atlantic Avenue and Florence Boulevard.

The alignment would then cross over Firestone Boulevard and transition back to an at-grade configuration prior to crossing Rayo Avenue at-grade. The alignment would continue south along the San Pedro Subdivision ROW, crossing Southern Avenue at-grade and continuing at-grade until it transitions to an aerial configuration to cross over the LA River. The proposed LRT bridge would be constructed next to the existing freight bridge. South of the LA River, the alignment would transition to an at-grade configuration crossing Frontage Road at-grade, then passing under the I-710 freeway through the existing box tunnel structure and then crossing Miller Way. The alignment would then return to an aerial structure to cross the Rio Hondo Channel. South of the Rio Hondo Channel, the alignment would briefly transition back to an at-grade configuration and then return to an aerial structure to cross over Imperial Highway and Garfield Avenue. South of Garfield Avenue, the alignment would transition to an at-grade configuration and serve the proposed Gardendale Station north of Gardendale Street.

From the Gardendale Station, the alignment would continue south in an at-grade configuration, crossing Gardendale Street and Main Street to connect to the proposed I-105/C Line Station, which would be located at-grade north of Century Boulevard. This station would be connected to the new infill C (Green) Line Station in the middle of the freeway via a pedestrian walkway on the new LRT bridge. The alignment would continue at-grade, crossing Century Boulevard and then over the I-105 freeway in an aerial configuration within the existing San Pedro Subdivision ROW bridge footprint. A new Metro C (Green) Line Station would be constructed in the median of the I-105 freeway. Vertical pedestrian access would be provided from the LRT bridge to the proposed I-105/C Line Station platform via stairs and elevators. To accommodate the construction of the new station platform, the existing Metro C (Green) Line tracks would be widened and, as part of the I-105 Express Lanes Project, the I-105 lanes would be reconfigured. (The I-105/C Line Station would serve as the northern terminus for Alternative 4; refer to Section 2.3.5 for additional information on this alternative.)

South of the I-105 freeway, the alignment would continue at-grade within the San Pedro Subdivision ROW. In order to maintain freight operations and allow for freight train crossings, the alignment would transition to an aerial configuration as it turns southeast and enter the PEROW. The existing freight track would cross beneath the aerial alignment and align on the north side of the PEROW east of the San Pedro Subdivision ROW. The proposed Paramount/Rosecrans Station would be located in an aerial configuration west of Paramount Boulevard and north of Rosecrans Avenue. The existing freight track would be relocated to the east side of the alignment beneath the station viaduct.

The alignment would continue southeast in an aerial configuration over the Paramount Boulevard/Rosecrans Avenue intersection and descend to an at-grade configuration. The alignment would return to an aerial configuration to cross over Downey Avenue descending back to an at-grade configuration north of Somerset Boulevard. One of the adjacent freight storage tracks at Paramount Refinery Yard would be relocated to accommodate the new LRT tracks and maintain storage capacity. There are no active freight tracks south of the World Energy facility.

The alignment would cross Somerset Boulevard at-grade. South of Somerset Boulevard, the at-grade alignment would parallel the existing Bellflower Bike Trail that is currently aligned on the south side of the PEROW. The alignment would continue at-grade crossing Lakewood Boulevard, Clark Avenue, and Alondra Boulevard. The proposed at-grade Bellflower Station would be located west of Bellflower Boulevard.

East of Bellflower Boulevard, the Bellflower Bike Trail would be realigned to the north side of the PEROW to accommodate an existing historic building located near the southeast corner of Bellflower Boulevard and the PEROW. It would then cross back over the LRT tracks at-grade to the south side of the ROW. The LRT alignment would continue southeast within the PEROW and transition to an aerial configuration at Cornuta Avenue, crossing over Flower Street and Woodruff Avenue. The alignment would return to an at-grade configuration at Walnut Street. South of Woodruff Avenue, the Bellflower Bike Trail would be relocated to the north side of the PEROW. Continuing southeast, the LRT alignment would cross under the SR-91 freeway in an existing underpass. The alignment would cross over the San Gabriel River on a new bridge, replacing the existing abandoned freight bridge. South of the San Gabriel River, the alignment would transition back to an at-grade configuration before crossing Artesia Boulevard at-grade.

East of Artesia Boulevard the alignment would cross beneath the I-605 freeway in an existing underpass. Southeast of the underpass, the alignment would continue at-grade, crossing Studebaker Road. North of Gridley Road, the alignment would transition to an aerial configuration to cross over 183rd Street and Gridley Road. The alignment would return to an at-grade configuration at 185th Street, crossing 186th Street and 187th Street at-grade. The at-grade alignment would then pass through the proposed Pioneer Station on the west side of Pioneer Boulevard south of 187th Street. Tail tracks accommodating layover storage for a three-car train would extend approximately 1,000 feet south from the station, crossing Pioneer Boulevard and terminating west of South Street.

2.3.3 Alternative 2

The total alignment length of Alternative 2 would be approximately 19.3 miles, consisting of approximately 2.3 miles of underground, 12.3 miles of at-grade, and 4.7 miles of aerial alignment. Alternative 2 would include 12 new LRT stations, 3 of which would be underground, 6 would be at-grade, and 3 would be aerial. Five of the stations would include parking facilities, providing a total of approximately 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 2 aerial freeway crossings, 1 underground freeway crossing, 3 river crossings, 25 aerial road crossings, and 10 freight crossings.

In the north, Alternative 2 would begin at the proposed WSAB 7th Street/Metro Center Station, which would be located underground beneath 8th Street between Figueroa Street and Flower Street. A pedestrian tunnel would provide connection to the existing 7th Street/Metro Center Station. Tail tracks, including a double crossover, would extend approximately 900 feet beyond the station, ending east of the I-110 freeway. From the 7th Street/Metro Center Station, the underground alignment would proceed southeast beneath 8th Street to the South Park/Fashion District Station, which would be located west of Main Street beneath 8th Street.

From the South Park/Fashion District Station, the underground alignment would continue under 8th Street to San Pedro Street, where the alignment would turn east toward 7th Street, crossing under privately owned properties. The tunnel alignment would cross under 7th Street and then turn south at Alameda Street. The alignment would continue south beneath Alameda Street to the Arts/Industrial District Station located under Alameda Street between 7th Street and Center Street. A double crossover would be located south of the station box, south of Center Street. From this point, the alignment of Alternative 2 would follow the same alignment as Alternative 1, which is described further in Section 2.3.2.

2.3.4 Alternative 3

The total alignment length of Alternative 3 would be approximately 14.8 miles, consisting of approximately 12.2 miles of at-grade, and 2.6 miles of aerial alignment. Alternative 3 would include 9 new LRT stations, 6 would be at-grade and 3 would be aerial. Five of the stations would include parking facilities, providing a total of approximately 2,780 new parking spaces. The alignment would include 31 at-grade crossings, 3 freeway undercrossings, 1 aerial freeway crossing, 3 river crossings, 15 aerial road crossings, and 9 freight crossings. In the north, Alternative 3 would begin at the Slauson/A Line Station and follow the same alignment as Alternatives 1 and 2, described in Section 2.3.2.

2.3.5 Alternative 4

The total alignment length of Alternative 4 would be approximately 6.6 miles, consisting of approximately 5.6 miles of at-grade and 1.0 mile of aerial alignment. Alternative 3 would include 4 new LRT stations, 3 would be at-grade, and 1 would be aerial. Four of the stations would include parking facilities, providing a total of approximately 2,180 new parking spaces. The alignment would include 11 at-grade crossings, 2 freeway undercrossings, 1 aerial freeway crossing, 1 river crossing, 7 aerial road crossings, and 2 freight crossings. In the north, Alternative 4 would begin at the I-105/C Line Station and follow the same alignment as Alternatives 1, 2, and 3, described in Section 2.3.2.

2.3.6 Design Options

Alternative 1 includes two design options:

- **Design Option 1:** LAUS at the Metropolitan Water District (MWD) – The LAUS station box would be located east of LAUS and the MWD building, below the baggage area parking facility instead of beneath the LAUS Forecourt. Crossovers would be located on the north and south ends of the station box with tail tracks extending approximately 1,200 feet north of the station box. From LAUS, the underground alignment would cross under the US-101 freeway and the existing Metro L (Gold) Line aerial structure and continue south beneath Alameda Street to the optional Little Tokyo Station between Traction Avenue and 1st Street. The underground alignment between LAUS and the Little Tokyo Station would be located to the east of the base alignment.
- **Design Option 2:** Add the Little Tokyo Station – Under this design option, the Little Tokyo Station would be constructed as an underground station and there would be a direct connection to the Regional Connector Station in the Little Tokyo community. The alignment would proceed underground directly from LAUS to the Arts/Industrial District Station primarily beneath Alameda Street.

2.3.7 Maintenance and Storage Facility

MSFs accommodate daily servicing and cleaning, inspection and repairs, and storage of light rail vehicles (LRV). Activities may take place in the MSF throughout the day and night depending upon train schedules, workload, and the maintenance requirements.

Two MSF options are evaluated; however, only one MSF would be constructed as part of the Project. The MSF would have storage tracks, each with sufficient length to store three-car train sets and a maintenance-of-way vehicle storage. The facility would include a main shop building with administrative offices, a cleaning platform, a traction power substation (TPSS), employee parking, a vehicle wash facility, a paint and body shop, and other facilities as needed. The east and west yard leads (i.e., the tracks leading from the mainline to the facility) would have sufficient length for a three-car train set. In total, the MSF would need to accommodate approximately 80 LRVs to serve the Project's operations plan.

Two potential locations for the MSF have been identified—one in the City of Bellflower and one in the City of Paramount. These options are described further in the following sections.

2.3.8 Bellflower MSF Option

The Bellflower MSF site option is bounded by industrial facilities to the west, Somerset Boulevard and apartment complexes to the north, residential homes to the east, and the PEROW and Bellflower Bike Trail to the south. The site is approximately 21 acres in area and can accommodate up to 80 vehicles (Figure 2-7).

2.3.9 Paramount MSF Option

The Paramount MSF site option is bounded by the San Pedro Subdivision ROW on the west, Somerset Boulevard to the south, industrial and commercial uses on the east, and All-American City Way to the north. The site is 22 acres and could accommodate up to 80 vehicles (Figure 2-7).

Figure 2-7. Maintenance and Storage Facility Options

Source: WSP, 2020

3 REGULATORY FRAMEWORK

3.1 Federal

The Federal Clean Air Act (CAA) governs air quality at the national level and the United States Environmental Protection Agency (USEPA) is responsible for enforcing the regulations provided in the CAA. Under the CAA, the USEPA is authorized to establish National Ambient Air Quality Standards (NAAQS) that set protective limits on concentrations of air pollutants in ambient air. Enforcement of the NAAQS is required under the 1977 CAA and subsequent amendments. The USEPA also regulates emission sources that are under the exclusive authority of the federal government, such as aircrafts, ships, and certain types of locomotives. The USEPA has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California.

As required by the CAA, NAAQS have been established for the seven criteria air pollutants: CO, O_3, NO_2, PM_{10}, $PM_{2.5}$, SO_2, and Pb. These pollutants are common byproducts of human activities and have been documented through scientific research to cause adverse health effects. The CAA grants the USEPA authority to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been met on a regional scale. The NAAQS are summarized in Table 3.1. As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas 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, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

In September 2019, the USEPA passed the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule Part One, which revoked California's authority to set state-specific fuel efficiency standards and zero-emission vehicle (ZEV) sales goals in future years. Beginning in 2021, previously applicable statewide requirements for ZEV sales and fuel efficiency that were incorporated into EMFAC2017 will be rescinded, rendering the default EMFAC2017 database emission factors for future years potentially inaccurate. To account for the regulatory change, CARB published off-model adjustment factors for emissions from light- and medium-duty autos and trucks (CARB 2019) that were approved by USEPA in March 2020. The adjustment factors apply to exhaust emissions of total organic gases (TOG), excluding carbon dioxide, methane, and other exempt compounds), nitrogen oxides (NO_X), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$).

3.2 State

Air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). The CCAA is administered by the California Air Resources Board (CARB) at the state level and by the Air Quality Management District at the regional and local levels. The CCA requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest feasible date. The CAAQS are summarized in Table 3.1.

Table 3.1. State and National Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	--
	8-Hour	0.07 ppm (137 µg/m^3)	0.07 ppm (137 µg/m^3)
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8-Hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm (339 µg/m^3)	0.10 ppm (188 µg/m^3)
	Annual Average	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2)	1-Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)
	24-Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (180 µg/m^3)
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	150 µg/m^3
	Annual Average	20 µg/m^3	--
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	--	35 µg/m^3
	Annual Average	12 µg/m^3	12 µg/m^3
Lead (Pb)	30-Day Average	1.5 µg/m^3	--
	3-Month Average	--	0.15 µg/m^3
Visibility Reducing Particles	8-Hour	extinct 0.23 per kilometer	No National Standard
Sulfates	24-Hour	25 µg/m^3	No National Standard
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	No National Standard
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	No National Standard

Source: CARB, 2018.

The CARB, a department of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, designates the CAAQS, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CARB also establishes emissions standards for motor vehicles sold in California, consumer products (i.e. hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The CARB's statewide comprehensive air toxics program was established in the early 1980s. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, the CARB is required to prioritize the identification and control of air toxics emissions. In selecting substances for review, the CARB must consider criteria relating to the risk of harm to public health, such as the amount or potential amount of emissions, manner of and exposure to usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community. The Toxic Air Contaminant Identification and Control Act

also requires CARB to use available information gathered from the Air Toxics Hot Spots Information and Assessment Act to include in the prioritization of compounds.

The CARB classified particulate emissions from diesel-fueled engines (diesel PM) as TACs in August 1998. Following the identification process, the CARB was required by law to determine if there was a need for further control, which led to the risk management phase of the program. For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines.

The Diesel Advisory Committee approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase. During the control measure phase, specific statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

3.3 Regional

3.3.1 Southern California Association of Governments

While Southern California is a leader in reducing emissions and ambient levels of air pollutants are improving, the SCAG region continues to have the worst air quality in the nation (SCAQMD 2017). The SCAG region encompasses six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura) and 191 cities in an area covering more than 38,000 square miles. On April 7, 2016, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which includes policies that promote actions to help the region confront congestion and mobility issues and consequently improve air quality (SCAG 2016).

3.3.2 South Coast Air Quality Management District

The SCAQMD was created to coordinate air quality planning efforts throughout Southern California. The SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing and enforcing programs designed to attain and maintain state and federal ambient air quality standards. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and ensuring that new, modified or relocated stationary sources do not create net emission increases.

The SCAQMD monitors air quality within the Project area. The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of the Basin and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subregion of the SCAQMD's jurisdiction and covers an area of 6,745 square miles, including all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel Mountains, San Bernardino and San Jacinto Mountains to the north and east; and the San Diego County line to the south.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources to meet state and federal ambient air quality standards. The agency has fulfilled this requirement by preparing a series of Air Quality Management Plans (AQMPs). The most recent of these—the 2016 AQMP—was adopted by the Governing Board of the SCAQMD on March 3, 2017. The 2016 AQMP was prepared to comply with the state and federal CAAs and amendments, to accommodate growth, to reduce the high levels of pollutants in the Basin, to meet state and federal AAQS, and to minimize the fiscal impact that pollution control measures have on local economies.

The 2016 AQMP represents a thorough analysis of existing and potential regulatory control options, includes available, proven, and cost-effective strategies, and seeks to achieve multiple goals in partnerships with other entities promoting efficiencies in energy use, transportation, and goods movement. The document incorporates projections of regional growth from the 2016–2040 RTP/SCS pertaining to population, housing, employment, and vehicle travel within the Basin into its prescriptive approach for reducing regional air pollution. The 2016 AQMP includes both stationary and mobile source strategies to address the challenge of reducing NO_X emissions sufficiently to meet the approaching O_3 NAAQS deadlines.

The SCAQMD has a long and successful history of reducing air toxics and criteria emissions in the Basin. SCAQMD has an extensive control program, including traditional and innovative rules and policies. These policies can be viewed in the SCAQMD's *Air Toxics Control Plan for the Next Ten Years* (2000). To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study IV (MATES-IV), conducted by the SCAQMD. The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which the SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data.

MATES-IV found that the cancer risk in the region from carcinogenic air pollutants ranges from about 400 to 1,600 in a million, and along the Project corridor ranges between 1,000–1,500 per million. About 90 percent of the risk is attributed to emissions associated with mobile sources, with the remainder attributed to toxics emitted from stationary sources, which include large industrial operations, such as refineries and metal processing facilities, as well as smaller businesses such as gas stations and chrome plating. The results indicate that diesel PM is the major contributor to air toxics risk, accounting on average for about 68 percent of the total risk.

All projects in the SCAQMD jurisdiction are subject to SCAQMD rules and regulations, including, but not limited to the following:

Rule 401 Visible Emissions – This rule prohibits an air discharge that results in a plume that is as dark as or darker than what is designated as No. 1 Ringelmann Chart by the United States Bureau of Mines for an aggregate of three minutes in any one hour.

Rule 402 Nuisance – This rule prohibits the discharge of "such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of people or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."

Rule 403 Fugitive Dust – This rule requires that future projects reduce the amount of particulate matter entrained in the ambient air as a result of fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions from any active operation, open storage pile, or disturbed surface area.

Rule 1113 Architectural Coatings – This rule limits VOC in architectural coatings used in the SCAQMD jurisdiction. These limits are application-specific and are updated as availability of low-VOC products expands.

Rule 1168 Adhesive and Sealant Applications – This rule reduces emissions of VOCs and eliminates emissions of chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene from the application of adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers.

Regulation XIII New Source Review – This regulation contains Rules 1300 through 1325, which sets forth pre-construction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the NAAQS, and that future growth within SCAQMD is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors.

3.3.3 Los Angeles County Metropolitan Transportation Authority

Metro recently implemented several policies and plans aimed at improving system-wide sustainability and minimizing detrimental air quality and climate change impacts from operations and new projects, collectively overseen by the Countywide Sustainability Planning Program. These plans and policies constitute the framework for the Metro Climate Action and Adaptation Plan, which is Metro's foundation for its Sustainability Implementation Plan. Strategies for achieving the objectives set forth in the Metro Climate Action and Adaptation Plan were analyzed in the Metro Energy and Resource Report. The Metro policies and plans that most directly apply to reducing emissions of air pollutants that would result from implementation of the Project include the Construction Demolition Debris Recycling and Reuse Policy, Environmental Policy, and the Green Construction Policy, all of which are incorporated into the Metro Countywide Sustainability Planning Policy and Implementation Plan.

Metro published its Construction and Demolition Debris Recycling and Reuse Policy (GEN 51) to encourage responsible practices that will enhance reliance on recyclable and recycled products and reduce environmental impacts from waste disposal in landfills. The policy dictates that Metro must give preference to recyclable and recycled products in the selection of construction materials to the maximum extent feasible during design and construction of proposed projects, as well as mandating that Metro shall not use any landfill or recycling facility that does not present and maintain acceptable documentation indicating their legitimacy for disposal or diversion purposes. Construction debris or wastes that cannot be recycled or reused on site shall be manifested, transported, and disposed to the most appropriate facility. Metro shall ensure that any material used in the design or construction of all structures would not adversely affect the performance, safety or the environment of the transportation system.

Metro's Environmental Policy was prepared to provide guidance in identifying potential environmental impacts generated by: development activities and developing mitigation measures to address those impacts; operating and maintaining Metro vehicles and facilities

to minimize negative impacts on the environment; reducing consumption of natural resources; and reducing and/or diverting the amount of solid waste going to landfills. Metro is committed to planning and constructing projects and operating and maintaining facilities and vehicles in a manner that will protect human health and the environment.

Strategies outlined in the Environmental Policy to reduce air quality impacts include, but are not limited to: compliance with all environmental, federal, state, and local laws and regulations; restoration of the environment by providing mitigation, corrective action, and monitoring to ensure that environmental commitments are implemented; avoidance of environmental degradation by minimizing releases to air, water, and land; prevention of pollution and conservation of resources by reducing waste and reusing materials; and ensuring that the planning, design, construction and operation of facilities and services consider environmental protection and sustainable features.

Metro adopted the Green Construction Policy in 2011 to reduce environmental impacts from construction activities associated with Metro projects. The policy provides requirements for identifying and mitigating air emission impacts on human health, the environment, and the climate of on-road and off-road construction equipment and generators used in construction and development activities; implementing appropriate Best Management Practices (BMPs) to complement equipment mitigations; and implementing strategies to ensure compliance with applicable rules and regulations.

The Green Construction Policy includes requirements for off-road construction equipment to meet Tier 4 off-road emission standards where feasible or be outfitted with Best Available Control Technology (BACT) devices certified by CARB; on-road heavy-duty diesel trucks or equipment with a gross vehicle weight rating of 19,500 pounds or greater to comply with USEPA 2007 on-road emission standards for PM and NO_X; and for the utilization of grid-based electric power at any construction site where feasible.

BMPs in the Green Construction policy include, but are not limited to: maintaining equipment according to manufacturer's specifications; restricting idling of construction equipment and on-road heavy-duty trucks to a maximum of five minutes when not in use; use of diesel particulate traps or BACT as feasible; configuration of haul routes to conform to local requirements to minimize traversing through congested streets, near sensitive receptor areas, and during peak traffic periods; and limiting traffic speeds on unpaved roads to less than 15 miles per hour.

3.4 Local

3.4.1 City of Los Angeles

The principal objective of the Air Quality Element of the Los Angeles General Plan is to aid the region in attaining the state and federal ambient air quality standards while continuing economic growth and improvement in the quality of life afforded to City residents. The Air Quality Element also documents how the City will implement local programs contained in the General Plan. Goals, objectives, and policies of the Air Quality Element applicable to the Project are listed in Table 3.2.

Table 3.2. City of Los Angeles General Plan – Relevant Air Quality Goals, Objectives and Policies

Goal/Objective/Policy	Description
Goal 1	Good air quality and mobility in an environment of continued population growth and healthy economic structure.
Objective 1.1	It is the objective of the City of Los Angeles to reduce air pollutants consistent with the regional AQMP, increase traffic mobility, and sustain economic growth.
Objective 1.3	It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas, parking lots, and construction sites.
Policy 1.3.1	Minimize particulate matter emissions from construction sites.
Goal 3	Efficient management of transportation facilities and system infrastructure using cost effective system management and innovative demand management techniques.
Objective 3.2	It is the objective of the City of Los Angeles to reduce vehicular traffic during peak periods.
Policy 3.2.1	Manage traffic congestion during peak periods.
Goal 4	Minimize impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.
Objective 4.1	It is the objective of the City of Los Angeles to include the regional attainment of ambient air quality standards as a primary consideration in land use planning.
Policy 4.1.1	Coordinate with all appropriate regional agencies the implementation of strategies for the integration of land use, transportation, and air quality policies.
Objective 4.2	It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.
Policy 4.2.1	Revise the City's General Plan/Community Plans to achieve a more compact, efficient urban form and to promote more transit-orientated development and mixed-use development.
Policy 4.2.2	Improve accessibility for the City's residents to places of employment, shopping centers and other establishments.
Policy 4.2.3	Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.
Policy 4.2.5	Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.

Source: City of Los Angeles, *Air Quality Element of the General Plan*, November 24, 1992.

3.4.2 City of Vernon

The City of Vernon General Plan was adopted in 2007 and most recently amended in 2015. The Resources Element of the General Plan acknowledges that reducing VMT is a key approach to reducing air pollutant emissions and improving air quality. Table 3.3 briefly summarizes the policies of the Resources Element pertaining to air quality that are relevant to the Project.

Table 3.3. City of Vernon General Plan – Relevant Air Quality Goals and Policies

Goal/Objective/Policy	Description
Goal R-2	Contribute to the continued gradual improvement of air quality in the South Coast Air Basin.
Policy R-2.1	Coordinate and cooperate with the SCAQMD and SCAG in efforts to implement the regional AQMP.
Policy R-2.2	Encourage and facilitate the use of public transportation to reduce emissions associated with automobile use.
Policy R-2.5	Consult with the Gateway Cities Council of Governments, regional planning agencies, and surrounding municipalities to coordinate land use, circulation, and infrastructure improvement projects.

Source: City of Vernon, *General Plan*, amended April 2015.

3.4.3 City of Huntington Park

The City of Huntington Park published a General Plan in 1992, which contained an Open Space and Conservation Element that addressed air quality issues and considerations. The Open Space and Conservation Element established the goal of reducing air pollution through land use, transportation, and energy planning. Table 3.4 identifies the policies within the General Plan that relate to the Project.

Table 3.4. City of Huntington Park General Plan – Relevant Air Quality Goals and Policies

Goal/Objective/Policy	Description
Goal 1.0 (Air Quality)	Reduce air pollution through land use, transportation, and energy use planning.
Policy 1.1	Endorse regional and local air quality and transportation management plans in order to reduce air pollution emissions and vehicular trips.
Policy 1.7	Encourage the improvement of existing, and the development of new, shuttle and transit systems to reduce vehicular trips and air pollution.
Goal 4.0 (Public Transportation)	To support the use of the public transportation system to provide mobility to all City residents and encourage use of public transportation as an alternate to automobile travel.
Policy 4.4	Ensure accessibility of elderly and disabled persons to public transportation.
Policy 4.6	Encourage employers to reduce vehicular trips by offering employees incentives such as reduced rate transit passes.

Source: City of Huntington Park, *General Plan*, February 1992.

3.4.4 Los Angeles County

The *Los Angeles County General Plan 2035*, adopted in October 2015, provides the policy framework and establishes the long-range vision for how and where the unincorporated areas of the county will grow. The *Los Angeles County General Plan 2035* includes the Air Quality Element. Table 3.5 summarizes the Goals and Polices outlined in the Air Quality Element that are designed to reduce emissions within LA County as consistent with the AQMP and are directly relevant to the Project.

Table 3.5. Los Angeles County General Plan – Relevant Air Quality Goals and Policies

Goal/Objective/Policy	Description
Goal AQ 2	The reduction of air pollution and mobile source emissions through coordinated land use, transportation and air quality planning.

Source: Los Angeles County, *General Plan 2035*, October 2015.

3.4.5 City of Bell

The City of Bell published an updated General Plan in 2010; however, no updates to the Air Quality discussion within the Open Space/Conservation/Recreation Element were made since its original publication in 1996. The document acknowledges that the City of Bell is largely residential, and that local sources of air pollution consist mainly of vehicle trips to and from the City. The City of Bell adheres to SCAQMD and state regulations pertaining to air pollutant emissions and energy efficiency standards but does not have any City-specific regulations.

3.4.6 City of Cudahy

The City of Cudahy adopted its General Plan in 2010. The Cudahy General Plan contains a section dedicated to the Air Quality Element. The Air Quality Element identified the following challenges that the City faces in propagating efforts to improve air quality: Person Work Trip Reduction, Truck Programs, Parking Management, Growth Management, Energy Consumption, Particulate Emissions, Building and Operational Emissions, Intergovernmental Cooperation, Public Education, and City Programs. Table 3.6 summarizes the Goals and Policies outlined in the Air Quality Element that are designed to reduce emissions within the City of Cudahy, as consistent with the AQMP, and are directly relevant to the Project.

Table 3.6. City of Cudahy General Plan – Relevant Air Quality Goals and Policies

Goal/Objective/Policy	Description
AQ Element Goal 1	The City of Cudahy will reduce automobile use.
AQ Element Policy 1.2	The City of Cudahy will support trip-reduction programs.
AQ Element Policy 1.5	The City of Cudahy will encourage development of a Transportation Management Association in Cudahy to serve public and private employees.
AQ Element Goal 3	The City of Cudahy will reduce vehicle emissions through greater use of public transportation.
AQ Element Policy 3.1	The City of Cudahy will enhance transit performance and availability and make the local transit system user-friendly by providing safe, attractive places to wait.
AQ Element Policy 3.2	The City of Cudahy will facilitate connections of the Cudahy Area Rapid Transit (CART) to regional transit.
AQ Element Policy 3.3	The City of Cudahy will ensure that information on public transit is readily available to Cudahy residents and employees.
AQ Element Policy 3.4	The City of Cudahy will ensure that new development incorporates features that facilitate transit.

Goal/Objective/Policy	Description
AQ Element Goal 8	The City of Cudahy will reduce fugitive dust emissions.
AQ Element Policy 8.1	The City of Cudahy will require all feasible fugitive dust reduction techniques be utilized during construction activities.

Source: City of Cudahy, *General Plan Air Quality Element*, September 2010.

3.4.7 City of South Gate

The City of South Gate published its General Plan 2035 in 2009 to serve as a roadmap for guiding development within the city over the ensuing 25 years. The General Plan 2035 includes a Healthy Community Element that addresses air quality challenges and outlines approaches to reduce emissions. The approaches incorporate policies that are evaluated in the Community Design and Mobility Elements of the General Plan as well. Table 3.7 summarizes the objectives, goals, and policies that are pertinent to implementation of the Project.

Table 3.7. City of South Gate General Plan – Relevant Air Quality Goals, Objectives and Policies

Goal/Objective/Policy	Description
Goal HC 7	High levels of air quality and improved respiratory health throughout the City.
Objective HC 7.1	Establish land use patterns that reduce driving, enhance air quality, and improve respiratory health.
P.1	Strategies in the Community Design Element that reduce driving rates and improve air quality through land use and urban design will be implemented by the City and other responsible parties. These strategies include transit-oriented development, compact development, and an appropriate mix of land uses.
Objective HC 7.2	Encourage and enable transportation behavior that improves air quality and respiratory health.
P.1	The City will implement strategies in the Mobility Element that improve air quality through transportation. These include multi-modal transit, reduction of VMT through Transportation Demand Management (TDM), and improved bicycle and pedestrian facilities.
P.6	The City will collaborate with transportation agencies, utilities, and developers to minimize fugitive dust from construction and maintenance activities.
P.8	Promote and support transit improvements or facilities that are powered by electricity, alternative fuels, or that meet or exceed low emissions vehicle standards.
Objective HC 7.5	Promote measures that will be effective in reducing emissions during construction activities.
P.1	Ensure that construction activities follow SCAQMD rules and regulations.
P.2	All construction equipment for public and private projects will also comply with CARB vehicle standards.

Goal/Objective/Policy	Description
P.3	Project proponents will be required to prepare and implement a Construction Management Plan which will include Best Available Control Measures among others.
Goal ME 2	Provide a multi-modal transportation environment in the City that provides transportation choices.
Objective ME 2.2	Improve local and regional transit service.
P.1	Work with Metro to improve the coverage of transit service in South Gate, by providing transit routes that more directly serve residential neighborhoods.
P.2	Encourage Metro to enhance regional transit connections in South Gate through additional routes and increased service frequency.
P.7	Encourage and support all potential rail transit serving the City.
P.8	Actively promote the use of transit within the City.

Source: City of South Gate, *General Plan 2035*, December 2009.

3.4.8 City of Downey

The City of Downey prepared its Vision 2025 General Plan in 2005. The Conservation Chapter of the General Plan contains a subsection dedicated to air quality issues and challenges faced by the City. Table 3.8 provides an overview of the goals, policies, and programs outlined in the General Plan that are relevant to the Project.

Table 3.8. City of Downey General Plan – Relevant Air Quality Goals, Policies, and Programs

Goal/Objective/Policy	Description
Goal 4.5	Encourage activities that improve air quality.
Policy 4.5.1	Pursue every available means and opportunity to reduce air particulates and pollutants within the city and region.
Program 4.5.1.1	Coordinate with other agencies, including transit agencies and regional agencies, in their efforts to implement the regional AQMP and otherwise improve air quality.
Program 4.5.1.4	Encourage alternative modes of travel to vehicle use.
Policy 4.5.2	Improve air quality through land use decisions.
Program 4.5.2.2	Reduce the number and length of vehicle trips by promoting the provision of services needed by residents locally.

Source: City of Downey, *General Plan – Conservation Chapter*, January 2005.

3.4.9 City of Paramount

No specific air quality plans or regulations have been published or adopted by the City of Paramount.

3.4.10 City of Bellflower

No specific air quality plans or regulations have been published or adopted by the City of Bellflower.

3.4.11 City of Artesia

The City of Artesia updated its General Plan in 2014, and a portion of the document is devoted to Air Quality and Climate Change. The Air Quality and Climate Change Sub-Element is intended to aid the City of Artesia in protecting public health and welfare by implementing the measures that allow the region to attain the AAQS. The Sub-Element describes the stationary, point, and mobile sources of air pollutant emissions within the City of Artesia and outlines Community Goals, Policies, and Action items to reduce emissions. The relevant goals, policies, and action items are shown in Table 3.9.

Table 3.9. City of Artesia General Plan – Relevant Air Quality Goals, Policies, and Actions

Goal/ Objective/Policy	Description
Community Goal AQ 1	City air resources are protected and upgraded to promote consistent attainment of regional air quality standards.
Community Policy AQ 1.1	Work with community and regional partners to reduce the number of unhealthy air quality days per year based on an established baseline.
Policy Action AQ 1.1.1	Promote and participate in cooperative efforts with agencies and communities in the South Coast Air Basin to achieve clean air.
Policy Action AQ 1.1.2	Continue to implement the provisions of the Transportation Demand Management Ordinance.
Community Policy AQ 1.2	Increase awareness and participation throughout the community in efforts to reduce air pollution and enhance air quality.
Policy Action AQ 1.2.1	Promote and encourage ridesharing activities within the community.
Policy Action AQ 1.2.2	Encourage, publicly recognize, and reward innovative approaches that improve air quality.
Community Policy AQ 1.3	Strive to reduce particulate matter emissions from paved and unpaved roads, parking lots, and building construction.
Policy Action AQ 1.3.1	Continue to enforce procedures that control dust from building demolition, grading, and construction activities.
Policy Action AQ 1.3.2	Support programs that reduce emissions from building materials and methods that generate excessive pollutants through incentives and/or regulations.
Community Goal AQ 2	The City's greenhouse gas and toxic air contaminant emissions are reduced.
Community Policy AQ 2.1	Encourage and, where feasible, mandate the implementation of best practices towards reducing greenhouse gas emissions.
Policy Action AQ 2.1.1	Encourage alternate modes of transportation, including but not limited to light rail, vanpooling, carpooling, pedestrian walkways, and bicycling.
Policy Action AQ 2.1.2	Encourage alternative commute patterns.
Policy Action AQ 2.1.5	Coordinate efforts to increase pedestrian activity through improvements that make walking more safe, convenient, and enjoyable, including sidewalks, accessibility ramps, benches, traffic-calming measures, landscaping, and convenient and safe transit stops.
Policy Action AQ 2.1.6	Coordinate with regional agencies to provide convenient access to commuter-rail and other transit opportunities.

Source: City of Artesia, General Plan Air Quality and Climate Change Sub-Element, 2014.

3.4.12 City of Cerritos

The City of Cerritos prepared a General Plan in 2004 that contains an Air Quality Element. In addition to providing a background discussion on the air quality setting and regulatory framework, the Air Quality Element outlines Planning Factors, Goals, and Policies to address air pollution within the City. Table 3.10 presents the goals and policies that are relevant to the Project.

Table 3.10. City of Cerritos General Plan – Relevant Air Quality Goals and Policies

Goal/Objective/Policy	Description
Goal AQ-1	Reduce air pollution through proper land use and regulatory planning.
Policy AQ-1.1	Cooperate with the SCAQMD, Gateway Cities Council of Governments, and the SCAG in their effort to implement provisions of the region's Air Quality Management Plan.
Policy AQ-1.2	Cooperate and participate in regional air quality management plans, programs, and enforcement measures.
Policy AQ-1.3	Reduce air pollutant emissions by mitigating air quality impacts associated with development projects to the greatest extent feasible.
Goal AQ-2	Improve air quality by reducing the amount of vehicular emissions in Cerritos.
Policy AQ-2.2	Encourage employer rideshare and transit incentives programs by local businesses within the community.
Goal AQ-3	Reduce particulate emissions to the greatest extent feasible.
Policy AQ-3.1	Adopt incentives, regulations, and/or procedures to minimize particulate emissions from grading operations and building construction.
Goal AQ-4	Reduce emissions through reduced energy consumption.
Policy AQ-4.2	Promote local recycling of wastes and the use of recycled materials.
Goal CIR-8	Strive to achieve a public transportation system that serves the needs of the community, is accessible to all and is a viable alternative to the single occupant vehicle.
Policy CIR-8.2	Promote an increase in the use of public transit and para-transit services.
Policy CIR-8.4	Review new developments to include accommodations for Transportation Demand Management (TDM) programs, including public transportation and parking management.
Policy CIR-8.5	Integrate transit routes and stops into highway, pedestrian, and bicycle circulation network.
Policy CIR-8.6	Participate in local and regional transit system/commuter-rail/TDM planning and implementation activities to improve connections between the systems and ease of use of systems.

Source: City of Cerritos, *General Plan,* January 2004.

4 AFFECTED ENVIRONMENT/EXISTING CONDITIONS

4.1 Regional Air Quality Conditions

The CAA grants the USEPA authority to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether representative pollutant concentrations within the area have consistently been measured below the NAAQS. The Basin represents the Affected Area at the regional scale because all sources of emissions associated with construction and operations would be located within it, and the designation status of the LA County portion is most representative of regional air quality conditions. The USEPA has classified the LA County portion of the Basin as a nonattainment area for O_3, $PM_{2.5}$ and Pb and a maintenance area for PM_{10} and CO. Table 4.1 presents the federal attainment status of the LA County portion of the Basin for each of the criteria pollutant standards.

Table 4.1. State and National Attainment Status for Criteria Pollutant Standards – Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: SCAQMD, 2017.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment. The LA County portion of the Basin is designated as a CAAQS nonattainment area for O_3, $PM_{2.5}$ and PM_{10}. LA County is in attainment of the CAAQS for sulfates and hydrogen sulfide, although it is not presented in Table 4.1.

4.2 Local Air Quality Conditions

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 Source Receptor Areas (SRAs), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 43 air monitoring sites that are used to characterize air quality within the 38 SRAs. The proposed LRT corridor transects portions of SRA 1 (Central Los Angeles County), SRA 12 (South Central Los Angeles County), SRA 5 (Southeast Los Angeles County), and SRA 4 (South Coastal Los Angeles County) from north to south. The following discussions address pollutant concentrations measured at stations along the Project alignment.

The Northern Section of the Project is entirely located within SRA 1 (Central Los Angeles County), which includes all of downtown Los Angeles and extends southward to Slauson Avenue and eastward to Interstate (I)-710, encompassing portions of the cities of Los Angeles, South Park, Vernon, and Huntington Park. Air quality conditions in SRA 1 are characterized by concentrations of air pollutants measured at the Los Angeles – North Main Street (LA-NMS) monitoring site located in downtown Los Angeles. The LA-NMS site actively measures and records concentrations of O_3, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$.

Table 4.2 displays the air quality data recorded at the LA-NMS monitoring site between 2015 and 2017. Concentrations of O_3, PM_{10}, and $PM_{2.5}$ measured at the LA-NMS site exceeded applicable state and federal AAQS during the period from 2015 to 2017. Concentrations of CO, NO_2, and SO_2 remained below the applicable air quality standards. The air monitoring data are demonstrative of the nonattainment status designations for the County.

The Southern Section is predominantly situated within SRA 12 South Central Los Angeles County, SRA 5 Southeast Los Angeles County, and SRA 4 South Coastal Los Angeles County. SRA 12 (South Central Los Angeles County) extends southward from Slauson Avenue to State Route 91 and is bordered by I-110 on the western edge and I-710 on the eastern edge. SRA 12 encompasses portions of the cities of Huntington Park, Bell, Cudahy, South Gate, and Downey. Air quality conditions in SRA 12 are characterized by concentrations of air pollutants measured at the Compton monitoring site at 700 North Bullis Road, which measures and records concentrations of O_3, CO, NO_2, and $PM_{2.5}$. Table 4.3 displays the air quality data recorded at the LA-NMS monitoring site between 2015 and 2017. During the three-year period, concentrations of O_3 and $PM_{2.5}$ exceeded the air quality standards on numerous occasions, reflecting the nonattainment designations for the area.

SRA 5 (Southeast Los Angeles County) is bounded by I-710 on the west, Whittier Blvd (SR-72) on the north and northeast, the Los Angeles County line on the east and southeast, and State Route 91 on the south. There are no active monitoring stations within SRA 5 operated by SCAQMD, CARB, or USEPA. Existing ambient air quality conditions within the portion of SRA 5 transected by the Project are best characterized by the concentrations of pollutants measured at the Compton monitoring station displayed in Table 4.3. Within SRA 5, the Project corridor runs between approximately 2.4–5.8 miles from the Compton monitoring station, and the topography and land use patterns along the Project alignment in SRA 5 are generally consistent with those surrounding the Compton monitoring station. The proximity of the Compton station and lack of topographical features that would disrupt local meteorological patterns make the data obtained there a reasonable characterization of ambient air quality conditions along the Project corridor within SRA 5.

Table 4.2. SRA 1 – Los Angeles: North Main Street Station Monitoring Data (2015 – 2017)

Pollutant	Metric	Maximum Concentrations and Frequencies of Exceeded Standards		
		2015	2016	2017
Ozone (O_3)	Maximum 1-Hour Concentration	0.104	0.103	0.116
	Days >0.09 ppm (CAAQS)	2	2	6
	Maximum 8-Hour Concentration	0.074	0.078	0.086
	Days >0.070 ppm (NAAQS/CAAQS)	6	4	16
Carbon Monoxide (CO)	Maximum 1-Hour Concentration	3.2	1.9	N/A
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration	1.8	1.4	N/A
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration	0.079	0.065	0.081
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average	0.022	0.021	0.020
	>0.030 ppm (CAAQS)	No	No	No
Sulfur Dioxide (SO_2)	Maximum 1-Hour Concentration	0.013	0.013	N/A
	Days >0.075 ppm (NAAQS)	0	0	0
	Maximum 24-Hour Concentration	N/A	N/A	N/A
	Days >0.040 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration	88.0	67.0	96.2
	Days >50 µg/m^3 (CAAQS)	26	18	40
	Annual Average Concentration	33.1	32.4	N/A
	>20 µg/m^3 (CAAQS)	Yes	Yes	0
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration	56.4	44.4	54.9
	Days >35 µg/m^3 (NAAQS)	7	2	6
	Annual Average Concentration	12.4	11.8	16.3
	>12 µg/m^3 (NAAQS/CAAQS)	Yes	No	Yes

Source: CARB 2018
Notes: CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; N/A = not available; ppm = parts per million; µg/m^3 = microgram per cubic meter

Table 4.3. SRA 12 and SRA 5 – Compton Station Monitoring Data (2015 – 2017)

Pollutant	Metric	Maximum Concentrations and Frequencies of Exceeded Standards		
		2015	2016	2017
Ozone (O_3)	Maximum 1-Hour Concentration	0.091	0.098	0.092
	Days >0.09 ppm (CAAQS)	1	1	0
	Maximum 8-Hour Concentration	0.072	0.071	0.076
	Days >0.070 ppm (NAAQS/CAAQS)	1	1	6
Carbon Monoxide (CO)	Maximum 1-Hour Concentration	4.4	4.4	N/A
	Days >20 ppm (CAAQS)	No	No	0
	Maximum 8-Hour Concentration	3.3	3.9	N/A
	Days >9.0 ppm (NAAQS/CAAQS)	No	No	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration	0.074	0.064	0.099
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average	0.017	0.016	0.016
	>0.030 ppm (CAAQS)	No	No	No
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration	41.3	36.4	66.7
	Days >35 µg/m^3 (NAAQS)	3	3	5
	Annual Average Concentration	11.8	11.1	13.2
	>12 µg/m^3 (NAAQS/CAAQS)	No	No	Yes

Source: SCAQMD 2018
Note: CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; N/A = not available; ppm = parts per million; µg/m^3 = microgram per cubic meter

Air quality conditions in SRA 4 (South Coastal Los Angeles County) are characterized by concentrations of air pollutants measured at three monitoring sites in the greater Long Beach area:

- Long Beach – Hudson (LB-H): Located at 2425 Webster Street, approximately 8.5 miles southwest of the Pioneer Station southern terminus; continuously recorded O_3, CO, NO_2, SO_2, and PM_{10} concentrations between 2013 and 2015
- Long Beach North (LBN): Located at 3648 North Long Beach Boulevard, approximately 6.3 miles west-southwest of the Pioneer Station southern terminus; monitored concentrations of PM2.5 since 2014
- Long Beach – I-710 Near Road (LB-NR): Located at 5895 Long Beach Boulevard, approximately 6.2 miles west of the Pioneer Station southern terminus; monitored NO_2 and $PM_{2.5}$ since being activated in 2015

Table 4.4 summarizes the air quality data recorded at the nearest SRA 4 active site to the Affected Area for each pollutant between 2015 and 2017. The monitoring stations recorded several concentrations of O_3, PM_{10}, and $PM_{2.5}$ exceeding applicable air quality standards during this timeframe. The air monitoring data are consistent with the nonattainment status designations for the LA County portion of the Basin.

Table 4.4. SRA 4 – South Coastal Los Angeles County Stations Monitoring Data (2015 – 2017)

Pollutant	Metric	Maximum Concentrations and Frequencies of Exceeded Standards		
		2015	2016	2017
Ozone (O_3)	Maximum 1-Hour Concentration	0.104	0.079	0.082
	Days > 0.09 ppm (CAAQS)	2	0	0
	Maximum 8-Hour Concentration)	0.074	0.059	0.069
	Days > 0.070 ppm (NAAQS/CAAQS	6	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration	3.3	3.3	N/A
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration	2.2	2.2	N/A
	Days > 9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration	0.095	0.076	0.116
	Days > 0.10 ppm (NAAQS)	0	0	1
	Annual Average	0.020	0.019	0.025
	> 0.030 ppm (CAAQS)	No	No	No
Sulfur Dioxide (SO_2)	Maximum 1-Hour Concentration	0.038	0.018	N/A
	Days > 0.075 ppm (NAAQS)	0	0	0
	Maximum 24-Hour Concentration	N/A	N/A	N/A
	Days > 0.040 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration	80.0	75.0	N/A
	Days > 50 µg/m^3 (CAAQS)	6	8	0
	Annual Average Concentration	31.5	32.0	N/A
	> 20 µg/m^3 (CAAQS)	Yes	Yes	0
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration	48.8	29.4	85.4
	Days > 35 µg/m^3 (NAAQS)	7	0	8
	Annual Average Concentration	12.9	12.0	12.8
	> 12 µg/m^3 (NAAQS/CAAQS)	Yes	Yes	Yes

Source: SCAQMD 2018
Note: CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; N/A = not available; ppm = parts per million; µg/m^3 = microgram per cubic meter

5 ENVIRONMENTAL CONSEQUENCES /ENVIRONMENTAL IMPACTS

5.1 No Build Alternative

The No Build Alternative includes regional projects identified in the 2016-2040 RTP/SCS, Metro's 2009 LRTP, and Measure M. These projects include the Metro East-West Line/Regional Connector/Eastside Phase 2, California High-Speed Rail, Metro North-South Line/Regional Connector, I-710 South Corridor, I-105 Express Lane, I-605 Corridor "Hot Spot" improvements, and improvements to the Metro bus system and local municipality bus systems. The No Build Alternative also includes local transportation-related projects, including Link Union Station (Link US), Active Transportation Rail to Rail/River Corridor, Los Angeles Union Station (LAUS) Forecourt and Esplanade Improvement, I-710 Corridor Bike Path, and Cesar Chavez Bus Stop Improvements projects. Under the No Build Alternative, projects identified in the 2016-2040 RTP/SCS, Metro's 2009 LRTP, and Measure M, as well as local projects, would continue to be built.

The operational air quality benefits resulting from transportation mode shift attributed to implementation of the Project would not materialize, and population growth within the region would increase VMT on the existing roadway network relative to Existing Conditions. On-road motor vehicle emissions would continue to be controlled by mandatory emissions standards set by the USEPA and the CARB.

5.1.1 Criteria Pollutant and Ozone Precursor Emissions

The No Build Alternative would not include Project facilities or infrastructure that would increase criteria pollutant or ozone precursor emissions. The No Build Alternative accounts for general population growth that would lead to increased vehicle use and associated pollutant emissions, as well as planned transportation projects throughout the region that would be completed by 2042. Without implementation of the Project, daily VMT in the region would increase from approximately 463.25 million VMT (2017) to approximately 606.33 million VMT (2042). Table 5.1 shows regional air pollutant emissions associated with on-road VMT under Existing Conditions in 2017 and the No Build Alternative in 2042 based on the regional VMT.

Table 5.1. Daily Operational Emissions—Existing Conditions (2017) and No Build Alternative (2042)

Scenario	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Existing (2017)	66,263.0	1,604,017.0	424,311.0	4,155.3	113,725.0	35,789.5
No Build Alternative (2042)	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Change	**(39,277.4)**	**(814,326.3)**	**(229,887.7)**	**(606.8)**	**28,070.3**	**3,395.5**
Percent Change	(59.3%)	(50.8%)	(54.2%)	(14.6%)	24.7%	9.5%

Source: TAHA, 2020

Note: lbs/day = pounds per day; CO = carbon monoxide; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SO_x = sulfur oxides; ( ) = decrease

The comparison to Existing Conditions is shown for general information as NEPA assessments typically determine the potential for adverse effects by comparing impacts within the design or horizon year between the No Build Alternative and the Build Alternatives. Emission reductions between Existing Conditions and the No Build Alternative are attributed to alternative-fueled passenger vehicles (i.e., electric and natural gas) added to the vehicle fleet and continued improvements in fuel efficiency. The incremental increases in particulate matter emissions relative to Existing Conditions are solely attributed to ambient regional population growth spurring additional regional VMT and associated road dust and break and tire wear. As regional air quality continues to improve in the future, the deposition of dust on roads will be reduced.

5.1.2 Mobile Source Air Toxics

Federal and state regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. An analysis of national trends with the USEPA MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 and VMT is projected to increase by over 100 percent.

The No Build Alternative would reduce emissions relative to the Existing Conditions due to the addition of alternative-fueled passenger vehicles (i.e., electric and natural gas) to the vehicle fleet and continued improvements in fuel efficiency. These conditions are supported by CARB in the publication of EMFAC2017. The No Build Alternative would not reduce regional VMT as is the case with the Build Alternatives. Nonetheless, the No Build Alternative would not result in an adverse effect related to operational emissions.

5.2 Build Alternatives

Implementation of the Build Alternatives and design options would introduce a new LRT corridor that would provide an alternative mode of transportation to passenger vehicle trips. The NEPA analysis of potentially adverse air quality effects from operation of the Project focuses on daily pollutant emissions in the horizon year of 2042.

5.2.1 Alternative 1: Los Angeles Union Station to Pioneer Station

Alternative 1 would not introduce a new substantial direct source of air pollutant emissions into the Affected Area. The primary direct source of emissions associated with each Build Alternative would be operation of the MSF, which would introduce new minor sources of air pollutant emissions generated by the use of landscaping and consumer products (e.g., cleaners and architectural coatings), as well as new employee and supply delivery trips constituting mobile source emissions. Additional minor stationary sources would be associated with the use of landscaping equipment and the application of architectural coatings at the aerial and at-grade stations and parking facilities. Indirectly, regional emission levels within the Affected Area would be influenced by changes in on-road traffic patterns resulting from induced transportation mode shift, as well as improvements in fuel efficiency and engine technologies that are accounted for in the regulatory emissions model. Indirect criteria pollutant and O_3 precursor emissions would be generated through energy use (e.g., LRT propulsion, lighting, and accessory equipment at station platforms, and MSF operations).

Implementation of Alternative 1 would induce changes in regional transportation patterns by replacing vehicle trips with transit ridership. Every displaced vehicle start and VMT induced by Project implementation would indirectly reduce regional emissions related to transportation. As shown in Table 1.1, implementation of Alternative 1 (if operational in 2017) would reduce daily VMT within the Affected Area by approximately 216,155 miles relative to Existing Conditions. By 2042, the transportation modeling results in Table 1.2 demonstrate that Alternative 1 would reduce daily VMT by approximately 391,500 compared to the No Build Alternative. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes.

5.2.1.1 Criteria Pollutant and Ozone Precursor Emissions

The NEPA assessment considers the change in daily emissions within the Affected Area for Alternative 1 relative to the No Build Alternative in 2042. Implementation of Alternative 1 would affect regional air pollutant emissions primarily through changes in regional transportation patterns due to mode shift and increased Metro ridership, which would decrease regional VMT throughout the Affected Area relative to the No Build Alternative. Additionally, the MSF would introduce new minor sources of air pollutant emissions generated by landscaping, consumer product use, and employee and supply delivery trips. Table 5.2 presents the results of the daily operational emissions modeling for Alternative 1 and the relative change from the No Build Alternative.

Table 5.2. Daily Operational Emissions—Alternative 1 (2042)

Scenario/Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Alternative 1 VMT	26,953.0	789,073.0	194,228.6	3,545.7	141,703.2	39,159.2
Alternative 1 MSF [1]	3.9	5.6	2.2	<0.1	2.4	0.7
Alternative 1 Total	**26,956.9**	**789,078.6**	**194,230.8**	**3,545.7**	**141,705.6**	**39,160.0**
No Build Alternative	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Change	**(28.7)**	**(612.2)**	**(192.5)**	**(2.9)**	**(89.7)**	**(25.1)**
SCAQMD Threshold	55	550	55	150	150	55

Source: TAHA, 2020, SCAQMD, 2019
Notes: [1]As both the Bellflower and Paramount MSF site options are capable of accommodating a fully operational MSF, it was assumed that the size of the MSF would not be constrained based on location, and facility emissions would be comparable.
Notes: lbs/day = pounds per day; MSF = maintenance and storage facility; VMT = vehicle miles traveled; SCAQMD = South Coast Air Quality Management District; ROG = reactive organic gases; CO = carbon monoxide; NO_X = nitrogen oxide; SO_X = sulfur oxides; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ( ) = reduction/decrease

The emissions modeling results demonstrate that Alternative 1 would decrease daily regional air pollutant emissions compared to the No Build Alternative. As emissions decrease, there is no potential for the Project to cause a new NAAQS or CAAQS violation or exacerbate an existing NAAQS or CAAQS violation. Therefore, Alternative 1 would not result in adverse effects related to criteria pollutant and ozone precursor emissions.

5.2.1.2 Mobile Source Air Toxics

The purpose of the Project is to enhance regional mobility and transit circulation. Implementation of Alternative 1 would reduce VMT from the No Build Alternative, and MSAT emissions are directly correlated to VMT. Reductions in VMT would lead to reductions in project vicinity MSAT emissions. In 2042, Alternative 1 would reduce daily regional VMT by 391,500 miles relative to the No Build Alternative, thereby decreasing daily MSAT emissions throughout the Affected Area. Moreover, federal and state regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with the USEPA MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while during this same time vehicle-miles of travel are projected to increase by over 100 percent. This will further reduce the background level of MSAT. Therefore, implementation of Alternative 1 would not result in adverse MSAT emissions.

5.2.1.3 Transportation Conformity

The conformity requirement is based on CAA Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to the SIP for attaining the NAAQS. Transportation conformity applies to highway and transit projects and is enforced at both the regional level—which is the planning and programmatic level—and the project level. The Project must conform at both levels to be approved.

Regional Transportation Conformity

Regional conformity analysis was conducted by comparing the project's design, concept, and scope to its description in SCAG 2016-2040 RTP/SCS and associated air quality analyses. The Project is included in the SCAG 2020-2045 RTP/SCS Transportation System Financially Constrained Project List as a LA County transit project under the RTP ID 1TR1011. The Project is described as follows: "West Santa Ana Branch Transit Corridor LRT." The FHWA and FTA determined that the SCAG 2020-2045 RTP/SCS and the accompanying conformity analysis satisfied all air quality conformity requirements, documented in a letter to SCAG on June 5, 2020.

Additionally, the Project is listed in the 2019 FTIP (FTIP ID is LA0G1094), although it is currently only programmed as a Project Study. The FHWA and FTA determined that Amendment No. 19-12 to the SCAG 2019 FTIP and accompanying conformity analysis satisfied all air quality conformity requirements in the same letter on June 5, 2020. The Project is accurately programmed (for study only) in both the SCAG 2020-2045 RTP/SCS and the 2019 FTIP; therefore, Alternative 1 will satisfy the Regional Transportation Conformity requirements.

Project-Level Transportation Conformity

Project-level conformity requires demonstration that the project would not result in a new local CO, PM_{10}, or $PM_{2.5}$ air quality standard violation or worsen existing violations.

Regarding CO hotspots, although the Basin is designated as a maintenance area for CO, it is no longer a pollutant of concern in the region. This is evident in the ambient air quality monitoring data. The NAAQS for CO was last exceeded 16 years ago in 2002 according to the CARB. The SCAQMD last published data for 2016, which included maximum 1- and 8-hour concentrations

of 4.4 and 3.9 ppm. These concentrations were below the 1- and 8-hour NAAQS of 20 and 9 ppm. Furthermore, the Project is planned to open in 2028. As indicated in the CARB EMFAC model, CO emission rates would be substantially less in 2028 than in 2003 when CO attainment was demonstrated in the AQMP. For example, the running exhaust emission rate for a gasoline passenger vehicle was 5.02 grams per mile in 2003 and is anticipated to be 0.51 grams per mile in 2028. The idling exhaust emission rate for a diesel truck was 5.27 grams per vehicle per day in 2003 and is anticipated to be 0.12 grams per vehicle per day in 2028. The combination of the ambient monitoring data and the changes in CO emission rates indicate that there is no potential for the Build Alternatives to generate a CO hotspot.

Regarding PM hotspots, the Project is within a nonattainment area for the federal $PM_{2.5}$ NAAQS and maintenance area for the PM_{10} NAAQS. Therefore, pursuant to 40 CFR Part 93, project-level $PM_{2.5}$ and PM_{10} Interagency Consultation and/or analyses are required for conformity purposes. A quantitative hot-spot analysis is required only for a project that has been identified as a Project of Air Quality Concern (POAQC), as defined in 40 CFR 93.123(b)(1). As described below, the Project does not meet the criteria that would classify it as a POAQC under EPA's final rule. Accordingly, the Project is not considered to be a POAQC, and the project-level PM conformity determination requirements are satisfied. Confirmation of this finding was obtained following interagency consultation with SCAG's Transportation Conformity Working Group. Under the Project, there would be no adverse effects related to worsening existing or contributing to new localized PM hot spots.

Screening criteria considered to identify projects of air quality concern typically involve new or expanded highway facilities and a significant number of—or a significant increase in the number of—diesel vehicles (significant number is defined as more than 125,000 average annual daily traffic (AADT), with 8 percent or more of such AADT being diesel truck traffic or, in practice, truck AADT of 10,000 or more regardless of total AADT) associated with project facilities or traveling on the project area roadway network.

A list of projects that are considered to be POAQCs is provided below, along with an analysis of why the Project is not considered to be a POAQC.

1) Projects affecting intersections that are at level of service (LOS) D, E, or F, with a significant number of diesel vehicles, or will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.
2) New bus and rail terminals and transfer points with a significant number of diesel vehicles congregating at a single location.
3) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
4) Projects in or affecting locations, areas, or categories of sites identified in the $PM_{2.5}$ or PM_{10} Implementation Plan or Implementation Plan submission, as appropriate, as sites of possible violation.

The Project is an electrically powered transit project that would not directly increase diesel truck traffic on the roadway network. Therefore, Alternative 1 would not influence the level-of-service associated with increased traffic volumes from a significant number of diesel vehicles. In addition, the project corridor has not been identified as including possible violation sites in the $PM_{2.5}$ Implementation Plan or PM_{10} Implementation Plan or submission. Metro presented the Project to SCAG's Transportation Conformity Working Group (TCWG) to obtain a project-level

conformity determination at the January 26, 2021 TCWG meeting. The members of the TCWG concurred that the Project would not be a Project of Air Quality Concern, thereby establishing that PM emissions from diesel trucks would not present localized air quality concerns along roadways affected by the Project. Under NEPA, Alternative 1 would not result in adverse effects related to worsening existing or contributing to new localized PM hot-spots.

5.2.2 Alternative 2: 7th Street/Metro Center to Pioneer Station

Implementation of Alternative 2 would induce changes in regional transportation patterns by replacing vehicle trips with transit ridership. Every displaced vehicle start and VMT induced by Project implementation would indirectly reduce regional emissions related to transportation. As shown in Table 1.1, implementation of Alternative 2 (if operational in 2017) would reduce daily VMT within the Affected Area by approximately 215,048 miles relative to Existing Conditions. By 2042, the transportation modeling results in Table 1.2 demonstrate that Alternative 2 would reduce daily VMT by approximately 377,400 compared to the No Build Alternative. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes. Refer to Section 1.5, Methodology, for a detailed description of how emissions were estimated for the Project.

5.2.2.1 Criteria Pollutant and Ozone Precursor Emissions

Alternative 2 includes the same emission sources as the other Build Alternatives. Table 5.3 presents the results of the daily operational emissions modeling for Alternative 2 and the relative change from the No Build Alternative. Alternative 2 would decrease daily regional air pollutant emissions when compared to the No Build Alternative. As emissions decrease, there is no potential for Alternative 2 to cause a new NAAQS or CAAQS violation or exacerbate an existing NAAQS or CAAQS violation. Therefore, Alternative 2 would not result in adverse effects related to criteria pollutant and ozone precursor emissions.

Table 5.3. Daily Operational Emissions—Alternative 2 (2042)

Scenario/Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Alternative 2 VMT	26,966.9	789,140.1	194,260.3	3,546.1	141,707.0	39,160.6
Alternative 2 MSF [1]	3.9	5.6	2.2	<0.1	2.4	0.7
Alternative 2 Total	**26,970.8**	**789,145.7**	**194,262.5**	**3,546.1**	**141,709.4**	**39,161.3**
No Build Alternative	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Daily Change	**(14.8)**	**(545.1)**	**(160.8)**	**(2.4)**	**(85.9)**	**(23.7)**
SCAQMD Threshold	55	550	55	150	150	55

Source: TAHA 2020, SCAQMD, 2019

Note: [1]As both the Bellflower and Paramount MSF site options are capable of accommodating a fully operational MSF, it was assumed that the size of the MSF would not be constrained based on location, and facility emissions would be comparable. lbs/day = pounds per day; MSF = maintenance and storage facility; VMT = vehicle miles traveled; SCAQMD = South Coast Air Quality Management District; ROG = reactive organic gases; CO = carbon monoxide; NO_X = nitrogen oxide; SO_X = sulfur oxides; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ( ) = reduction/decrease

5.2.2.2 Mobile Source Air Toxics

In 2042, Alternative 2 would reduce daily regional VMT by 377,400 miles relative to the No Build Alternative, thereby decreasing daily MSAT emissions throughout the Affected Area. Therefore, Alternative 2 would not result in adverse effects related to MSAT emissions.

5.2.2.3 Transportation Conformity

The Transportation Conformity analysis for Alternative 2 is identical to the analysis presented for Alternative 1. The Project is identified in the SCAG 2020-2045 RTP/SCS and listed in the 2019 FTIP (FTIP ID is LA0G1094). Alternative 2 would comply with regional Transportation Conformity requirements prior to receiving a Record of Decision (ROD) and would comply with project-level Transportation Conformity requirements. Similar to Alternative 1, the TCWG concurred that the Project would not be a Project of Air Quality Concern and would not present localized air quality concerns along roadways affected by the Project. Under NEPA, Alternative 2 would not result in adverse effects related to transportation conformity.

5.2.3 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

Implementation of Alternative 3 would induce changes in regional transportation patterns by replacing vehicle trips with transit ridership. Every displaced vehicle start and VMT induced by Project implementation would indirectly reduce regional emissions related to transportation. As shown in Table 1.1, implementation of Alternative 3 (if operational in 2017) would reduce daily VMT within the Affected Area by approximately 71,845 miles relative to Existing Conditions. By 2042, the transportation modeling results in Table 1.2 demonstrate that Alternative 3 would reduce daily VMT by approximately 130,870 compared to the No Build Alternative. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes.

5.2.3.1 Criteria Pollutant and Ozone Precursor Emissions

Alternative 3 includes the same emission sources as the other Build Alternatives. Table 5.4 presents the results of the daily operational emissions modeling for Alternative 3 and the relative change from the No Build Alternative. Implementation of Alternative 3 would decrease daily regional air pollutant emissions when compared to the No Build Alternative in 2042. As emissions decrease, there is no potential for Alternative 3 to cause a new NAAQS or CAAQS violation or exacerbate an existing NAAQS or CAAQS violation. Therefore, Alternative 3 would not result in adverse effects related to criteria pollutant and ozone precursor emissions.

5.2.3.2 Mobile Source Air Toxics

In 2042, Alternative 3 would reduce daily regional VMT by 130,870 miles relative to the No Build Alternative, thereby decreasing daily MSAT emissions throughout the Affected Area. Therefore, Alternative 3 would not result in adverse effects related to MSAT emissions.

Table 5.4. Daily Operational Emissions—Alternative 3 (2042)

Scenario/Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Alternative 3 – VMT	26,980.9	789,569.1	194,405.7	3,547.9	141,764.6	39,176.5
Alternative 3 – MSF[1]	3.9	5.6	2.2	<0.1	2.4	0.7
Alternative 3 Total	**26,984.8**	**789,574.7**	**194,407.9**	**3,547.9**	**141,767.0**	**39,177.2**
No Build Alternative	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Daily Change	**(0.8)**	**(116.0)**	**(15.4)**	**(0.7)**	**(28.3)**	**(7.8)**
SCAQMD Threshold	55	550	55	150	150	55

Source: TAHA, 2020, SCAQMD 2019
Notes: [1]As both the Bellflower and Paramount MSF site options are capable of accommodating a fully operational MSF, it was assumed that the size of the MSF would not be constrained based on location, and facility emissions would be comparable.
lbs/day = pounds per day; MSF = maintenance and storage facility; VMT = vehicle miles traveled; SCAQMD = South Coast Air Quality Management District; ROG = reactive organic gases; CO = carbon monoxide; NO_X = nitrogen oxide; SO_X = sulfur oxides; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ( ) = reduction/decrease

5.2.3.3 Transportation Conformity

The Transportation Conformity analysis for Alternative 3 is identical to the analysis presented for Alternative 1. The Project is identified in the 2020-2045 RTP/SCS and listed in the 2019 FTIP (FTIP ID is LA0G1094). Similar to Alternatives 1 and 2, the TCWG concurred that the Project would not be a Project of Air Quality Concern and would not present localized air quality concerns along roadways affected by the Project. Under NEPA, Alternative 3 would not result in adverse effects related to transportation conformity.

5.2.4 Alternative 4: I-105/C (Green) Line to Pioneer Station

Implementation of Alternative 4 would induce changes in regional transportation patterns by replacing vehicle trips with transit ridership. Every displaced vehicle start and VMT induced by Project implementation would indirectly reduce regional emissions related to transportation. As shown in Table 1.1, implementation of Alternative 4 (if operational in 2017) would reduce daily VMT within the Affected Area by approximately 36,338 miles relative to Existing Conditions. By 2042, the transportation modeling results in Table 1.2 demonstrate that Alternative 4 would reduce daily VMT by approximately 70,826 compared to the No Build Alternative. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes.

5.2.4.1 Criteria Pollutant and Ozone Precursor Emissions

Alternative 4 includes the same emission sources as the other Build Alternatives. Table 5.5 presents the results of the daily operational emissions modeling for Alternative 4 and the relative change from the No Build Alternative. Implementation of Alternative 4 would decrease daily regional air pollutant emissions when compared to the No Build Alternative in 2042. As emissions decrease, there is no potential for Alternative 4 to cause a new NAAQS or CAAQS violation or exacerbate an existing NAAQS or CAAQS violation. Therefore, Alternative 4 would not result in adverse effects related to criteria pollutant and ozone precursor emissions.

Table 5.5. Daily Operational Emissions—Alternative 4 (2042)

Scenario/Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Alternative 4 VMT	26,973.8	789,618.9	194,396.2	3,547.8	141,778.1	39,179.9
Alternative 4 MSF[1]	3.9	5.6	2.2	<0.1	2.4	0.7
Alternative 4 Total	**26,977.7**	**789,624.5**	**194,398.4**	**3,547.8**	**141,780.5**	**39,180.6**
No Build Alternative	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Daily Change	**(7.9)**	**(66.3)**	**(24.9)**	**(0.7)**	**(14.8)**	**(7.8)**
SCAQMD Threshold	55	550	55	150	150	55

Source TAHA, 2020; SCAQMD, 2019
Notes: [1]As both the Bellflower and Paramount MSF site options are capable of accommodating a fully operational MSF, it was assumed that the size of the MSF would not be constrained based on location, and facility emissions would be comparable.
lbs/day = pounds per day; MSF = maintenance and storage facility; VMT = vehicle miles traveled; SCAQMD = South Coast Air Quality Management District; ROG = reactive organic gases; CO = carbon monoxide; NO_X = nitrogen oxide; SO_X = sulfur oxides; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ( ) = reduction/decrease

5.2.4.2 Mobile Source Air Toxics

In 2042, Alternative 4 would reduce daily regional VMT by 70,826 miles relative to the No Build Alternative, thereby decreasing daily MSAT emissions throughout the Affected Area. Therefore, Alternative 4 would not result in adverse effects related to MSAT emissions.

5.2.4.3 Transportation Conformity

The Transportation Conformity analysis for Alternative 4 is identical to the analysis presented for Alternative 1. The Project is identified in the SCAG 2020-2045 RTP/SCS and listed in the 2019 FTIP (FTIP ID is LA0G1094). Similar to Alternatives 1, 2 and 3, the TCWG concurred that the Project would not be a Project of Air Quality Concern and would not present localized air quality concerns along roadways affected by the Project. Under NEPA, Alternative 4 would not result in adverse effects related to transportation conformity.

5.2.5 Design Options

Implementation of the Design Options would induce changes in regional transportation patterns by replacing vehicle trips with transit ridership. Every displaced vehicle start and VMT induced by Project implementation would indirectly reduce regional emissions related to transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes.

5.2.5.1 Design Option 1

Design Option 1 would involve sources of operational emissions consistent with those of Alternative 1. Design Option 1 would move the northern terminus of the project corridor to the LAUS Metropolitan Water District location instead of the Forecourt location, which would consequently change the project corridor configuration and accessibility at the northern terminus and result in a change to regional on-road VMT patterns relative to Alternative 1. As shown in Table 1.1, implementation of Design Option 1 (if operational in 2017) would reduce

daily VMT within the Affected Area by approximately 236,279 miles relative to Existing Conditions. By 2042, the transportation modeling results in Table 1.2 demonstrate that Alternative 4 would reduce daily VMT by approximately 437,800 compared to the No Build Alternative and would further reduce daily VMT compared to Alternative 1 by approximately 46,300 miles. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes.

Criteria Pollutant and Ozone Precursor Emissions

Design Option 1 includes the same emission sources as Alternative 1. Table 5.6 presents the results of the daily operational emissions modeling for Design Option 1 the relative change from the No Build Alternative. As shown in Table 5.6, implementation of Design Option 1 would result in marginal decreases in daily regional air pollutant emissions when compared to the No Build Alternative. Noteworthy, Design Option 1 would result in less benefit than Alternative 1. Regardless, Design Option 1 would not result in adverse criteria pollutant and ozone precursor emissions.

Table 5.6 Daily Operational Emissions—Design Options 1 and 2 (2042)

Scenario/Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Design Option 1						
Design Option 1 VMT	26,947.8	788,999.1	194,199.6	3,545.4	141,692.2	39,156.1
Design Option 1 MSF[1]	3.9	5.6	2.2	<0.1	2.4	0.7
Design Option 1 Total	**26,951.7**	**789,004.7**	**194,201.8**	**3,545.4**	**141,694.6**	**39,156.8**
No Build Alternative	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Daily Change	**(33.9)**	**(686.1)**	**(221.5)**	**(3.1)**	**(100.7)**	**(28.2)**
SCAQMD Threshold	55	550	55	150	150	55
Design Option 2						
Design Option 2 VMT	26,956.5	789,043.5	194,215.0	3,546.6	141,701.7	39,158.9
Design Option 2 MSF[1]	3.9	5.6	2.2	<0.1	2.4	0.7
Design Option 2 Total	**26,960.4**	**789,049.1**	**194,217.2**	**3,546.6**	**141,704.1**	**39,159.6**
No Build Alternative	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0
Net Daily Change	**(25.1)**	**(641.6)**	**(206.1)**	**(1.9)**	**(91.2)**	**(25.4)**
SCAQMD Threshold[2]	55	550	55	150	150	55

Source: TAHA, 2020; SCAQMD, 2019

Notes: [1]As both the Bellflower and Paramount MSF site options are capable of accommodating a fully operational MSF, it was assumed that the size of the MSF would not be constrained based on location, and facility emissions would be comparable. lbs/day = pounds per day; MSF = maintenance and storage facility; VMT = vehicle miles traveled; SCAQMD = South Coast Air Quality Management District; ROG = reactive organic gases; CO = carbon monoxide; NO_X = nitrogen oxide; SO_X = sulfur oxides; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ( ) = reduction/decrease

Mobile Source Air Toxics

Design Option 1 would reduce daily regional VMT by 437,800 miles relative to the No Build Alternative, thereby decreasing daily MSAT emissions throughout the Affected Area. Therefore, Design Option 1 would not result in adverse effects related to MSAT emissions.

Transportation Conformity

The Transportation Conformity analysis for Design Option 1 is identical to the analysis presented for the other Build Alternatives. Design Option 1 would comply with regional Transportation Conformity requirements prior to receiving a ROD and would comply with project-level Transportation Conformity requirements and no adverse effects would occur.

5.2.5.2 Design Option 2

Design Option 2 adds an underground Little Tokyo Station to the Alternative 1 alignment and would not substantially change the regional operational air pollutant emissions landscape relative to Alternative 1. Instead, a new underground Little Tokyo Station would spur increased LRT accessibility and ridership and result in a further reduction of roadway network VMT compared to Alternative 1. As shown in Table 1.1, implementation of Design Option 2 (if operational in 2017) would reduce daily VMT within the Affected Area by approximately 218,451 miles relative to Existing Conditions. By 2042, the transportation modeling results in Table 1.2 demonstrate that Design Option 2 would reduce daily VMT by approximately 398,400 miles relative to the No Build Alternative, which would represent an additional daily VMT decrease of 6,900 miles beyond that achieved by implementation of Alternative 1.

Sources of Design Option 2 operational emissions would be consistent with those of Alternative 1. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes.

Criteria Pollutant and Ozone Precursor Emissions

Design Option 2 includes the same emission sources as Alternative 1. Table 5.6 presents the results of the daily operational emissions modeling for Design Option 2 the relative change from the No Build Alternative. As shown in Table 5.6, implementation of Design Option 2 would result in marginal decreases in daily regional air pollutant emissions when compared to the No Build Alternative and reductions would be similar to those under Alternative 1. Design Option 2 would not result in adverse criteria pollutant and ozone precursor emissions

Mobile Source Air Toxics

Design Option 2 would reduce daily regional VMT by 437,800 miles relative to the No Build Alternative, thereby decreasing daily MSAT emissions throughout the Affected Area. Therefore, Design Option 2 would not result in adverse effects related to MSAT emissions.

Transportation Conformity

The Transportation Conformity analysis for Design Option 2 is identical to the analysis presented for the other Build Alternatives. Design Option 2 would comply with regional Transportation Conformity requirements prior to receiving a ROD and would comply with project-level Transportation Conformity requirements and no adverse effects would occur.

5.2.6 Maintenance and Storage Facility

Air pollutant emissions that would be generated by operation of the MSF were estimated using CalEEMod and are accounted for in the analyses of each Build Alternative. The Project considers two MSF site options: Paramount MSF site option and Bellflower MSF site option. Operation of the two MSF site options would be similar and result in emissions associated with vehicle trips to and from the site, natural gas use, and the use of consumer products such as cleaners and solvents. SCAQMD guidance requires that all project components be considered in a comprehensive emissions analysis. The MSF will be a requisite component of the Project and would not operate independently. The analysis of operational emissions generated by the MSF is therefore incorporated with the Build Alternatives analysis. Implementation of the MSF as a component of the Project would not result in adverse effects.

6 CALIFORNIA ENVIRONMENTAL QUALITY ACT DETERMINATION

In response to SB 743, OPR published a Technical Advisory on evaluating transportation impacts under CEQA, that broadly addresses the consideration of air pollutant emissions from induced changes to transportation patterns spurred by developing transit projects. Implementation of the Project would provide a new LRT corridor traversing portions of LA County that are not presently well-served by transit, enhancing regional connectivity and displacing vehicle trips and VMT. CA OPR recommends the streamlining of environmental impacts analysis under CEQA based on experiential knowledge that displacing on-road vehicle trips and VMT reduces air pollutant emissions related to transportation and improves regional air quality. Reducing VMT is recognized by OPR, CARB, SCAQMD, and SCAG as a fundamental and crucial strategy for reducing air pollutant emissions, therefore operational air quality impacts are determined to be less than significant.

6.1 Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?

The applicable air quality plan is the SCAQMD 2016 AQMP, which is prepared to support the SIP and was approved by the CARB in April 2017. The 2016 AQMP incorporates regional growth projections from the SCAG 2016-2040 RTP/SCS, and the two plans are heavily interrelated. In accordance with the procedures established in the SCAQMD's CEQA Air Quality Handbook, the following criteria are required to be addressed in order to determine the consistency with applicable SCAQMD and SCAG policies:

- Would the Project result in any of the following?
  - An increase in the frequency or severity of existing air quality violations;
  - Cause or contribute to new air quality violations; or,
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- Would the Project exceed the assumptions utilized in preparing the AQMP?
  - Is the project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based?
  - Does the project include air quality mitigation measures? or,
  - To what extent is project development consistent with the AQMP land use policies?

Implementation of the Project would provide a new LRT line and supporting the MSF to the Affected Area, resulting in changes to the regional air pollutant emissions inventory predominantly attributed to transportation mode shift and reduced on-road VMT. The Project would not introduce new population or housing growth to the Affected Area, and additional Metro employment opportunities at facilities associated with Project operations would not disproportionately contribute to the SCAG growth projections for LA County. The following discussions address whether implementation of the Project would affect the frequency or severity of air quality violations and the potential for delaying attainment of the air quality standards on the course set by the AQMP.

6.1.1 No Project Alternative

Under the No Project Alternative, the Project would not be developed; properties would not be acquired for the Project; no structures along the project alignment would be demolished; and no new structures would be constructed along the rail and street rights-of-way (ROWs). The existing freight tracks within the rail ROWs would remain in place and the rail ROWs would be undisturbed. Existing regional on-road VMT would remain unchanged, as there would be no transportation mode shift associated with the LRT corridor. No new sources of air pollutant emissions would be introduced to the Affected Area, and no new growth would be introduced to the County in terms of population, housing, or employment. Metro systemwide operations would not include the Project corridor and its benefits related to VMT displacement, reducing vehicle trips, encouraging active transportation, and other proven strategies that enhance regional air quality.

As part of its initiative to minimize the environmental consequences of its operations, Metro has committed to implementing a cleaner fleet of buses and service vehicles that reduce air pollution. Between 2012 and 2017, Metro reduced its systemwide NO_X emissions by 40 percent and reduced its systemwide hydrocarbon and particulate matter emissions by over 50 percent; and in 2017 alone Metro reduced NO_X emissions from service vehicles by 26 percent. All of these benefits are consistent with regional emission reduction strategies incorporated into the AQMP. On July 27, 2017, the Metro board of Directors unanimously voted to transition the entire Metro bus fleet to zero-emission vehicles by 2030. The No Project Alternative would not interfere with Metro's efforts to reduce its systemwide air pollutant emissions and would not conflict with implementation of the 2016 AQMP. Therefore, no impact on regional air quality would occur under the No Project Alternative.

6.1.2 Alternative 1: Los Angeles Union Station to Pioneer Station

The SCAQMD has responsibility for managing the Basin's air resources and is responsible for bringing the Basin into attainment for federal and state air quality standards. To achieve this goal, the SCAQMD prepares/updates the Basin's 2016 AQMP every four years. The "on-road emissions" 2016 AQMP budgets are developed based on the regional planning documents that are prepared by SCAG. The Proposed Project is included in the 2016-2040 RTP/SCS under Project ID 1TR1011. The 2016-2040 RTP/SCS was found by Federal Highway Administration and FTA to be in conformity with the SIP on June 1, 2016.

The purpose of the consistency finding is to determine if the Project is inconsistent with the objectives and assumptions of the AQMP, and thus would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD develops an emissions inventory for pollutants of concern to quantify trends in regional pollution. Emissions projections are based on population, vehicle, and land use trends. These are typically developed by SCAQMD, SCAG, and the SCAQMD with input from local agencies, (e.g., cities) and regional agencies (e.g., Metro).

Demonstrating conformity with the SIP is a crucial element of transportation planning, as it assures that the projects approved for implementation will not create emissions of air pollutants that would impede or delay improvements in regional air quality achieved by various control strategies. Implementation of Alternative 1 would not introduce new population or housing growth into LA County, and the expansion of Metro operations would represent a negligible increase in regional employment compared to the 1.35 million jobs that are anticipated to be created in LA County between 2015–2040. As such, the Project is

consistent with the objectives and assumptions of the AQMP, and thus would not interfere with the region's ability to attain the air quality standards on the designated schedule.

Alternative 1 would induce changes in regional transportation patterns by replacing vehicle trips with transit ridership. Every displaced vehicle start and VMT induced by Project implementation would indirectly reduce regional emissions related to transportation. As shown in Table 1.1, the Existing + Alternative 1 scenario (if operational in 2017) would reduce daily VMT within the Affected Area by approximately 216,155 miles relative to Existing Conditions. Implementation of the LRT corridor would improve regional air quality by taking passenger vehicle trips off the roadway network and encouraging alternative and active modes of transportation. The expansion of LRT infrastructure and the displacement of VMT are critical components of regional transportation planning initiatives to improve air quality and public health. OPR recommends streamlining the environmental analyses of transit and active transportation projects that reduce VMT, as decreasing vehicle travel is widely acknowledged to directly correlate with improving air quality.

The NEPA assessment presents a comparison of Build Alternative operational emissions in 2042 to the No Build Alternative for informational purposes. By 2042, the transportation modeling results in Table 1.2 demonstrates that Alternative 1 would reduce daily VMT by approximately 391,500 compared to the No Project Alternative. The VMT displacement would reduce emissions associated with vehicle exhaust and road dust from passenger vehicle trips that would not occur with implementation of the Project. The changes in emissions associated with VMT displacement are induced, indirect air quality benefits. The only direct sources of air pollutant emissions that implementation of Alternative 1 would introduce to the SCAQMD jurisdiction would be associated with operation of the MSF (i.e., vehicle trips and fugitive area sources), which would generate up to approximately 250 additional vehicle trips per day. The displacement of 216,166 daily regional on-road VMT would more than offset the increase in Metro vehicle activities. Table 6.1 presents daily MSF emissions that would occur if it were operational in 2017. Daily operational emissions would remain below applicable SCAQMD thresholds for all criteria pollutants and ozone precursors and would not contribute to an increase in the frequency or severity of air quality violations in the context of existing conditions.

In response to SB 743, CA OPR and Caltrans have collaboratively and separately developed guidance for analyzing induced changes to transportation patterns and the associated air pollutant emissions. CA OPR is generally recommending the streamlining of emissions analyses for transit projects that substantially reduce on-road VMT. Caltrans is finalizing guidance related to analyzing transportation impacts from state highway projects, asserting in the draft documentation that the appropriate CEQA analysis for induced changes to on-road VMT be assessed in the design or horizon year of a proposed project relative to the No Project Alternative. Taking into consideration these recent developments in transportation planning approach, the most appropriate holistic comparison of the Build Alternatives operational emissions is to those of the No Project Alternative in 2042, as presented in Table 5.2. Alternative 1 would reduce emissions of criteria pollutants and ozone precursors relative to the No Project Alternative. Therefore, Alternative 1 would result in a less than significant impact related to conflicts with the AQMP.

6.1.2.1 Mitigation Measures

No mitigation measures are required.

6.1.2.2 Impacts Remaining After Mitigation

Less than significant impact.

6.1.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The same discussion of regional conformity presented above for Alternative 1 applies to Alternative 2. Alternative 2 would improve regional connectivity, encourage transit ridership, and decrease VMT on the regional roadway network. As shown in Table 1.1, the Existing + Alternative 2 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 miles under Existing Conditions to 463,030,772 miles, a decrease of 215,048 VMT. By 2042, the data presented in Table 1.2, demonstrate that the daily VMT reduction with implementation of Alternative 2 would be 377,400 relative to the No Project Alternative. Consistent with guidance from OPR and Caltrans and the analysis presented for Alternative 1, holistic assessment of Alternative 2 operational emissions including induced changes to regional transportation patterns is evaluated in 2042. Table 5.3 presents the regional emissions that would be generated by Alternative 2 and compares them to the No Project Alternative. Daily regional emissions of criteria pollutants and ozone precursors would decrease relative to the No Project Alternative and would therefore not have the potential to exceed any applicable SCAQMD operational threshold.

Implementation of Alternative 2 would contribute to regional goals that support alternative modes of transportation; would not generate permanent emissions that exceed the SCAQMD operational significance thresholds; and would not interfere with implementation of the AQMP. Therefore, Alternative 2 would result in a less than significant impact related to potential conflicts with the AQMP.

6.1.3.1 Mitigation Measures

No mitigation measures are required.

6.1.3.2 Impacts Remaining After Mitigation

Less than significant impact.

6.1.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The same discussion of regional conformity presented above for Alternative 1 applies to Alternative 3. Alternative 3 would improve regional connectivity, encourage transit ridership, and decrease VMT on the regional roadway network. As shown in Table 1.1, the Existing + Alternative 3 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 miles under Existing Conditions to 463,173,975 miles, a decrease of 71,845 VMT. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of Alternative 3 would be 130,870 relative to the No Project Alternative. Consistent with guidance from OPR and Caltrans and the analysis presented for Alternative 1, holistic assessment of Alternative 3 operational emissions including induced changes to regional transportation patterns is evaluated in 2042. Table 5.4 presents the regional emissions that would be generated by Alternative 3 and compares them to the No Project Alternative. Daily regional emissions of criteria pollutants and ozone precursors would decrease relative to the No Project Alternative and would therefore not have the potential to exceed any applicable SCAQMD operational threshold.

Alternative 3 would contribute to regional goals that support alternative modes of transportation; would not generate permanent emissions that exceed the SCAQMD operational significance thresholds; and would not interfere with implementation of the AQMP. Therefore, Alternative 3 would result in a less than significant impact related to potential conflicts with the AQMP.

6.1.4.1 Mitigation Measures

No mitigation measures are required.

6.1.4.2 Impacts Remaining After Mitigation

Less than significant impact.

6.1.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The same discussion of regional conformity presented above for Alternative 1 applies to Alternative 4. Alternative 4 would improve regional connectivity, encourage transit ridership, and decrease VMT on the regional roadway network. As shown in Table 1.1, the Existing + Alternative 4 scenario would reduce daily VMT from 463,245,820 miles under Existing Conditions to 463,209,483 miles, a decrease of 36,337 VMT. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of Alternative 3 would be 70,826 relative to the No Project Alternative. Consistent with guidance from CA OPR and Caltrans and the analysis presented for Alternative 1, holistic assessment of Alternative 4 operational emissions including induced changes to regional transportation patterns is evaluated in 2042. Table 5.5 presents the regional emissions that would be generated by Alternative 4 and compares them to the No Project Alternative. Daily regional emissions of criteria pollutants and ozone precursors would decrease relative to the No Project Alternative and would therefore not have the potential to exceed any applicable SCAQMD operational threshold.

Implementation of Alternative 4 would contribute to regional goals that support alternative modes of transportation; would not generate permanent emissions that exceed the SCAQMD operational significance thresholds; and would not interfere with implementation of the AQMP. Therefore, Alternative 4 would result in a less than significant impact related to potential conflicts with the AQMP.

6.1.5.1 Mitigation Measures

No mitigation measures are required.

6.1.5.2 Impacts Remaining After Mitigation

Less than significant impact.

6.1.6 Design Options

6.1.6.1 Design Option 1

The same discussion of regional conformity presented above for Alternative 1 applies to Design Option 1. Design Option 1 would improve regional connectivity, encourage transit ridership, and decrease VMT on the regional roadway network. As shown in Table 1.1, the Existing + Design Option 1 scenario would reduce daily VMT from 463,245,820 miles under Existing Conditions to 463,009,541 miles, a decrease of 236,279 VMT. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of

Design Option 1 would be 437,800 relative to the No Project Alternative. Consistent with guidance from CA OPR and Caltrans and the analysis presented for Alternative 1, holistic assessment of Design Option 1 operational emissions including induced changes to regional transportation patterns is evaluated in 2042. Table 5.6 presents the regional emissions that would be generated by Design Option 1 and compares them to the No Project Alternative. Daily regional emissions of criteria pollutants and ozone precursors would decrease relative to the No Project Alternative and would therefore not have the potential to exceed any applicable SCAQMD operational threshold.

Implementation of Design Option 1 would contribute to regional goals that support alternative modes of transportation; would not generate permanent emissions that would exceed the SCAQMD operational significance thresholds; and would not interfere with implementation of the AQMP. Therefore, Design Option 1 would result in a less than significant impact related to conflicts with the AQMP.

6.1.6.2 Design Option 2

The same discussion of regional conformity presented above for Alternative 1 applies to Design Option 2. Design Option 2 would improve regional connectivity, encourage transit ridership, and decrease VMT on the regional roadway network. As shown in Table 1.1, the Existing + Design Option 2 scenario would reduce daily VMT from 463,245,820 miles under Existing Conditions to 463,027,369 miles, a decrease of 218,451 VMT. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with Design Option 2 would be 398,400 relative to the No Project Alternative. Consistent with guidance from OPR and Caltrans and the analysis presented for Alternative 1, holistic assessment of Design Option 2 operational emissions including induced changes to regional transportation patterns is evaluated in 2042. Table 5.6 presents the regional emissions that would be generated by Design Option 2 and compares them to the No Project Alternative. Daily regional emissions of criteria pollutants and ozone precursors would decrease relative to the No Project Alternative and would therefore not have the potential to exceed any applicable SCAQMD operational threshold.

Design Option 2 would contribute to regional goals that support alternative modes of transportation; would not generate permanent emissions that would exceed the SCAQMD operational significance thresholds; and would not interfere with implementation of the AQMP. Therefore, Design Option 2 would result in a less than significant impact related to conflicts with the AQMP.

6.1.6.3 Mitigation Measures

No mitigation measures are required.

6.1.6.4 Impacts Remaining After Mitigation

Less than significant impact.

6.1.7 Maintenance and Storage Facility

The MSF would be the predominant source of direct and indirect air pollutant emissions introduced to the SCAQMD jurisdiction during Project operations. The Project considers two MSF site options: Paramount MSF site option and Bellflower MSF site option. The AQMP consistency analyses for the Build Alternatives considers the MSF site options as a component of the Project, as the MSF would not function independently of the LRT corridor.

For informational disclosure, Table 6.1 presents operational emissions associated with the MSF in 2017 and compares them to the SCAQMD mass daily air quality significance thresholds at the regional and localized levels. Daily emissions of criteria pollutants and ozone precursors would remain below applicable thresholds at both levels of analysis. Therefore, the MSF site options would result in a less than significant impact related to AQMP consistency for all Build Alternatives.

Table 6.1. MSF Daily Operational Emissions

Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Off-Site Mobile Trips	0.9	13.3	4.3	<0.1	2.9	0.8
On-Site Area Sources	3.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
On-Site Energy Consumption	< 0.1	0.4	0.5	<0.1	<0.1	<0.1
Total Regional Emissions	**4.4**	**13.8**	**4.8**	**<0.1**	**2.9**	**0.8**
SCAQMD Regional Threshold	55	550	55	150	150	55
Regional Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Total On-Site Emissions	**3.5**	**0.5**	**0.5**	**< 0.1**	**< 0.1**	**< 0.1**
SRA 5 LST Value	—	1,480	172	—	4	2
Localized Threshold Exceeded?	—	**No**	**No**	—	**No**	**No**

Source: TAHA 2020, SCAQMD 2019, SCAQMD 2009
Notes: [1]As both the Bellflower and Paramount MSF site options are capable of accommodating a fully operational MSF, it was assumed that the size of the MSF would not be constrained based on location, and facility emissions would be comparable.
lbs/day = pounds per day; SRA = Source/Receptor Areas; LST = Localized Significance Threshold; ROG = reactive organic gases; CO = carbon monoxide; NO_X = nitrogen oxide; SO_X = sulfur oxides; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns

6.1.7.1 Mitigation Measures

No mitigation measures are required.

6.1.7.2 Impacts Remaining After Mitigation

Less than significant impact.

6.2 Would the Project result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?

The Basin is the Affected Area for evaluation of cumulative impacts for air quality. The Basin is currently designated as in nonattainment of the federal and/or state AAQS for O_3, PM_{10}, and $PM_{2.5}$. Therefore, there is an ongoing cumulative impact associated with these air pollutants. The potential for the Project to contribute to a permanent cumulative impact is assessed through consistency with air quality plans. The SCAQMD has promulgated guidance related to cumulative emissions, stating that if daily emissions associated with implementation of a project do not exceed any applicable regional or localized threshold values, those emissions would not be considered cumulatively significant. Daily air pollutant emission that would be generated by the No Project Alternative and each of the Build

Alternatives and Design Options are evaluated in the context of the SCAQMD Air Quality Significance Thresholds.

6.2.1 No Project Alternative

As previously described in Section 6.1.1, under the No Project Alternative, Project alignment and components would not be developed, and the associated LRT corridor would remain unchanged. No new sources of air pollutant emissions would be introduced to the Affected Area that could potentially contribute to a cumulatively considerable increase in emissions of pollutants for which the region is designated in nonattainment. The No Project Alternative would not result in regional air quality impacts related to cumulatively considerable increases in nonattainment pollutant emissions.

6.2.2 Alternative 1: Los Angeles Union Station to Pioneer Station

As discussed in Section 6.1.2, the Project is listed in the region's currently conforming 2016–2040 RTP/SCS. Furthermore, daily pollutant emissions associated with the MSF (if operational in 2017) in Table 6.1 would remain substantially below SCAQMD daily regional and localized thresholds. As shown in Table 5.2, implementation of Alternative 1 would not result in an incremental increase in daily emissions that would exceed any applicable SCAQMD threshold. In fact, implementation of Alternative 1 would decrease regional air pollutant emissions within the Affected Area in the horizon year of 2042. Permanent emissions associated with Alternative 1 emissions would not be cumulatively considerable and this impact would be less than significant.

Per CEQA Guidelines Section 15130 (d), where a project is included in an approved regional plan (among other land use plans) that adequately addresses the effected resource area, no additional analysis is required. Because the Project is listed in the region's currently conforming the 2016-2040 RTP/SCS and the Project would not result in incremental increases in daily emissions exceeding any SCAQMD threshold, permanent emissions associated the Project operation would not be cumulatively considerable.

6.2.2.1 Mitigation Measures

No mitigation measures are required.

6.2.2.2 Impacts Remaining After Mitigation

Less than significant impact.

6.2.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

As discussed in Section 6.1.3, the Project is listed in the region's currently conforming 2016–2040 RTP/SCS. Furthermore, daily pollutant emissions associated with the MSF (if operational in 2017) presented in Table 6.1 would remain substantially below SCAQMD daily regional and localized thresholds. As shown in Table 5.3, implementation of Alternative 2 would not result in an incremental increase in daily emissions that would exceed any applicable SCAQMD threshold. In fact, implementation of Alternative 2 would decrease regional air pollutant emissions within the Affected Area in the horizon year of 2042. Permanent emissions associated with Alternative 2 emissions would not be cumulatively considerable and this impact would be less than significant.

6.2.3.1 Mitigation Measures

No mitigation measures are required.

6.2.3.2 Impacts Remaining After Mitigation

Less than significant impact.

6.2.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

As discussed in Section 6.1.4, the Project is listed in the region's currently conforming 2016–2040 RTP/SCS. Furthermore, daily pollutant emissions associated with the MSF (if operational in 2017) presented in Table 6.1 would remain substantially below SCAQMD daily regional and localized thresholds. As shown in Table 5.4, implementation of Alternative 3 would not result in an incremental increase in daily emissions that would exceed any applicable SCAQMD threshold. In fact, implementation of Alternative 3 would decrease regional air pollutant emissions within the Affected Area in the horizon year of 2042. Permanent emissions associated with Alternative 3 emissions would not be cumulatively considerable and this impact would be less than significant.

6.2.4.1 Mitigation Measures

No mitigation measures are required.

6.2.4.2 Impacts Remaining After Mitigation

Less than significant impact.

6.2.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

As discussed in Section 6.1.5, the Project is listed in the region's currently conforming 2016–2040 RTP/SCS. Furthermore, daily pollutant emissions associated with the MSF (if operational in 2017) presented in Table 6.1 would remain substantially below SCAQMD daily regional and localized thresholds. As shown in Table 5.5, implementation of Alternative 4 would not result in an incremental increase in daily emissions that would exceed any applicable SCAQMD threshold. In fact, implementation of Alternative 4 would decrease regional air pollutant emissions within the Affected Area in the horizon year of 2042. Permanent emissions associated with Alternative 4 emissions would not be cumulatively considerable and this impact would be less than significant.

6.2.5.1 Mitigation Measures

No mitigation measures are required.

6.2.5.2 Impacts Remaining After Mitigation

Less than significant impact.

6.2.6 Design Options

In the horizon year of 2042, Design Options 1 and 2 would not result in an incremental increase in daily emissions that would exceed any applicable SCAQMD threshold as demonstrated by the informational analysis presented in Table 5.6. The Project is also listed in the region's currently conforming 2016 – 2040 RTP/SCS, and emissions from sources associated with the MSF (if operational in 2017) would not exceed any SCAQMD mass daily

threshold. Therefore, Design Options 1 and 2 would not contribute to a cumulatively considerable impact.

6.2.6.1 Mitigation Measures

No mitigation measures are required.

6.2.6.2 Impacts Remaining After Mitigation

Less than significant impact.

6.2.7 Maintenance and Storage Facility

The MSF site options are considered a component in the Build Alternatives assessment of the potential for a cumulatively considerable net increase in criteria pollutant emissions analysis. Based on the assessment for each Build Alternative and the MSF emissions (if operational in 2017) presented in Table 6.1 for informational disclosure, the MSF site options would not contribute to a cumulatively considerable impact.

6.2.7.1 Mitigation Measures

No mitigation measures are required.

6.2.7.2 Impacts Remaining After Mitigation

Less than significant impact.

6.3 Would the Project expose sensitive receptors to substantial pollutant concentrations?

6.3.1 No Project Alternative

Under the No Project Alternative, the project alignment and components would not be developed, and the associated LRT corridor would remain unchanged. No new sources of air pollutant emissions would be introduced to the Affected Area that could potentially expose sensitive receptors to substantial pollutant concentrations. The No Project Alternative would not result in regional air quality impacts related to the exposure of sensitive receptors to substantial pollutant concentrations.

6.3.1.1 Mitigation Measures

No mitigation measures are required.

6.3.1.2 Impacts Remaining After Mitigation

Less than significant impact.

6.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Alternative 1 would not introduce a new land use development that would constitute a substantial direct source of air pollutant emissions to the Affected Area during operation. Permanent sources of operational emissions associated with Alternative 1 would include LRT operations and maintenance activities at the MSF. The MSF site options would constitute the only permanent, stationary source of direct emissions associated with Alternative 1. No direct source of air pollutant emissions along the Alternative 1 alignment would occur as the light rail vehicles are powered by electrical propulsion. Operation of Alternative 1 would not have

the potential to expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

6.3.2.1 Mitigation Measures

No mitigation measures are required.

6.3.2.2 Impacts Remaining After Mitigation

Less than significant impact.

6.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

Similar to the other Build Alternatives, Alternative 2 would not introduce a substantial direct source of air pollutant emissions and no direct source of air pollutant emissions along the alignment would occur. LRT operations and MSF maintenance activities would be the only permanent sources of operational emissions. Therefore, Alternative 2 would not have the potential to expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

6.3.3.1 Mitigation Measures

No mitigation measures are required.

6.3.3.2 Impacts Remaining After Mitigation

Less than significant impact

6.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

Similar to the other Build Alternatives, Alternative 3 would not introduce a substantial direct source of air pollutant emissions and no direct source of air pollutant emissions along the alignment would occur. LRT operations and MSF maintenance activities would be the only permanent sources of operational emissions. Therefore, Alternative 3 would not have the potential to expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

6.3.4.1 Mitigation Measures

No mitigation measures are required.

6.3.4.2 Impacts Remaining After Mitigation

Less than significant impact

6.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

Similar to the other Build Alternatives, Alternative 4 would not introduce a substantial direct source of air pollutant emissions and no direct source of air pollutant emissions along the alignment would occur. LRT operations and MSF maintenance activities would be the only permanent sources of operational emissions. Therefore, Alternative 4 would not have the potential to expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

6.3.5.1 Mitigation Measures

No mitigation measures are required.

6.3.5.2 Impacts Remaining After Mitigation

Less than significant impact

6.3.6 Design Options

Similar to the other Build Alternatives, Design Options 1 and 2 would not introduce a substantial direct source of air pollutant emissions, and permanent sources of operational emissions include LRT operations and MSF maintenance activities. Therefore, Design Options 1 and 2 would not have the potential to expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

6.3.6.1 Mitigation Measures

No mitigation measures are required.

6.3.6.2 Impacts Remaining After Mitigation

Less than significant impact

6.3.7 Maintenance and Storage Facility

Operation of either the Paramount MSF site option or the Bellflower MSF site option would not constitute a substantial source of pollutant emissions within the Affected Area. Primary emissions sources on the MSF site during operation would be consumer product use (e.g., solvents and cleaners) and ancillary activities (i.e., landscaping and building upkeep). Table 6.1 presents the emissions that would be generated by the MSF regardless of location if it were operational in 2017 and compares the localized emissions to the applicable SCAQMD LST values for SRA 5 (Southeast Los Angeles County). On-site operational emissions would be approximately 3.5 pounds per day of volatile organic compounds, less than 0.5 pound per day of CO and NO_X, and less than 0.1 pound per day of SO_X, PM_{10}, and $PM_{2.5}$. Emissions would remain substantially below the applicable SCAQMD LST values for SRA 5. Operation of the MSF would not have the potential to expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

6.3.7.1 Mitigation Measures

No mitigation measures are required.

6.3.7.2 Impacts Remaining After Mitigation

Less than significant impact.

6.4 Would the Project result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?

6.4.1 No Project Alternative

Under the No Project Alternative, the project alignment and components would not be developed, and the associated LRT corridor would remain unchanged. No new sources of air pollutant emissions would be introduced to the Affected Area that could potentially expose sensitive receptors to substantial pollutant concentrations. The No Project Alternative would have no impact on regional air quality related to public nuisance for odors or visible dust plumes.

6.4.1.1 Mitigation Measures

No mitigation measures are required.

6.4.1.2 Impacts Remaining After Mitigation

Less than significant impact.

6.4.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Alternative 1 would not generate a substantial source of operational odors. Land uses and industrial operations commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Any unpleasant odors from transit operations would be subject to management under the odor complaint tracking system mandated by SCAQMD Rule 402 (Nuisance), which prevents nuisance odor conditions. All trash receptacles at Metro station locations would be subject to regular servicing and maintenance to ensure that unpleasant odors do not emanate from waste bins and present uncomfortable conditions to patrons. As a result, Alternative 1 would have a minor, if any, impact with respect to odors. Therefore, Alternative 1 would result in a less than significant impact related to operational odors.

Alternative 1 would not introduce a new substantial source of dust emissions to the Affected Area. As shown in Table 1.1, the Existing + Alternative 1 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 miles under Existing Conditions to 463,029,665 miles under Alternative 1. The 216,155 daily VMT reduction would reduce regional mobile source emissions associated with both vehicle exhaust and re-entrained dust on the roadways. By 2042, the transportation modeling results in Table 1.2 demonstrates that Alternative 1 would reduce daily VMT by approximately 391,500 compared to the No Project Alternative. As such, Alternative 1 would decrease road dust emissions in direct correlation with VMT. Therefore, Alternative 1 would result in a less than significant impact related to operational odors and dust.

6.4.2.1 Mitigation Measures

No mitigation measures are required.

6.4.2.2 Impacts Remaining After Mitigation

Less than significant impact.

6.4.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

Similar to the other Build Alternatives, any unpleasant odors from transit operations would be subject to management under the odor complaint tracking system mandated by SCAQMD Rule 402 (Nuisance). All trash receptacles at Metro station locations would be subject to regular servicing and maintenance to ensure that unpleasant odors do not emanate from waste bins and present uncomfortable conditions to patrons. Therefore, Alternative 2 would have a minor, if any, impact with respect to odors and impacts would be less than significant impact.

As shown in Table 1.1, the Existing + Alternative 2 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 under Existing Conditions to 463,030,772 miles under Alternative 2. The 215,048 daily VMT reduction would decrease regional mobile source emissions associated with both vehicle exhaust and re-entrained dust on the roadways. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with

implementation of Alternative 2 would be 377,400 relative to the No Project Alternative. As such, Alternative 2 would decrease road dust emissions in direct correlation with VMT and impacts related to operational odors and dust would be less than significant.

6.4.3.1 Mitigation Measures

No mitigation measures are required.

6.4.3.2 Impacts Remaining After Mitigation

Less than significant impact.

6.4.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

Similar to the other Build Alternatives, any unpleasant odors from transit operations would be subject to management under the odor complaint tracking system mandated by SCAQMD Rule 402 (Nuisance). All trash receptacles at Metro station locations would be subject to regular servicing and maintenance to ensure that unpleasant odors do not emanate from waste bins and present uncomfortable conditions to patrons. Therefore, Alternative 3 would have a minor, if any, impact with respect to odors and impacts would be less than significant impact.

As shown in Table 1.1, the Existing + Alternative 3 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 under Existing Conditions to 463,173,975 miles under Alternative 3. The 71,845 daily VMT reduction would decrease regional mobile source emissions associated with both vehicle exhaust and re-entrained dust on the roadways. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of Alternative 3 would be 130,870 relative to the No Project Alternative. As such, Alternative 3 would decrease road dust emissions in direct correlation with VMT and impacts related to operational odors and dust would be less than significant.

6.4.4.1 Mitigation Measures

No mitigation measures are required.

6.4.4.2 Impacts Remaining After Mitigation

Less than significant impact.

6.4.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

Similar to the other Build Alternatives, any unpleasant odors from transit operations would be subject to management under the odor complaint tracking system mandated by SCAQMD Rule 402 (Nuisance). All trash receptacles at Metro station locations would be subject to regular servicing and maintenance to ensure that unpleasant odors do not emanate from waste bins and present uncomfortable conditions to patrons. Therefore, Alternative 4 would have a minor, if any, impact with respect to odors and impacts would be less than significant impact.

As shown in Table 1.1, the Existing + Alternative 4 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 under Existing Conditions to 463,209,483 miles under Alternative 4. The 36,337 daily VMT reduction would decrease regional mobile source emissions associated with both vehicle exhaust and re-entrained dust on the roadways. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of Alternative 4 would be 70,826 relative to the No Project Alternative. As

such, Alternative 4 would decrease road dust emissions in direct correlation with VMT and impacts related to operational odors and dust would be less than significant.

6.4.5.1 Mitigation Measures

No mitigation measures are required.

6.4.5.2 Impacts Remaining After Mitigation

Less than significant impact.

6.4.6 Design Options

Any unpleasant odors from transit operations would be subject to management under the odor complaint tracking system mandated by SCAQMD Rule 402 (Nuisance). Therefore, Design Option 1 would have a minor, if any, impact with respect to odors and impacts would be less than significant impact.

6.4.6.1 Design Option 1

As shown in Table 1.1, the Existing + Design Option 1 scenario (if operational in 2017) would reduce daily VMT from 463,245,820 under Existing Conditions to 463,009,541 miles under Design Option 1. The 236,279 daily VMT reduction would decrease regional mobile source emissions associated with both vehicle exhaust and re-entrained dust on the roadways. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of Design Option 1 would be 437,800 relative to the No Project Alternative. As such, Design Option 1 would decrease road dust emissions in direct correlation with VMT and impacts related to operational odors and dust would be less than significant.

6.4.6.2 Design Option 2

As shown in Table 1.1, the Existing + Design Option 2 (if operational in 2017) scenario would reduce daily VMT from 463,245,820 under Existing Conditions to 463,027,369 miles under Design Option 2. The 218,451 daily VMT reduction would decrease regional mobile source emissions associated with both vehicle exhaust and re-entrained dust on the roadways. By 2042, the data presented in Table 1.2 demonstrate that the daily VMT reduction with implementation of Design Option 2 would be 398,400 relative to the No Project Alternative. As such, Design Option 2 would decrease road dust emissions in direct correlation with VMT and impacts related to operational odors and dust would be less than significant.

6.4.6.3 Mitigation Measures

No mitigation measures are required.

6.4.6.4 Impacts Remaining After Mitigation

Less than significant impact.

6.4.7 Maintenance and Storage Facility

The MSF site options to be analyzed would be located in the City of Bellflower and the City of Paramount. The MSF would not generate a substantial source of operational odors. Land uses and industrial operations commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Operational activities at the MSF would include the use of common household cleaners that generate localized odors that

are not anticipated to be detectable beyond the MSF property line. Therefore, the MSF would result in a less-than-significant impact related to operations odors.

Operation of the MSF would not introduce a new substantial source of dust emissions to the Affected Area. Primary sources of operational emissions at the MSF include mobile vehicle trips to and from the site, as well as area source emissions from consumer products and ancillary activities such as landscaping. The MSF property would be paved and would not involve large aggregate storage piles or other sources of fugitive dust emissions. Operation of the MSF would be subject to adherence to the SCAQMD rules controlling fugitive dust emissions (Rule 401 Visible Emissions, Rule 402 Nuisance, and Rule 403 Fugitive Dust). As no sources of fugitive dust emissions would be present on the MSF site, operation of the MSF would result in a less than significant impact related to dust emissions.

6.4.7.1 Mitigation Measures

No mitigation measures are required.

6.4.7.2 Impacts Remaining After Mitigation

Less than significant impact.

7 CONSTRUCTION IMPACTS

This section addresses emissions of air pollutants that would be generated by construction activities involved in implementation of the Project in the context of NEPA and CEQA. Development of the LRT corridor and MSF would produce air pollutant emissions associated with off-road equipment, on-road vehicles, and fugitive dust and evaporative emissions. The emissions modeling and analyses incorporated the mandatory elements of the *Metro Green Construction Policy* (Metro 2011) where applicable and feasible.

7.1 Construction Activities

Construction of the Project would take place over approximately six years and all activities involved would be conducted in accordance with the Metro *Green Construction Policy* (Metro 2011). There are several phases and components of the Project that would be implemented, and throughout the overall schedule varying combinations of activities would be occurring simultaneously at multiple locations along the Project corridor.

A general overview of the components of the Project is shown in Table 7.1, along with brief descriptions of the work involved and an approximate duration of the completion time for each phase or component. Prior to the installation of LRT system infrastructure, rail line and utility relocations, demolition, and excavation would occur throughout the Project corridor. In addition to excavation, material import would be required to prepare the foundations for the overcrossings, grade separations, and aerial railway tracks and stations.

Table 7.1. General Construction Activity Schedule

Activity/ Component	Description	Duration (Months)
Demolition	**At-Grade Guideway**. Clear and grub ROW, remove abandoned/active track and abandoned utilities	3-6
	Parking Facilities. Demolish existing structures, pavement, clear and grub site, remove abandoned utilities	2-4
	MSF. Demolish existing structures, pavement, clear and grub site, remove abandoned utilities	3-5
Relocations	**Freight Rail Line Relocation**. Relocate existing freight tracks	12-18
	Utility Relocation. Relocate or temporarily reroute utilities	30-40
At-Grade LRT	**Guideway**. Demolish section to be replaced, preparation of track bed, construction of supporting track slab, laying of rail surface track work	30
	Stations. Develop stations simultaneously with segments using standard building materials	6-24
	Parking Facilities. Preparation, paving, striping; concrete curbs, lighting, driveways, sidewalks, and landscaping as necessary	1-3

Activity/ Component	Description	Duration (Months)
Aerial LRT	**Guideway**. Construct foundation columns and elevated sections; rail fastened directly to the top slab of cast-in-place concrete bridge, or separately placed slab on a steel beam bridge, or a pre-cast concrete bridge	12-30
	Stations. Foundations and columns constructed to support platform; track slabs, station amenities, and vertical circulation elements	8-30
Underground LRT	**TBM Method**. Horizontally excavate tunnel sections, supported by machine shield and pre-cast concrete tunnel liners; TBM requires access to tunnel via shaft or station excavation; TBM dismantled and retrieved through vertical shaft or station excavation at the other end of tunnel alignment	20-50
	Cut-and-Cover. Open cut, doorframe slab, base slab, exterior walls and columns; excavate ground surface with temporary excavation support, temporary concrete decking placed over cut following first lift of excavation about 12-15 feet below ground surface to allow traffic to pass above; once deck in place, continue excavation and internal bracing; once construction complete, area backfilled and surface permanently restored	25
Systems	**Guideway**. Install all system elements, including electrical, mechanical, signals, communications (including TPSS, OCS, traction power, communications, and train control)	24-48
	Systems Testing and Pre-Revenue Operations. System testing and integration scenario would occur after construction completion	15
MSF	**Facility Installation**. Construct MSF, storage track, and trackway to allow for movement of LRVs from mainline track to MSF area; includes vehicle wash, TPSS, parking	36

Source: Metro, 2020
Note: LRT = Light Rail Transit; LRV = Light Rail Vehicle; MSF = Maintenance and Storage Facility; OCS = Overhead Catenary System; TBM = Tunnel Boring Machine; TPSS = Traction Power Substation

Based on the Project Description, following the preparation activities, construction of the Project would be comprised of five high-level components: at-grade LRT segments, aerial LRT segments, underground LRT segments, the MSF, and systems installation and testing. Construction of these components will overlap, and on a given day it is possible that concurrent work would be conducted related to implementation of all of the high-level components. In accordance with guidance from SCAQMD, the air quality assessment characterized the maximum daily emissions that would be occurring at regional and localized scales throughout Project construction, which involved determining a reasonably conservative estimate of highest daily combined activity intensity as well as peak daily emissions from on-site sources during construction of each individual component site.

7.2 Construction Methodology

7.2.1 Regional Emissions Analysis

The regional level analysis considers all sources of air pollutant emissions within the Affected Area—the Basin—during construction, both on the Project site and at remote or mobile locations. Sources of air pollutant emissions involved in construction of the Project would include heavy-duty construction equipment exhaust, fugitive dust (particulate matter) generated by material movement and ground disturbance, haul truck trips used for material import and off-site disposal trips, and vehicle trips associated with crew workers and vendors delivering materials to and from the construction sites. The California Emissions Estimator Model (CalEEMod, Version 2016.3.2) is the preferred land use development emissions tool for estimating air pollutant emissions under CEQA. CalEEMod was used to prepare reasonably conservative estimates of maximum daily regional emissions that would be generated by the sources involved in construction activities described in the *West Santa Ana Branch Transit Corridor Project Construction Methods Report* (Metro 2020g). Maximum daily activities correspond to the Build Alternatives and Design Options that would implement the 19.3-mile LRT corridor. Table 7.2 presents a summary of the CalEEMod input parameters used to estimate reasonable maximum daily construction activity and resulting air pollutant emissions.

Table 7.2. Examples of the Maximum Daily Construction Activity Parameters – Regional Analysis

Construction Activity	Off-Road Equipment Count	Daily Construction Workers	Daily Vendor Deliveries	Daily Haul Truck Loads	Daily Material Import/Export Total Volume (Cubic Yards)
Demolition and Relocations	8	100	0	60	600
Underground LRT Excavation	12	200	0	60	600
At-Grade LRT Construction	10	150	30	0	0
Aerial LRT Construction	10	150	30	0	0
Systems Installation	10	150	20	0	0
MSF Construction	10	150	20	30	300
Totals	**60**	**900**	**100**	**150**	**1,500**

Source: WSP, 2019
Note: LRT = light rail transit; MSF = maintenance and storage facility

The equipment inventories, vehicle trips, and material displacement were populated and allocated using best available information and experiential knowledge of Metro LRT projects taking into account feasibility constraints. The analysis year for regional construction emissions was assumed to be 2022, as this is anticipated as the earliest year of maximum daily activity intensity. Default values were used where project-specific data was not available at the planning phase. The SCAQMD CEQA Air Quality Handbook recommends the use of maximum daily emissions for determining the potential significance of air pollutant emissions generated by CEQA projects. The parameters presented in Table 7.2 represent maximum daily activity intensity for each of the Build Alternatives, and not necessarily the average daily activities that would be occurring throughout construction of the Project. Daily

haul truck activity would fluctuate over the course of construction activities. Based on feasibility constraints and preliminary schedule coordination, maximum daily truck activity would not exceed 150 hauling trucks and 100 material deliveries along the Project corridor regardless of the Build Alternative or Design Option selected.

There are four Build Alternatives (Alternatives 1 through 4) and two Design Options for Alternative 1 being assessed for potential environmental impacts and implementation, which are described in more detail in Section 2.1.4. Depending on the Build Alternative or Design Option selected, different volumes of excavation and infill would be required for the alignment, stations, foundations, and other features. The excavation and infill volumes for the proposed Build Alternatives and Design Options are presented in Table 7.3. Alternative 3 and Alternative 4 would not involve any subterranean alignment or station implementation, and therefore would have substantially less net export volumes.

Table 7.3. Export and Import Quantities—Build Alternatives

Build Alternative	Total Export (Cubic Yards)[1]	Export Truck Loads (10-Cubic Yard Trucks)	Total Import (Cubic Yards)[1]	Import Truck Loads (10-Cubic Yard Trucks)
Alternative 1	987,700	98,770	722,400	72,240
Alternative 2	1,107,800	110,780	677,500	67,750
Alternative 3	78,800	7,880	513,800	51,380
Alternative 4	7,000	700	214,800	321,480
Design Option 1	1,066,400	106,640	757,000	75,700
Design Option 2	1,167,200	116,720	745,900	74,590

Source: WSP, 2020
Note: [1] Rounded to nearest hundred

7.2.2 Localized Emissions Analysis

SCAQMD provides guidance recommending an assessment of localized air quality impacts near construction sites. The localized analysis focuses on emission sources located on the construction site itself and does not include regional vehicle travel and other remote emissions. Using ambient air monitoring data from 37 monitoring sites throughout the Basin in conjunction with air dispersion modeling, the SCAQMD determined regionally specific incremental increases in localized pollutant concentrations throughout the Basin that could constitute a significant air quality impact by exceeding an applicable air quality standard. The Basin was subdivided into SRAs based on proximity to the nearest monitoring station and local topography. The Project corridor transects portions of SRA 1 (Central LA County), SRA 4 (South Coastal LA County), SRA 5 (Southeast LA County), and SRA 12 (South Central LA County). For the localized analysis—which considers emissions only from sources located on the Project construction site and excludes on-road vehicle activity—the Affected Area evaluated is a buffer zone of approximately 1,640 feet (500 meters) around each specific construction site along the LRT corridor. The buffer zone distance is based on the SCAQMD Final LST Methodology, which focuses on the prevention of near-source pollutant concentrations reaching or exceeding ambient air quality standards at sensitive receptor locations in close proximity to construction sites.

Localized emissions for construction were analyzed for the following high-level project component at applicable locations:

- Aerial station and guideway (e.g., Slauson/A Line, Firestone, and Paramount/Rosecrans stations);
- At-grade station and guideway (e.g., Pacific/Randolph, Florence/Salt Lake, Gardendale, I-105/C Line, Bellflower, and Pioneer stations);
- Subterranean station and guideway (e.g., LAUS, Arts/Industrial District, 7th Street/Metro Center, and South Park/Fashion District stations);
- Underground-to-at-grade LRT transition portal in downtown Los Angeles;
- Parking facilities along the Project corridor; and,
- The MSF site options (e.g., Bellflower and Paramount).

Alternative 3 and Alternative 4 would not involve underground construction or portal construction, therefore those analytical scenarios do not apply to these Build Alternatives.

7.2.3 Metro Green Construction Policy

All construction activities involved in Project implementation would comply with the Metro *Green Construction Policy* (Metro 2011). The policy includes control measures and best management practices for minimizing emissions of air pollutants generated by construction sources. Emissions modeling and impact analyses prepared for the Project accounted for the following elements of the policy:

Off-Road Construction Equipment

- Construction equipment shall incorporate, where feasible, emissions-reducing technology such as hybrid drives and specific fuel economy standards.
- Idling shall be restricted to a maximum of 5 minutes, except as provided in the exceptions to the applicable CARB regulations regarding idling.
- All off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier-4 off-road emission standards at a minimum. In addition, if not already supplied with a factory-equipped diesel particulate filter, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the Contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine defined by CARB regulations.

On-Road Equipment

- Trucks or equipment hauling material such as debris or any fill materials shall be fully covered while operating at, to and from the Metro construction project.
- Idling shall be restricted to a maximum of 5 minutes, except as provided in the exceptions to the applicable CARB regulations regarding idling.
- All on-road heavy-duty diesel trucks or equipment with a Gross Vehicle Weight Rating (GWVR) of 19,500 pounds or greater shall comply with USEPA 2007 on-road emission standards for PM and NO_X (0.01 g/bhp-hr and at least 1.2 g/bhp-hr, respectively).

Best Management Practices

- Use of diesel particulate traps or BACT, as feasible.
- Maintain equipment according to manufacturer's specifications.

- Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use, except as provided in the exceptions to the applicable CARB regulations regarding idling for off-road and on-road equipment.
- Maintain a buffer zone that is a minimum of 1,000 feet between truck traffic and sensitive receptors, where feasible.
- Enforce truck parking restrictions, where applicable.
- Prepare haul routes that conform to local requirements to minimize traversing through congested streets or near sensitive receptor areas.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site, as feasible.
- Traffic speeds on all unpaved roads shall be limited to 15 mph or less.

7.3 Construction Impacts

Each discussion for the NEPA analysis considers emissions of criteria pollutants and ozone precursors and emissions that could potentially create a public nuisance that would be generated by construction of the Project. The SCAMD thresholds are provided for informational purposes in the NEPA analysis.

7.3.1 No Build Alternative

The No Build Alternative includes projects identified in the SCAG 2016–2040 RTP/SCS (SCAG 2016a), Metro's 2009 Long-Range Transportation Plan (Metro 2009a), and Measure M. Construction activities for other planned transportation projects may include, but are not limited to, construction staging, materials stockpiling, hauling of dirt and materials, and temporary street and lane closures, and may require temporary easements. The No Build Alternative would not include construction of any project-related facilities or infrastructure and no emissions of air pollutants generated by project construction activities would occur. Ongoing and future planned Metro projects would continue to comply with the Metro Green Construction Policy to ensure that air pollutant emissions during construction activities are minimized to the greatest extent feasible. Therefore, potential adverse construction effects related to the No Build Alternative would not occur.

7.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

7.3.2.1 Criteria Pollutant and Ozone Precursor Emissions

Alternative 1 would involve a variety of construction activities throughout the project corridor and would be conducted in accordance with the Metro *Green Construction Policy*. Table 7.4 presents the maximum daily emissions that would be generated by concurrent activities during construction of Alternative 1, as well as the SCAQMD Air Quality Significance Thresholds for mass daily emissions at the regional level. Despite complying with the 2007 USEPA emissions standards and adhering to BMPs contained within the Metro *Green Construction Policy*, daily emissions of NO_X would exceed the SCAQMD threshold and potentially create an adverse effect related to air quality. The NO_X emissions are mostly attributed to haul trucks, as equipment would be required to comply with the most stringent emissions standards promulgated by the USEPA and the CARB. Therefore, unmitigated haul truck emissions would create a potentially adverse effect related to air quality.

Table 7.4. Maximum Daily Regional Emissions during Construction (Alternatives 1 and 2)

Emissions Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust	4.0	195.1	18.8	0.4	0.1	0.1
On-Site Dust and Vapors	23.0	-	-	-	22.2	9.8
Material Hauling	2.0	19.8	75.6	0.2	6.3	1.8
Vendor Deliveries	0.6	5.3	18.4	<0.1	1.3	0.4
Crew Worker Trips	8.1	61.1	5.3	0.2	20.3	5.5
Total	**37.7**	**281.3**	**118.2**	**0.9**	**50.3**	**17.7**
SCAQMD Threshold	75	550	100	150	150	55

Source: TAHA, 2020, SCAQMD 2019
Note: CO = carbon monoxide; lbs/day = pounds per day; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides

Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would require the use of on-road diesel-fueled haul and vendor delivery trucks to meet the more stringent 2010 CARB on-road emissions standards for PM (0.01 g/bhp-hr) and NO_X (0.20 g/bhp-hr)). Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 lbs/day. Nonetheless, Alternative 1 construction activities would result in a temporary adverse effect related to emissions of criteria pollutants and ozone precursors.

7.3.2.2 Odors and Dust

Alternative 1 would not generate a substantial source of construction odors or visible dust. Construction activities would use a variety of gasoline or diesel-powered equipment that emit exhaust fumes as well as asphalt paving, which has a distinctive odor during application. Persons within proximity to the construction work area may find these odors objectionable or result in a temporary annoyance if source of odors and dust is excessive. However, it is anticipated that emissions from construction activities would occur intermittently throughout the workday and the associated odors would dissipate rapidly within the immediate vicinity of the work area.

Construction activities would adhere to the stringent provisions of the Metro *Green Construction Policy* (e.g., equipment maintenance and inspections, restriction of idling, maintaining buffer zones where feasible) and employ BMPs to prevent the occurrence of a nuisance odor or dust plume in accordance with SCAQMD Rule 402 (Nuisance). Therefore, Alternative 1 would not result in adverse effects related to odor and dust nuisance during construction.

7.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

7.3.3.1 Criteria Pollutant and Ozone Precursor Emissions

Similar to Alternative 1, Alternative 2 would involve a variety of construction activities throughout the project corridor and would be conducted in accordance with the Metro Green Construction Policy. Construction of Alternative 2 would employ the same equipment and vehicle fleet as Alternative 1 and the maximum daily construction activity and emissions would be consistent with Alternative 1, as shown in Table 7.4. Construction of Alternative 2 would result in daily emissions of NO_X that would exceed the SCAQMD threshold and

potentially create an adverse effect related to air quality. Therefore, unmitigated haul truck emissions would create an adverse effect related to air quality.

Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 lbs/day. Nonetheless, Alternative 2 construction activities would result in a temporary adverse effect related to emissions of criteria pollutants and ozone precursors.

7.3.3.2 Odors and Dust

The odors and dust analysis for Alternative 2 is identical to the analysis presented for Alternative 1. Construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs in accordance with SCAQMD Rule 402 (Nuisance). Therefore, Alternative 2 would not result in adverse effects related to odor and dust nuisance during construction.

7.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

7.3.4.1 Criteria Pollutant and Ozone Precursor Emissions

Alternative 3 would involve a variety of construction activities throughout the project corridor and would be conducted in accordance with the Metro *Green Construction Policy*. Alternative 3 would not include any underground station or track construction, which would result in less excavation, a reduction of maximum daily haul truck loads from 150 to 120, and a reduction of maximum daily construction crew from 900 to 700 workers. Table 7.5 presents the maximum daily emissions that would be generated by concurrent activities during construction of Alternative 3, as well as the SCAQMD Air Quality Significance Thresholds for mass daily emissions at the regional level. Construction of Alternative 3 would not produce emissions exceeding any regional mass daily threshold and no adverse effects related to air quality would occur.

Table 7.5. Maximum Daily Regional Emissions during Construction (Alternative 3)

Emissions Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust	3.2	159.3	15.4	0.3	0.1	0.1
On-Site Dust and Vapors	23.0	-	-	-	16.6	7.1
Material Hauling	1.6	15.8	60.5	0.2	5.1	1.5
Vendor Deliveries	0.6	5.3	18.4	< 0.1	1.3	0.4
Crew Worker Trips	6.3	47.5	4.1	0.1	15.8	4.3
Total	**34.7**	**228.0**	**98.4**	**0.7**	**38.9**	**13.4**
SCAQMD Threshold	75	550	100	150	150	55

Source: Metro 2019k, SCAQMD 2019
Note: CO = carbon monoxide; lbs/day = pounds per day; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides

7.3.4.2 Odors and Dust

The odors and dust analysis for Alternative 3 is identical to the analysis presented for Alternative 1. Construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs in accordance with SCAQMD Rule 402 (Nuisance). Therefore, Alternative 3 would not result in adverse effects related to odor and dust nuisance during construction.

7.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

7.3.5.1 Criteria Pollutant and Ozone Precursor Emissions

Alternative 4 would involve a variety of construction activities throughout the project corridor and would be constructed in accordance with the Metro Green Construction Policy. Alternative 4 would not include any underground station or track construction, which would result in less excavation, a reduction of maximum daily haul truck loads from 150 to 100, and a reduction of maximum daily construction crew from 900 to 400 workers. Table 7.6 presents the maximum daily emissions that would be generated by concurrent activities during construction of Alternative 4, as well as the SCAQMD Air Quality Significance Thresholds for mass daily emissions at the regional level. Construction of Alternative 4 would not produce emissions exceeding any regional mass daily threshold and no adverse effects related to emissions of criteria pollutants and ozone precursors would occur.

Table 7.6. Maximum Daily Regional Emissions during Construction (Alternative 4)

Emissions Source	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust	3.2	159.3	15.4	0.3	0.1	0.1
On-Site Dust and Vapors	23.0	-	-	-	16.6	7.1
Material Hauling	1.3	13.2	50.4	0.2	4.2	1.2
Vendor Deliveries	0.6	5.3	18.4	< 0.1	1.3	0.4
Crew Worker Trips	3.6	27.1	2.4	0.1	9.0	2.4
Total	**31.7**	**205.0**	**86.6**	**0.6**	**31.3**	**11.3**
SCAQMD Threshold	75	550	100	150	150	55

Source: TAHA 2020, SCAQMD 2019
Note: CO = carbon monoxide; lbs/day = pounds per day; LRT = light rail transit; MSF = maintenance and storage facility; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides

7.3.5.2 Odors and Dust

The odors and dust analysis for Alternative 4 is identical to the analysis presented for Alternative 1. Construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs in accordance with SCAQMD Rule 402 (Nuisance). Therefore, Alternative 4 would not result in adverse effects related to odor and dust nuisance during construction.

7.3.6 Design Options

7.3.6.1 Criteria Pollutant and Ozone Precursor Emissions

Design Options 1 and 2 would involve a variety of construction activities throughout the project corridor similar to Alternative 1 and would be conducted in accordance with the Metro Green Construction Policy. Construction of Design Options 1 and 2 would employ the same equipment and vehicle fleet as Alternative 1, and the maximum daily construction activity and emissions would be consistent with Alternative 1, as shown in Table 7.4. Construction of Design Options 1 and 2 would result in daily emissions of NO_X that would exceed the SCAQMD threshold and potentially create a temporary adverse effect related to air quality.

Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, Design Options 1 and 2 construction activities would result in a temporary adverse effect related to emissions of criteria pollutants and ozone precursors.

7.3.6.2 Odors and Dust

The odors and dust analysis for Design Options 1 and 2 is identical to the analysis presented for Alternative 1. Construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs in accordance with SCAQMD Rule 402 (Nuisance). Therefore, Design Options 1 and 2 would not result in adverse effects related to odor and dust nuisance during construction.

7.3.7 Maintenance and Storage Facility

7.3.7.1 Criteria Pollutant and Ozone Precursor Emissions

As the Paramount and Bellflower MSF site options would be similar in size, it was assumed that construction would employ the same equipment and vehicle inventory, result in the same maximum daily activity, and follow the same schedule regardless of the site option selected. The data presented in Table 7.7 apply to the construction of either the Paramount or Bellflower MSF site options.

Table 7.7. Maximum Daily Construction Emissions – MSF (Paramount and Bellflower)

Construction Phase	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Demolition	2.7	49.3	22.7	0.1	5.6	1.5
Site Preparation	2.8	51.7	23.4	0.2	11.2	4.2
Building/Track Installation	1.8	34.8	7.2	0.1	3.6	1.0
Paving/Coating/Striping	25.0	34.1	5.2	0.1	3.6	1.0
Maximum Daily Emissions	**25.0**	**51.7**	**23.4**	**0.2**	**11.2**	**4.2**
SCAQMD Threshold	75	550	100	150	150	55

Source: TAHA. 2020; SCAQMD 2019
Note: CO = carbon monoxide; lbs/day = pounds per day; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides

Construction of an MSF site option would generally involve demolition, site clearing, grading, structure and track installation, paving, and architectural coating activities. Construction of the MSF site options would last for approximately three years and would be constructed in accordance with the Metro Green Construction Policy. Table 7.7 presents the maximum daily emissions that would be generated by construction of the Paramount or Bellflower MSF site option, as well as the SCAQMD Air Quality Significance Thresholds for mass daily emissions at the regional level. Construction of the Paramount or Bellflower MSF site option would not produce emissions exceeding any regional mass daily threshold and no adverse effects would occur.

7.3.7.2 Odors and Dust

The odors and dust analysis for the MSF site options is identical to the analysis presented for Alternative 1. Construction of an MSF site option would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs in accordance with SCAQMD Rule 402 (Nuisance). Therefore, the Paramount or Bellflower MSF site option would not result in adverse effects related to odor and dust nuisance during construction.

7.4 California Environmental Quality Act

As described in Section 7.2.1 Regional Emissions Analysis, construction of the Project would generate air pollutant emissions through sources such as heavy-duty off-road equipment exhaust, fugitive dust produced by ground disturbance and soil displacement activities, on-road vehicle exhaust from trips by construction workers, haul trucks, material delivery trucks, and on-road re-entrained dust and brake and tire wear. The SCAQMD guidance states that air pollutant emissions be analyzed on both regional and local scales. The regional emissions analysis, where applicable, considers daily pollutant emissions that would be generated by all sources involved in project construction, both on-site and remote (mobile). The localized emissions analysis relates to the potential concentrations of pollutants in the vicinity of the construction sites, and only considers emissions from sources located on the construction site (i.e., equipment exhaust and on-site fugitive dust). The daily pollutant emissions are compared to the applicable SCAQMD Air Quality Significance Thresholds discussed in Section 1.5.2.

7.4.1 Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?

The following analyses address consistency with applicable SCAQMD and SCAG policies, including SCAQMD's 2016 AQMP and growth projections within the SCAG's 2016–2040 RTP/SCS. The following impact discussions focus on construction emissions in the context of air quality violations and attainment of the air quality standards.

7.4.1.1 No Project Alternative

The No Project Alternative would not include construction of any project-related facilities or infrastructure and would not introduce additional sources of construction air pollutant emissions into the SCAQMD jurisdiction. Ongoing Metro construction activities and those planned for future Metro projects would remain committed to compliance with the Metro *Green Construction Policy*. Therefore, no impact would occur related to obstructing implementation of the applicable air quality plan by increasing the frequency or severity of air quality violations or delaying attainment of the air quality standards.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.1.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Alternative 1 would involve a variety of construction activities throughout the project corridor and would be conducted in accordance with the Metro *Green Construction Policy*. Table 7.4 presented above, shows a detailed breakdown of the maximum daily emissions that would be generated by concurrent activities during construction of Alternative 1. Table 7.8 summarizes the total maximum daily emissions of criteria pollutants and ozone precursors that would be generated by construction of each Build Alternative, as disclosed in the NEPA analyses for the Build Alternatives and Design Options. The table also identifies the SCAQMD Air Quality Significance Thresholds for mass daily emissions from construction activities at the regional level. The ROG and NO_X thresholds were originally derived from the USEPA threshold of 10 tons per year of ozone precursors in areas designated severe nonattainment of the ozone NAAQS. The maximum daily emissions presented do not necessarily represent average daily emissions over the course of construction activities. Rather, the emissions disclosed in Table 7.8 estimate maximum potential daily activity emissions, and the average emissions throughout Project construction will likely be lower than those analyzed. Due to uncertainty in preliminary scheduling, it was not feasible to predict with any accuracy the average daily emissions over the six-year construction schedule.

Table 7.8. Maximum Daily Regional Emissions – Build Alternatives

Emissions Source [1]	Measured in lbs/day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
SCAQMD Threshold	**75**	**550**	**100**	**150**	**150**	**55**
Alternatives 1 and 2						
Emissions Source Total[1]	37.7	281.3	118.2	0.9	50.3	17.7
Threshold Exceeded?	No	No	**Yes**	No	No	No
Alternative 3						
Emissions Source Total[1]	34.7	228.0	98.4	0.7	38.9	13.4
Threshold Exceeded?	No	No	No	No	No	No
Alternative 4						
Emissions Source Total[1]	31.7	205.0	86.6	0.6	31.3	11.3
Threshold Exceeded?	No	No	No	No	No	No

Source: TAHA 2020, SCAQMD 2019
Notes: [1] Emission Source Total includes the total emissions for equipment exhaust, on-site dust and vapors, material hauling, vendor deliveries, and crew worker trips.
lbs/day = pounds per day; CO = carbon monoxide; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides

Despite complying with the 2007 USEPA emissions standards and adhering to the BMPs contained within the Metro Green Construction Policy, daily emissions of NO_X would exceed the SCAQMD threshold, potentially creating a significant impact related to obstructing timely implementation of the AQMP. The NO_X emissions are mostly attributed to haul trucks, as equipment would be required to comply with the most stringent emissions standards promulgated by the USEPA and the CARB. Therefore, unmitigated haul truck emissions would potentially create a significant impact related to obstructing timely implementation of the AQMP.

Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, construction of Alternative 1 would result in a temporary significant and unavoidable impact related to emissions of criteria pollutants and ozone precursors.

Mitigation Measures

Mitigation Measure AQ-1(Vehicle Emissions).

Impacts Remaining After Mitigation

Significant and Unavoidable Impact.

7.4.1.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

Similar to Alternative 1, Alternative 2 construction activities throughout the project corridor would be conducted in accordance with the Metro *Green Construction Policy*; would employ the same equipment and vehicle fleet as Alternative 1; and the maximum daily construction activity and emissions would be consistent with Alternative 1 as detailed in Table 7.4 and summarized in Table 7.8. Construction of Alternative 2 would result in daily emissions of NO_X that would exceed the applicable SCAQMD regional mass daily threshold and potentially create a temporary significant impact to air quality related to obstructing timely implementation of the AQMP.

Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, construction of Alternative 2 would result in a temporary significant and unavoidable impact related to emissions of criteria pollutants and ozone precursors.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Significant and Unavoidable Impact.

7.4.1.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

Alternative 3 construction activities throughout the project corridor would be conducted in accordance with the Metro *Green Construction Policy*. Alternative 3 would not include any underground station or track construction, which would result in less excavation, a reduction of maximum daily haul truck loads from 150 to 120, and a reduction of maximum daily construction crew from 900 to 700 workers. As detailed in Table 7.5 and summarized in Table 7.8, construction of Alternative 3 would not produce emissions exceeding any regional

mass daily threshold. Construction of Alternative 3 would result in a less than significant impact related to potentially obstructing timely attainment of the AQMP.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.1.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

Alternative 4 construction activities throughout the project corridor would be conducted in accordance with the Metro *Green Construction Policy*. Alternative 4 would not include any underground station or track construction, which would result in less excavation, a reduction of maximum daily haul truck loads from 150 to 100, and a reduction of maximum daily construction crew from 900 to 400 workers. As detailed in Table 7.6 and summarized in Table 7.8, construction of Alternative 4 would not produce emissions exceeding any regional mass daily threshold. Construction of Alternative 4 would result in a less than significant impact related to potentially obstructing timely attainment of the AQMP.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.1.6 Design Options

Construction activities throughout the project corridor for Design Options 1 and 2 would be similar to Alternative 1 and would be conducted in accordance with the Metro *Green Construction Policy*. Construction activities would employ the same equipment and vehicle fleet as Alternative 1 and the maximum daily construction activity and emissions would be consistent with Alternative 1, as shown in Table 7.4 and summarized in Table 7.8. Construction of Design Option 1 or 2 would result in daily emissions of NO_X that would exceed the applicable SCAQMD regional mass daily threshold and potentially create a temporary significant impact to air quality related to obstructing timely implementation of the AQMP.

Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, construction of Design Option 1 or 2 would result in a temporary significant and unavoidable impact related to emissions of criteria pollutants and ozone precursors.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Significant and unavoidable impact.

7.4.1.7 Maintenance and Storage Facility

As the Paramount and Bellflower MSF site options would be similar in size, it was assumed that construction would employ the same equipment and vehicle inventory, result in the same maximum daily activity, and follow the same schedule regardless of the site option selected. Construction of an MSF site option would generally involve demolition, site clearing, grading, structure and track installation, paving, and architectural coating activities. Construction of the MSF site options would last for approximately three years and would be constructed in accordance with the Metro *Green Construction Policy*. As detailed in Table 7.7, construction of the Paramount or Bellflower MSF site option would not produce emissions exceeding any regional mass daily threshold. Construction of an MSF site option would result in a less than significant impact related to potentially obstructing timely attainment of the AQMP.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.2 Would the Proposed Project 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?

The project region is currently designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$. The following analysis focuses on ozone precursors (reactive organic gas and NO_X) and particulate matter (PM_{10} and $PM_{2.5}$) emissions that may contribute to a cumulatively considerable incremental increase in atmospheric concentrations of ozone and particulate matter.

7.4.2.1 No Project Alternative

The No Project Alternative would not include construction of any project-related facilities or infrastructure, and no new sources of construction air pollutant emissions would be introduced to the SCAQMD jurisdiction. Therefore, no impact related to cumulatively considerable net increases in criteria pollutant or ozone precursor emissions would occur.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.2.2 Alternative 1: Los Angeles Union Station to Pioneer Station

As demonstrated in the emissions analysis detailed in Table 7.4 and summarized in Table 7.8, construction of Alternative 1 would result in a significant and unavoidable air quality impact related to regional emissions of NO_X (an ozone precursor) predominantly attributed to on-road heavy-duty truck trips. Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, construction of Alternative 1 would result in a temporary significant and unavoidable impact related to emissions of criteria pollutants and ozone precursors. As such,

no feasible mitigation measures were identified to reduce daily NO_X emissions during construction of Alternative 1 to below the applicable SCAQMD regional threshold.

The SCAQMD asserts that if a project generates daily emissions exceeding the project-level CEQA mass daily thresholds of significance, those emissions would also be considered cumulatively considerable. Therefore, construction of Alternative 1 would generate a significant and unavoidable impact related to cumulatively considerable increases in emissions of nonattainment pollutants.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Significant and unavoidable impact.

7.4.2.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The emissions analysis for Alternative 2 is similar to the analysis presented for Alternative 1, as detailed in Table 7.4 and summarized in Table 7.8. Construction of Alternative 2 would result in a significant and unavoidable air quality impact related to regional emissions of NO_X and implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, construction of Alternative 2 would result in a temporary significant and unavoidable impact related to emissions of criteria pollutants and ozone precursors. As such, no feasible mitigation measures were identified to reduce daily NO_X emissions during construction of Alternative 2. Therefore, construction of Alternative 2 would generate a significant and unavoidable impact related to cumulatively considerable increases in emissions of nonattainment pollutants.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Significant and unavoidable impact.

7.4.2.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

As demonstrated in the emissions analysis detailed in Table 7.5 and summarized in Table 7.8, construction of Alternative 3 would generate maximum daily emissions of particulate matter and ozone precursors below the applicable SCAQMD regional mass daily threshold value throughout the construction phase. Therefore, according to SCAQMD guidance, construction of Alternative 3 would result in a less than significant impact related to cumulatively considerable increases in nonattainment pollutants.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.2.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

As demonstrated in the emissions analysis detailed in Table 7.6 and summarized in Table 7.8, construction of Alternative 4 would generate maximum daily emissions of particulate matter and ozone precursors below the applicable SCAQMD regional mass daily threshold value throughout the construction phase. Therefore, according to SCAQMD guidance, construction of Alternative 4 would result in a less than significant impact related to cumulatively considerable increases in nonattainment pollutants.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.2.6 Design Options

As detailed in Table 7.4 and summarized in Table 7.8, regional emissions of ozone precursors and particulate matter generated by construction activities for Design Option 1 or 2 would be consistent with those presented for Alternative 1. Construction of Design Option 1 or 2 would result in a significant and unavoidable air quality impact related to regional emissions of NO_X. Implementation of Mitigation Measure AQ-1 (Vehicle Emissions) would reduce maximum daily NO_X emissions to approximately 104.0 pounds per day. Nonetheless, construction of Design Option 1 or 2 would result in a temporary significant and unavoidable impact related to emissions of criteria pollutants and ozone precursors. As such, no feasible mitigation measures were identified to reduce daily NO_X emissions to below the applicable SCAQMD regional threshold.

Therefore, construction of either Design Option 1 or 2 would generate a significant and unavoidable impact related to cumulatively considerable increases in emissions of nonattainment pollutants.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Significant and unavoidable impact.

7.4.2.7 Maintenance and Storage Facility

As the Paramount and Bellflower MSF site options would be similar in size, it was assumed that construction would employ the same equipment and vehicle inventory, result in the same maximum daily activity, and follow the same schedule regardless of the site option selected. As detailed in Table 7.7, construction of the Paramount or Bellflower MSF site option would generate maximum daily emissions of particulate matter and ozone precursors below the applicable SCAQMD regional mass daily threshold value. Therefore, according to SCAQMD guidance, construction of the Paramount or Bellflower MSF site option would result in a less than significant impact related to cumulatively considerable increases in nonattainment pollutants.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.3 Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations?

The potential sensitive receptor exposures to substantial pollutant concentrations and the public health implications of construction emissions are assessed in both regional and localized contexts. At the regional level, in a recent decision in *Sierra Club v. County of Fresno* (Friant Ranch) the California Supreme Court held that CEQA requires EIRs to correlate regional air quality impacts to health impacts, or to explain why doing so is not scientifically feasible. Therefore, the regional emissions associated with construction of the Build Alternatives are evaluated in the context of the Friant Ranch decision, with consideration given to potential public health effects resulting from the emissions and resulting concentrations.

7.4.3.1 No Project Alternative

The No Project Alternative would not include construction of any project-related facilities or infrastructure. Therefore, the No Project Alternative would not introduce any sources of air pollutant emissions into the area and no construction-related emissions would occur. No impact related to exposure of sensitive receptors to substantial pollutant concentrations generated by construction activity emissions would occur.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.3.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Regional Emissions

Construction of Alternative 1 would generate approximately 104 lbs/day NO_X, after implementation of Mitigation Measure AQ-1 (Vehicle Emissions), which would still exceed the applicable SCAQMD regional threshold of 100 lbs/day. Construction of Alternative 1 would generate approximately 4 lbs/day of excessive NO_X emissions that would be distributed along the haul truck vendor delivery routes. However, these emissions would contribute to negligible incremental increases in atmospheric NO_2 and O_3 as the emissions would be dispersed along hundreds of miles of roadway throughout LA County.

The City of Los Angeles (City of Los Angeles, 2019) recently published guidance related to the estimation of public health effects resulting from excessive emissions at the project level, which states:

> *For local plans or projects that exceed any identified SCAQMD air quality threshold, City EIR documents typically identify and disclose generalized health effects of certain air pollutants but are currently unable to establish a reliable connection between any local plan or project and a particulate health effect. In addition, no expert agency has*

yet to approve a quantitative method to reliably and meaningfully do so. A number of factors contribute to this uncertainty, including the regional scope of air quality monitoring and planning, technological limitations for modeling at a local plan- or project-level, and the intrinsically complex nature between air pollutants and health effects in conjunction with local environmental variables. Therefore, at this time, it is infeasible for City EIRs to directly link a plan's or project's significant air quality impacts with a specific health effect.

Therefore, construction of Alternative 1 would not generate regional emissions that would expose sensitive receptors to substantial pollutant concentrations solely by exceeding the NO_X threshold. This impact would be less than significant at the regional level.

Localized Emissions

As described in Section 7.2.2, the localized emissions analysis considers various types of construction sites that would be involved in developing the LRT corridor. Table 7.9 presents the maximum daily emissions that would be generated by individual demolition and relocations throughout the project corridor, along with the applicable LST values for a 1-acre work site. The LST values are provided for all SRAs in which demolition and relocation activities would occur during construction of Alternative 1. Based on the LST analysis, the demolition and relocation activities would not generate emissions exceeding any applicable LST value for sensitive receptors located within approximately 80 feet of the construction sites. Therefore, demolition and relocation activities would result in a less than significant impact related to the exposure of sensitive receptors to substantial localized pollutant concentrations.

Table 7.9. Demolition and Relocation Daily Localized Construction Emissions

Description	Measured in lbs/day			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust/Area Source	**29.0**	**2.7**	**3.9**	**0.6**
SCAQMD SRA 1 LST Value	680	74	5	3
SCAQMD SRA 4 LST Value	585	57	4	3
SCAQMD SRA 5 LST Value	571	80	4	3
SCAQMD SRA 12 LST Value	231	43	4	3
Exceed SCAQMD LST Threshold? [1]	**No**	**No**	**No**	**No**

Source: Metro 2019k, SCAQMD 2009
Notes: [1] The exceedance of SCAQMD Thresholds are measured by comparing the "Equipment Exhaust/Area Source" with the SCAQMD Localized Significance Thresholds
CO = carbon monoxide; lbs/day = pounds per day; LST = Localized Significance Threshold; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; SCAQMD = South Coast Air Quality Management District; SRA = Source Receptor Area

Table 7.10 presents the maximum daily emissions generated by excavation and grading sites throughout the project corridor, along with the applicable LST values for a 2-acre work site. Based on the LST analysis, excavation and grading activities would not generate emissions exceeding any applicable LST value for sensitive receptors located within approximately 80 feet of the construction sites. Therefore, excavation and grading activities would result in a less than significant impact related to exposure of sensitive receptors to substantial localized pollutant concentrations.

Table 7.10. Excavation and Grading Daily Localized Construction Emissions

Description	Measured in lbs/day			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust/Area Source	**35.8**	**3.5**	**5.6**	**2.7**
SCAQMD SRA 1 LST Value	1,048	108	8	5
SCAQMD SRA 4 LST Value	842	82	7	5
SCAQMD SRA 5 LST Value	861	114	7	4
SCAQMD SRA 12 LST Value	346	65	7	4
Exceed SCAQMD LST Threshold? [1]	**No**	**No**	**No**	**No**

Source: TAHA 2020, SCAQMD 2009
Notes: [1] The exceedance of SCAQMD Thresholds are measured by comparing the "Equipment Exhaust/Area Source" with the SCAQMD Localized Significance Thresholds
CO = carbon monoxide; lbs/day = pounds per day; LRT = light rail transit; LST = Localized Significance Threshold; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; SCAQMD = South Coast Air Quality Management District; SRA – Source Receptor Areas

Table 7.11 presents the maximum daily emissions that would be generated by construction of the underground-to-at-grade portal, along with the applicable LST values for a 1-acre work site. It was determined that sensitive receptors would be located within approximately 350 feet of the construction site boundary. In addition, the proposed location for the portal from underground to at-grade LRT is approximately 700 feet south of the intersection of East Olympic Boulevard and Long Beach Avenue in the City of Los Angeles; therefore, the LST analysis considers maximum daily on-site emissions in SRA 1. Based on the LST analysis, portal construction activities would not generate emissions exceeding any applicable LST value for sensitive receptors located within approximately 350 feet of the construction sites. Therefore, portal construction would result in a less than significant impact related to exposure of sensitive receptors to substantial localized pollutant concentrations.

Table 7.11. Portal Daily Localized Construction Emissions

Activity	Measured in lbs/day			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Portal Construction On-Site	**35.8**	**3.5**	**5.6**	**2.7**
SCAQMD SRA 1 LST Value	1,259	82	33	10
Exceed SCAQMD LST Threshold?	**No**	**No**	**No**	**No**

Source: TAHA 2020, SCAQMD 2009
Note: CO = carbon monoxide; lbs/day = pounds per day; LST = Localized Significance Threshold; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; SCAQMD = South Coast Air Quality Management District; SRA – Source Receptor Areas

Table 7.12 presents the maximum daily emissions generated by individual at-grade track and station sites throughout the project corridor following demolition and site clearing activities, along with the applicable LST values for a 1-acre work site. The LST values are provided for all SRAs in which at-grade LRT segment construction activities along the Alternative 1 corridor would occur. Based on the LST analysis, at-grade construction activities would not generate emissions exceeding any applicable LST value for sensitive receptors located within approximately 80 feet of the construction sites. Therefore, at-grade construction activities would result in a less than significant impact related to exposure of sensitive receptors to substantial localized pollutant concentrations.

Table 7.12. At-Grade Track and Station Daily Localized Construction Emissions

Description	Measured in lbs/day			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust/Area Source	**35.6**	**3.3**	**2.8**	**1.4**
SCAQMD SRA 1 LST Value	680	74	5	3
SCAQMD SRA 4 LST Value	585	57	4	3
SCAQMD SRA 5 LST Value	571	80	4	3
SCAQMD SRA 12 LST Value	231	43	4	3
Exceed SCAQMD LST Threshold? [1]	**No**	**No**	**No**	**No**

Source: TAHA 2020, SCAQMD 2009
Notes: [1] The exceedance of SCAQMD Thresholds are measured by comparing the "Equipment Exhaust/Area Source" with the SCAQMD Localized Significance Thresholds.
CO = carbon monoxide; lbs/day = pounds per day; LST = Localized Significance Threshold; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; SCAQMD = South Coast Air Quality Management District; SRA = Source Receptor Area

Table 7.13 presents the maximum daily emissions that would be generated by individual aerial track and station sites throughout the project corridor following demolition and site clearing activities, as well as the applicable LST values for a 1-acre work site. The LST values are provided for all SRAs in which at-grade LRT segment construction activities along the Alternative 1 corridor would occur. Based on the LST analysis, aerial track and station construction activities would not generate emissions exceeding any applicable LST value for sensitive receptors located within approximately 80 feet of the construction sites. Therefore, aerial track and station construction activities would result in a less than significant impact related to exposure of sensitive receptors to substantial localized pollutant concentrations.

Table 7.13. Aerial Track and Station Daily Localized Construction Emissions

Description	Measured in lbs/day			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Equipment Exhaust/Area Source	**29.4**	**3.0**	**2.8**	**1.4**
SCAQMD SRA 1 LST Value	680	74	5	3
SCAQMD SRA 4 LST Value	585	57	4	3
SCAQMD SRA 5 LST Value	571	80	4	3
SCAQMD SRA 12 LST Value	231	43	4	3
Exceed SCAQMD LST Threshold? [1]	**No**	**No**	**No**	**No**

Source: TAHA 2020, SCAQMD 2009
Notes: [1] The exceedance of SCAQMD Thresholds are measured by comparing the "Equipment Exhaust/Area Source" with the SCAQMD Localized Significance Thresholds
CO = carbon monoxide; lbs/day = pounds per day; LST = Localized Significance Threshold; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; SCAQMD = South Coast Air Quality Management District; SRA = Source Receptor Area

Table 7.14 presents the daily localized emissions that would be generated by construction of the MSF site regardless of location, as well as the applicable LST values for a 2-acre work site in SRA 5.

Table 7.14. Daily Localized Construction Emissions for MSF Site Options

Construction Phase	Measured in lbs/day			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Demolition	34.2	3.1	0.9	0.2
Site Preparation	36.5	3.8	5.8	2.8
Building/Track Installation	24.5	3.7	<0.1	<0.1
Paving/Coating/Striping	24.5	1.8	<0.1	<0.1
Maximum Daily Emissions	**36.5**	**3.8**	**5.8**	**2.8**
SCAQMD SRA 5 LST Value	861	114	7	4
Exceed SCAQMD LST Threshold? [1]	**No**	**No**	**No**	**No**

Source: TAHA 2020, SCAQMD 2009
Notes: [1] The exceedance of SCAQMD Thresholds are measured by comparing the "Equipment Exhaust/Area Source" with the SCAQMD Localized Significance Thresholds
CO = carbon monoxide; lbs/day = pounds per day; NO_x = nitrogen oxide; $PM_{2.5}$ = fine particulate matter of diameter less than 2.5 microns; PM_{10} = respirable particulate matter of diameter less than 10 microns; ROG = reactive organic gases; SCAQMD = South Coast Air Quality Management District; SO_x = sulfur oxides

Based on the LST analysis, construction of an MSF site option would not generate emissions exceeding any applicable LST value for sensitive receptors located within approximately 80 feet of the construction sites. Therefore, construction of an MSF site option would result in a less than significant impact related to exposure of sensitive receptors to substantial localized pollutant concentrations. Overall, Alternative 1 would result in a less than significant impact related to the exposure of sensitive receptors to substantial localized pollutant concentrations during construction.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Less than significant impact.

7.4.3.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

Regional Emissions

Alternative 2 regional emissions analysis is the same as Alternative 1. Alternative 2 would generate approximately 104 lbs/day NO_X, after implementation of Mitigation Measure AQ-1 (Vehicle Emissions), which would still exceed the applicable SCAQMD regional threshold of 100 lbs/day. However, these emissions would contribute to negligible incremental increases in atmospheric NO_2 and O_3. Therefore, construction of Alternative 2 would result in a less than significant impact related to regional emissions producing substantial pollutant concentrations to which sensitive receptors may be exposed.

Localized Emissions

The localized emissions analysis for Alternative 2 is the same as Alternative 1 and as presented in Table 7.9 through Table 7.14. Therefore, Alternative 2 would result in a less than significant impact related to the exposure of sensitive receptors to substantial localized pollutant concentrations.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Less than significant impact.

7.4.3.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

Regional Emissions

The regional emissions analysis for Alternative 3 presented in Table 7.5 and summarized in Table 7.8 demonstrates that maximum daily regional emissions would remain below all applicable SCAQMD mass daily thresholds of significance. Therefore, in the context of the Friant Ranch decision, construction of Alternative 3 would not generate regional emissions that would potentially expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

Localized Emissions

The localized emissions analysis for Alternative 3 is the same as Alternative 1 and as presented in Table 7.9 through Table 7.14, with the exception that no underground or portal construction activities would occur. Therefore, Alternative 3 would result in a less than significant impact related to the exposure of sensitive receptors to substantial localized pollutant concentrations.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.3.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

Regional Emissions

The regional emissions analysis for Alternative 4 presented in Table 7.6 and summarized in Table 7.8 demonstrates that maximum daily regional emissions would remain below all applicable SCAQMD mass daily thresholds of significance. Therefore, in the context of the Friant Ranch decision, construction of Alternative 4 would not generate regional emissions that would potentially expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

Localized Emissions

The localized emissions analysis for Alternative 4 is the same as Alternative 1 and as presented in Table 7.9 through Table 7.14, with the exception that no underground or portal construction activities would occur. Therefore, Alternative 4 would result in a less than significant impact related to the exposure of sensitive receptors to substantial localized pollutant concentrations.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.3.6 Design Options

Regional Emissions

The regional emissions analysis for Design Options 1 and 2 is the same as Alternative 1, in which Design Option 1 or 2 would generate approximately 104 lbs/day NO_X, after implementation of Mitigation Measure AQ-1 (Vehicle Emissions), which would still exceed the applicable SCAQMD regional threshold of 100 lbs/day. However, these emissions would contribute to negligible incremental increases in atmospheric NO_2 and O_3. Therefore, construction of Design Option 1 or 2 would result in a less than significant impact related to regional emissions producing substantial pollutant concentrations to which sensitive receptors may be exposed.

Localized Emissions

The localized emissions analysis for Design Options 1 and 2 is the same as Alternative 1 and as presented in Table 7.9 through Table 7.14. Therefore, Alternative 2 would result in a less than significant impact related to the exposure of sensitive receptors to substantial localized pollutant concentrations.

Mitigation Measures

Mitigation Measure AQ-1 (Vehicle Emissions).

Impacts Remaining After Mitigation

Less than significant impact.

Maintenance and Storage Facility

As the Paramount and Bellflower MSF site options would be similar in size, it is assumed construction equipment and vehicle inventories, schedule, and maximum daily activity would be the same. Therefore, the analyses pertaining to construction activities and associated emissions are identical for the two site options.

Regional Emissions

The regional emissions analysis for the Paramount and Bellflower MSF site options presented in Table 7.7 demonstrated that maximum daily regional emissions would remain below all applicable SCAQMD mass daily thresholds of significance. Therefore, construction of an MSF site option would not generate regional emissions that would potentially expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

Localized Emissions

The localized emissions that would be generated by construction of either MSF site option are presented within the analysis for Alternative 1. As shown in Table 7.14, maximum daily localized emissions would not exceed the applicable LST values, and construction of an MSF would result in a less than significant impact related to potential exposures of sensitive receptors to substantial localized pollutant concentrations.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

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

7.4.4.1 No Project Alternative

The No Project Alternative would not include construction of any project-related facilities or infrastructure. Therefore, the No Project Alternative would not introduce any sources of air pollutant emissions into the area and no construction-related emissions would occur. No impact related to the creation of emissions that would potentially result in a public nuisance for odors or visible dust plumes would occur.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.4.2 Alternative 1: Los Angeles Union Station to Pioneer Station

Alternative 1 construction activities would not generate a substantial source of construction odors or visible dust plumes. Alternative 1 would result in exhaust fumes through gasoline or diesel-powered equipment and asphalt paving. Such emissions would occur intermittently, and associated odors would dissipate rapidly within the immediate vicinity of the work area. Construction activities would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs to prevent the occurrence of a nuisance odor or dust plume in accordance with SCAQMD Rule 402 (Nuisance). Therefore, Alternative 1 would result in a less than significant impact related to public nuisance for odors or visible dust plumes.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.4.3 Alternative 2: 7th Street/Metro Center to Pioneer Station

The odors analysis for Alternative 2 is identical to the analysis presented for Alternative 1. Alternative 2 construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs. Therefore, Alternative 2 would result in a less than significant impact related to public nuisance for odors or visible dust plumes.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.4.4 Alternative 3: Slauson/A (Blue) Line to Pioneer Station

The odors analysis for Alternative 3 is identical to the analysis presented for Alternative 1. Alternative 3 construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs. Therefore, Alternative 3 would result in a less than significant impact related to public nuisance for odors or visible dust plumes.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.4.5 Alternative 4: I-105/C (Green) Line to Pioneer Station

The odors analysis for Alternative 4 is identical to the analysis presented for Alternative 1. Alternative 4 construction activities would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs. Therefore, Alternative 4 would result in a less than significant impact related to public nuisance for odors or visible dust plumes.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.4.6 Design Options

The odors analysis for Design Options 1 and 2 is identical to the analysis presented for Alternative 1. Construction activities for Design Options 1 and 2 would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs. Therefore, Design Options 1 and 2 would result in a less than significant impact related to public nuisance for odors or visible dust plumes.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

7.4.4.7 Maintenance and Storage Facility

The odors analysis for the Paramount or Bellflower MSF site option is identical to the analysis presented for Alternative 1. Construction of an MSF would not generate a substantial source of construction odors or visible dust plumes and would adhere to the stringent provisions of the Metro *Green Construction Policy* and employ BMPs. Therefore, the Paramount or Bellflower MSF site option would not result in a less than significant impact related to public nuisance for odors or visible dust plumes.

Mitigation Measures

No mitigation measures are required.

Impacts Remaining After Mitigation

Less than significant impact.

8 PROJECT MEASURES AND MITIGATION MEASURES

The provisions of the Metro *Green Construction Policy* represent robust strategies for controlling emissions of air pollutants in equipment exhaust and fugitive dust associated with construction activities. However, these control measures are not sufficient to reduce regional NO_X emissions to levels below the SCAQMD mass daily threshold of significance.

8.1 Project Measures

No operation or construction project measures are required.

8.2 Mitigation Measures

8.2.1 Operation

No operation mitigation measures are required.

8.2.2 Construction

AQ-1 **Vehicle Emissions**. On-road vehicles registered with the California Air Resource Board's 2010 engine emissions standards at 0.01 g/bhp-hr of particulate matter and 0.20 grams per brake horsepower-hour (g/bhp-hr) of nitrogen oxide emissions would be used during construction. Off road vehicles or equipment would meet Tier 4 requirements. Operators would maintain records of all trucks associated with project construction to document that each truck used meets these emission standards and make the records available for inspection.

9 REFERENCES

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APPENDIX A AIR QUALITY CALCULATION WORKSHEETS

- Operational Emissions
    - Daily On-Road Vehicle Miles Traveled Summary Table
    - On-Road Vehicle Miles Traveled Daily Pollutant Emissions
    - Project Area EMFAC2017 Mobile Source Emission Rates
    - Paramount Site Option Maintenance and Storage Facility Daily CalEEMod Output File
- Construction Emissions
    - Light Rail Corridor Construction Daily CalEEMod Output File
    - Maintenance and Storage Facility Daily CalEEMod Output File

Operational Emissions
Daily On-Road Vehicle Miles Traveled Summary Table

Daily Regional On-Road Vehicle Miles Traveled Summary

Speed Range	2017-Existing (Miles/Day)	2042 No Build (Miles/Day)	2042 Alternative 1 (Miles/Day)	2042 Alternative 2 (Miles/Day)	2042 Alternative 3 (Miles/Day)	2042 Alternative 4 (Miles/Day)	2042 Design Option 1 (Miles/Day)	2042 Design Option 2 (Miles/Day)
≤5	2,925,006	8,161,300	8,074,614	8,166,799	8,120,095	8,053,500	8,000,989	8,144,726
5-10	5,252,940	22,192,831	22,107,135	22,136,969	22,245,691	22,229,614	22,099,971	22,138,082
10-15	13,759,521	37,570,046	37,647,774	37,720,605	37,558,820	37,510,367	37,880,426	37,514,461
15-20	29,405,409	58,002,358	57,983,192	57,712,253	57,936,698	58,155,189	57,722,685	57,847,372
20-25	62,189,909	85,809,742	85,721,421	85,729,611	86,039,526	86,503,235	86,813,193	85,972,147
25-30	67,226,815	87,812,528	88,014,920	87,609,115	87,751,214	86,627,756	86,128,622	87,264,226
30-35	59,226,864	69,039,178	68,672,917	69,035,806	68,783,376	69,207,341	69,052,745	69,343,773
35-40	36,971,117	45,115,846	45,018,534	45,360,914	45,312,052	46,099,921	45,972,566	45,179,744
40-45	22,813,405	20,004,278	20,132,841	19,881,122	19,936,347	19,769,841	19,427,023	20,024,992
45-50	16,937,617	16,888,941	17,126,088	17,009,770	17,054,865	16,408,919	17,586,013	16,887,253
50-55	16,868,433	15,149,076	14,903,294	15,115,485	14,888,433	15,057,952	14,682,118	15,092,566
55-60	16,152,280	20,835,805	20,754,100	20,733,207	20,854,238	21,055,689	20,678,448	20,802,896
60-65	21,987,684	28,725,713	28,810,940	28,715,217	28,572,364	28,356,609	29,059,703	28,716,231
65-70	35,691,030	48,972,338	49,017,502	48,975,235	49,191,189	49,344,816	48,346,604	48,880,364
70-75	55,649,717	41,911,351	41,814,825	41,911,942	41,815,668	41,740,111	42,291,149	41,984,125
75-80	188,076	138,580	138,311	138,460	138,464	138,224	149,857	138,550
Totals	**463,245,820**	**606,329,911**	**605,938,411**	**605,952,511**	**606,199,041**	**606,259,084**	**605,892,111**	**605,931,510**
	Change from No Build		(391,500)	(377,400)	(130,870)	(70,826)	(437,800)	(398,400)
	% Change from NB		-0.065%	-0.062%	-0.022%	-0.012%	-0.072%	-0.066%
	Change from Existing	143,084,090	142,692,590	142,706,690	142,953,220	143,013,264	142,646,290	142,685,690
	% Change from Existing	30.89%	30.803%	30.806%	30.859%	30.872%	30.793%	30.801%

Operational Emissions

Daily On-Road Vehicle Miles Traveled (VMT) Emissions

Daily Pollutant Emissions - Regional On-Road Vehicle Miles Traveled

Year	Scenario	Speed	Daily VMT	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
2017	Existing	5	2,925,006	2,321.9	20,337.2	5,993.7	59.0	845.5	345.8
2017	Existing	10	5,252,940	2,850.0	31,315.2	8,981.6	86.8	1,440.0	547.6
2017	Existing	15	13,759,521	4,757.2	70,998.6	18,295.1	185.1	3,578.2	1,251.7
2017	Existing	20	29,405,409	6,730.5	134,014.9	32,713.2	330.1	7,375.3	2,418.3
2017	Existing	25	62,189,909	10,707.7	255,167.8	62,007.4	600.0	15,319.3	4,852.0
2017	Existing	30	67,226,815	9,239.4	251,350.2	61,346.1	576.9	16,384.6	5,080.2
2017	Existing	35	59,226,864	6,773.7	203,762.8	50,294.5	470.4	14,339.3	4,385.8
2017	Existing	40	36,971,117	3,679.0	118,186.4	29,774.9	282.6	8,921.9	2,710.5
2017	Existing	45	22,813,405	2,073.3	68,474.7	17,795.1	173.5	5,504.2	1,671.7
2017	Existing	50	16,937,617	1,480.7	48,309.2	13,087.2	131.6	4,097.6	1,251.7
2017	Existing	55	16,868,433	1,496.8	46,389.6	13,210.5	135.8	4,103.4	1,268.2
2017	Existing	60	16,152,280	1,528.4	43,628.0	13,080.7	135.1	3,948.5	1,232.7
2017	Existing	65	21,987,684	2,311.1	59,745.5	18,716.8	190.2	5,391.5	1,693.6
2017	Existing	70	35,691,030	4,019.2	98,371.7	30,811.0	311.2	8,764.2	2,760.7
2017	Existing	75	55,649,717	6,273.1	153,446.6	48,040.7	485.3	13,665.2	4,304.5
2017	Existing	80	188,076	21.2	518.6	162.4	1.6	46.2	14.5
	Existing Total		463,245,820	66,263.0	1,604,017.0	424,311.0	4,155.3	113,725.0	35,789.5
2042	No Build	5	8,161,300	1,691.9	20,687.3	9,040.8	102.1	1,961.2	575.8
2042	No Build	10	22,192,831	3,033.4	47,876.9	18,795.4	226.5	5,263.8	1,502.1
2042	No Build	15	37,570,046	3,301.4	68,668.0	22,811.4	310.2	8,838.2	2,475.7
2042	No Build	20	58,002,358	3,434.9	92,797.6	28,227.9	400.0	13,576.4	3,758.6
2042	No Build	25	85,809,742	3,787.3	124,008.8	33,287.8	507.9	20,024.0	5,504.2
2042	No Build	30	87,812,528	3,077.8	116,125.5	26,405.7	460.7	20,456.7	5,600.6
2042	No Build	35	69,039,178	2,021.0	84,248.4	15,971.5	334.4	16,071.1	4,392.1
2042	No Build	40	45,115,846	1,159.9	51,209.1	8,100.5	209.8	10,501.5	2,869.9
2042	No Build	45	20,004,278	475.1	21,294.9	2,903.9	92.5	4,658.8	1,274.8
2042	No Build	50	16,888,941	390.0	17,017.7	2,163.3	79.9	3,937.3	1,080.2
2042	No Build	55	15,149,076	358.1	14,609.7	1,943.3	74.5	3,537.0	974.0
2042	No Build	60	20,835,805	531.4	19,517.8	3,037.6	106.9	4,874.5	1,348.9
2042	No Build	65	28,725,713	832.0	26,647.5	5,188.6	153.3	6,737.6	1,876.1
2042	No Build	70	48,972,338	1,546.9	45,632.3	8,901.9	263.5	11,491.1	3,202.7
2042	No Build	75	41,911,351	1,340.1	39,219.5	7,618.4	225.5	9,834.2	2,740.9
2042	No Build	80	138,580	4.4	129.7	25.2	0.7	32.0	8.5
	No Build Total		606,329,911	26,985.6	789,690.8	194,423.3	3,548.5	141,795.3	39,185.0

Daily Pollutant Emissions - Regional On-Road Vehicle Miles Traveled

Year	Scenario	Speed	Daily VMT	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
2042	Alternative 1	5	8,074,614	1,673.9	20,467.6	8,944.7	101.1	1,940.3	569.7
2042	Alternative 1	10	22,107,135	3,021.7	47,692.1	18,722.8	225.7	5,243.5	1,496.3
2042	Alternative 1	15	37,647,774	3,308.2	68,810.0	22,858.6	310.9	8,856.5	2,480.8
2042	Alternative 1	20	57,983,192	3,433.8	92,766.9	28,218.6	399.9	13,571.9	3,757.4
2042	Alternative 1	25	85,721,421	3,783.4	123,881.2	33,253.5	507.4	20,003.4	5,498.5
2042	Alternative 1	30	88,014,920	3,084.9	116,393.1	26,466.6	461.7	20,503.9	5,613.5
2042	Alternative 1	35	68,672,917	2,010.3	83,801.4	15,886.8	332.7	15,985.8	4,368.8
2042	Alternative 1	40	45,018,534	1,157.4	51,098.7	8,083.1	209.3	10,478.9	2,863.7
2042	Alternative 1	45	20,132,841	478.2	21,431.8	2,922.6	93.1	4,688.7	1,283.0
2042	Alternative 1	50	17,126,088	395.5	17,256.7	2,193.7	81.0	3,992.6	1,095.3
2042	Alternative 1	55	14,903,294	352.2	14,372.7	1,911.8	73.3	3,479.6	958.2
2042	Alternative 1	60	20,754,100	529.3	19,441.3	3,025.7	106.5	4,855.4	1,343.6
2042	Alternative 1	65	28,810,940	834.5	26,726.6	5,204.0	153.8	6,757.6	1,881.6
2042	Alternative 1	70	49,017,502	1,548.3	45,674.4	8,910.1	263.7	11,501.7	3,205.6
2042	Alternative 1	75	41,814,825	1,337.0	39,129.1	7,600.8	225.0	9,811.6	2,734.6
2042	Alternative 1	80	138,311	4.4	129.4	25.1	0.7	31.9	8.5
	AltE-Forecourt Total	Alt 1	605,938,411	26,953.0	789,073.0	194,228.6	3,545.7	141,703.2	39,159.2
2042	Design Option 1	5	8,000,989	1,658.7	20,281.0	8,863.2	100.1	1,922.7	564.5
2042	Design Option 1	10	22,099,971	3,020.7	47,676.6	18,716.8	225.6	5,241.8	1,495.8
2042	Design Option 1	15	37,880,426	3,328.7	69,235.3	22,999.9	312.8	8,911.3	2,496.1
2042	Design Option 1	20	57,722,685	3,418.4	92,350.2	28,091.8	398.1	13,510.9	3,740.5
2042	Design Option 1	25	86,813,193	3,831.6	125,459.0	33,677.1	513.9	20,258.2	5,568.5
2042	Design Option 1	30	86,128,622	3,018.7	113,898.6	25,899.4	451.8	20,064.4	5,493.2
2042	Design Option 1	35	69,052,745	2,021.4	84,264.9	15,974.7	334.5	16,074.2	4,393.0
2042	Design Option 1	40	45,972,566	1,181.9	52,181.6	8,254.4	213.8	10,701.0	2,924.4
2042	Design Option 1	45	19,427,023	461.4	20,680.4	2,820.1	89.8	4,524.3	1,238.1
2042	Design Option 1	50	17,586,013	406.1	17,720.1	2,252.6	83.2	4,099.8	1,124.8
2042	Design Option 1	55	14,682,118	347.0	14,159.4	1,883.4	72.2	3,428.0	944.0
2042	Design Option 1	60	20,678,448	527.4	19,370.4	3,014.7	106.1	4,837.7	1,338.7
2042	Design Option 1	65	29,059,703	841.7	26,957.4	5,248.9	155.1	6,815.9	1,897.9
2042	Design Option 1	70	48,346,604	1,527.1	45,049.2	8,788.1	260.1	11,344.2	3,161.8
2042	Design Option 1	75	42,291,149	1,352.2	39,574.9	7,687.4	227.6	9,923.4	2,765.7
2042	Design Option 1	80	149,857	4.8	140.2	27.2	0.8	34.6	9.2
	Design Option 1 Total	DO1	605,892,111	26,947.8	788,999.1	194,199.6	3,545.4	141,692.2	39,156.1

Daily Pollutant Emissions - Regional On-Road Vehicle Miles Traveled

Year	Scenario	Speed	Daily VMT	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
2042	Alternative 2	5	8,166,799	1,693.0	20,701.3	9,046.8	102.2	1,962.5	576.2
2042	Alternative 2	10	22,136,969	3,025.8	47,756.4	18,748.1	226.0	5,250.5	1,498.3
2042	Alternative 2	15	37,720,605	3,314.6	68,943.1	22,902.8	311.5	8,873.7	2,485.6
2042	Alternative 2	20	57,712,253	3,417.8	92,333.5	28,086.7	398.0	13,508.5	3,739.8
2042	Alternative 2	25	85,729,611	3,783.7	123,893.0	33,256.7	507.4	20,005.3	5,499.0
2042	Alternative 2	30	87,609,115	3,070.6	115,856.5	26,344.6	459.6	20,409.3	5,587.6
2042	Alternative 2	35	69,035,806	2,020.9	84,244.3	15,970.7	334.4	16,070.3	4,391.9
2042	Alternative 2	40	45,360,914	1,166.2	51,487.3	8,144.5	210.9	10,558.6	2,885.4
2042	Alternative 2	45	19,881,122	472.2	21,163.8	2,886.0	91.9	4,630.1	1,267.0
2042	Alternative 2	50	17,009,770	392.8	17,139.5	2,178.8	80.5	3,965.4	1,087.9
2042	Alternative 2	55	15,115,485	357.3	14,577.3	1,939.0	74.3	3,529.1	971.8
2042	Alternative 2	60	20,733,207	528.8	19,421.7	3,022.7	106.4	4,850.5	1,342.3
2042	Alternative 2	65	28,715,217	831.7	26,637.8	5,186.7	153.3	6,735.1	1,875.4
2042	Alternative 2	70	48,975,235	1,547.0	45,635.0	8,902.4	263.5	11,491.7	3,202.9
2042	Alternative 2	75	41,911,942	1,340.1	39,220.0	7,618.5	225.5	9,834.4	2,740.9
2042	Alternative 2	80	138,460	4.4	129.6	25.2	0.7	31.9	8.5
	Alternative 2 Total	Alt 2	605,952,511	26,966.9	789,140.1	194,260.3	3,546.1	141,707.0	39,160.6
2042	Design Option 2	5	8,144,726	1,688.5	20,645.3	9,022.4	101.9	1,957.2	574.7
2042	Design Option 2	10	22,138,082	3,025.9	47,758.8	18,749.0	226.0	5,250.8	1,498.4
2042	Design Option 2	15	37,514,461	3,296.5	68,566.4	22,777.6	309.8	8,825.2	2,472.0
2042	Design Option 2	20	57,847,372	3,425.8	92,549.6	28,152.5	398.9	13,540.1	3,748.6
2042	Design Option 2	25	85,972,147	3,794.4	124,243.5	33,350.8	508.9	20,061.9	5,514.6
2042	Design Option 2	30	87,264,226	3,058.5	115,400.4	26,240.9	457.8	20,329.0	5,565.6
2042	Design Option 2	35	69,343,773	2,029.9	84,620.1	16,042.0	335.9	16,142.0	4,411.5
2042	Design Option 2	40	45,179,744	1,161.5	51,281.7	8,112.0	210.1	10,516.4	2,873.9
2042	Design Option 2	45	20,024,992	475.6	21,317.0	2,906.9	92.6	4,663.6	1,276.2
2042	Design Option 2	50	16,887,253	390.0	17,016.0	2,163.1	79.9	3,936.9	1,080.1
2042	Design Option 2	55	15,092,566	356.7	14,555.2	1,936.0	74.2	3,523.8	970.4
2042	Design Option 2	60	20,802,896	530.6	19,487.0	3,032.8	106.7	4,866.8	1,346.8
2042	Design Option 2	65	28,716,231	831.7	26,638.7	5,186.9	153.3	6,735.4	1,875.4
2042	Design Option 2	70	48,880,364	1,544.0	45,546.6	8,885.2	263.0	11,469.5	3,196.7
2042	Design Option 2	75	41,984,125	1,342.4	39,287.6	7,631.6	225.9	9,851.3	2,745.7
2042	Design Option 2	80	138,550	4.4	129.7	25.2	0.7	32.0	8.5
	Design Option 2 Total	DO2	605,931,510	26,956.5	789,043.5	194,215.0	3,545.6	141,701.7	39,158.9

Daily Pollutant Emissions - Regional On-Road Vehicle Miles Traveled

Year	Scenario	Speed	Daily VMT	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
2042	Alternative 4	5	8,053,500	1,669.5	20,414.1	8,921.3	100.8	1,935.3	568.2
2042	Alternative 4	10	22,229,614	3,038.4	47,956.3	18,826.6	226.9	5,272.5	1,504.6
2042	Alternative 4	15	37,510,367	3,296.2	68,558.9	22,775.2	309.7	8,824.2	2,471.7
2042	Alternative 4	20	58,155,189	3,444.0	93,042.1	28,302.3	401.1	13,612.1	3,768.5
2042	Alternative 4	25	86,503,235	3,817.9	125,011.0	33,556.8	512.0	20,185.8	5,548.6
2042	Alternative 4	30	86,627,756	3,036.2	114,558.7	26,049.5	454.5	20,180.7	5,525.0
2042	Alternative 4	35	69,207,341	2,025.9	84,453.6	16,010.4	335.2	16,110.2	4,402.8
2042	Alternative 4	40	46,099,921	1,185.2	52,326.1	8,277.2	214.4	10,730.6	2,932.5
2042	Alternative 4	45	19,769,841	469.6	21,045.4	2,869.9	91.4	4,604.2	1,259.9
2042	Alternative 4	50	16,408,919	378.9	16,534.1	2,101.8	77.6	3,825.4	1,049.5
2042	Alternative 4	55	15,057,952	355.9	14,521.8	1,931.6	74.0	3,515.7	968.1
2042	Alternative 4	60	21,055,689	537.0	19,723.8	3,069.7	108.0	4,925.9	1,363.1
2042	Alternative 4	65	28,356,609	821.3	26,305.1	5,121.9	151.3	6,651.0	1,852.0
2042	Alternative 4	70	49,344,816	1,558.7	45,979.4	8,969.6	265.5	11,578.5	3,227.0
2042	Alternative 4	75	41,740,111	1,334.6	39,059.2	7,587.2	224.6	9,794.1	2,729.7
2042	Alternative 4	80	138,224	4.4	129.3	25.1	0.7	31.9	8.5
	Alternative 4 Total	Alt 4	606,259,084	26,973.8	789,618.9	194,396.2	3,547.8	141,778.1	39,179.9
2042	Alternative 3	5	8,120,095	1,683.4	20,582.9	8,995.1	101.6	1,951.3	572.9
2042	Alternative 3	10	22,245,691	3,040.6	47,991.0	18,840.2	227.1	5,276.3	1,505.7
2042	Alternative 3	15	37,558,820	3,300.4	68,647.4	22,804.6	310.1	8,835.6	2,474.9
2042	Alternative 3	20	57,936,698	3,431.1	92,692.6	28,196.0	399.6	13,561.0	3,754.4
2042	Alternative 3	25	86,039,526	3,797.4	124,340.9	33,376.9	509.3	20,077.6	5,518.9
2042	Alternative 3	30	87,751,214	3,075.6	116,044.4	26,387.3	460.4	20,442.4	5,596.7
2042	Alternative 3	35	68,783,376	2,013.5	83,936.2	15,912.3	333.2	16,011.5	4,375.8
2042	Alternative 3	40	45,312,052	1,164.9	51,431.8	8,135.8	210.7	10,547.2	2,882.3
2042	Alternative 3	45	19,936,347	473.5	21,222.6	2,894.1	92.2	4,643.0	1,270.5
2042	Alternative 3	50	17,054,865	393.8	17,184.9	2,184.6	80.7	3,975.9	1,090.8
2042	Alternative 3	55	14,888,433	351.9	14,358.3	1,909.9	73.2	3,476.1	957.2
2042	Alternative 3	60	20,854,238	531.9	19,535.1	3,040.3	107.0	4,878.8	1,350.1
2042	Alternative 3	65	28,572,364	827.6	26,505.3	5,160.9	152.5	6,701.6	1,866.0
2042	Alternative 3	70	49,191,189	1,553.8	45,836.2	8,941.7	264.7	11,542.4	3,217.0
2042	Alternative 3	75	41,815,668	1,337.0	39,129.9	7,601.0	225.0	9,811.8	2,734.7
2042	Alternative 3	80	138,464	4.4	129.6	25.2	0.7	31.9	8.5
	Alternative 3 Total	Alt 3	606,199,041	26,980.9	789,569.1	194,405.7	3,547.9	141,764.6	39,176.5

Operational Emissions

Project Area EMFAC2017 Mobile Source Emission Rates

Regional On-Road Vehicle Miles Traveled EMFAC2017 Emission Rates

2042 emissions rates presented below account for CARB 2019 SAFE Vehicle Rule Off-Model Adjustment Factors applied to raw EMFAC2017 output (exhaust only).

CARB Adj. Factors		ROG	CO	NOX	SOX	PM10	PM2.5
2042	Exhaust	1.0099	1.0294	1.0116	1	1.0286	1.0286

Project Area EMFAC2017 Emission Rates (grams per vehicle mile (93% NT, 7% T fleet mix)

Year	Speed	ROG	CO	NOX	SOX	PM10	PM2.5
2017	5	0.36006	3.153762	0.929468	0.009157107	0.131116	0.053617
2017	10	0.246097	2.704074	0.775563	0.007494743	0.124341	0.047283
2017	15	0.156823	2.340517	0.603111	0.006102375	0.117959	0.041263
2017	20	0.103821	2.067242	0.504616	0.005091355	0.113768	0.037304
2017	25	0.078098	1.861107	0.452261	0.004376338	0.111734	0.035389
2017	30	0.06234	1.695907	0.413914	0.003892264	0.11055	0.034277
2017	35	0.051877	1.560528	0.385183	0.003602862	0.109818	0.033589
2017	40	0.045137	1.450008	0.365303	0.003466639	0.109461	0.033255
2017	45	0.041222	1.361462	0.353815	0.003450106	0.109439	0.033238
2017	50	0.039653	1.293728	0.350478	0.003525179	0.109734	0.033522
2017	55	0.040249	1.247417	0.35523	0.003652287	0.110341	0.034102
2017	60	0.042921	1.225171	0.367336	0.003795089	0.110882	0.034616
2017	65	0.047676	1.232512	0.386116	0.003923326	0.111224	0.034938
2017	70	0.051079	1.250191	0.391572	0.003955328	0.111383	0.035085
2017	75	0.051131	1.250719	0.391572	0.003955328	0.111383	0.035085
2017	80	0.051131	1.250719	0.391572	0.003955328	0.111383	0.035085
2042	5	0.094032862	1.149769319	0.502470801	0.005676549	0.108998949	0.032003969
2042	10	0.061998614	0.9785412	0.384153012	0.004630212	0.107584624	0.030700733
2042	15	0.03985863	0.829044447	0.275407385	0.00374538	0.1067062	0.029889167
2042	20	0.026862063	0.725698979	0.220749024	0.003128117	0.106170299	0.029393382
2042	25	0.020019639	0.655513028	0.175959997	0.002684885	0.105847319	0.029095088
2042	30	0.015898038	0.599841365	0.136397754	0.002379604	0.105668343	0.028929484
2042	35	0.013278136	0.553517487	0.104933945	0.002197242	0.105588112	0.028856453
2042	40	0.011661387	0.514853471	0.081442222	0.002109172	0.10558194	0.028853367
2042	45	0.010773285	0.482856904	0.065845763	0.002096833	0.105636456	0.028906854
2042	50	0.010474559	0.4570511	0.058101105	0.002145882	0.105744459	0.029010743
2042	55	0.010720806	0.437442224	0.058186011	0.002230055	0.105903892	0.029162976
2042	60	0.01156854	0.424899405	0.066128783	0.002327029	0.106116812	0.02936561
2042	65	0.013137857	0.420776682	0.081930432	0.002420964	0.106389391	0.029623789
2042	70	0.014327712	0.42265569	0.082450988	0.002440597	0.106432592	0.029663904
2042	75	0.014503314	0.424458675	0.082450988	0.002440597	0.106432592	0.029663904
2042	80	0.014503314	0.424458675	0.082450988	0.002440597	0.104649	0.027977

Operational Emissions

Paramount Site Option Maintenance and Storage Facility (MSF) Daily CalEEMod Output File

LACMTA West Santa Ana Branch MSF - Paramount Option

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	8.07	1000sqft	0.19	8,070.00	0
General Light Industry	24.47	1000sqft	0.56	24,470.00	0
General Light Industry	6.74	1000sqft	0.15	6,740.00	0
Industrial Park	95.11	1000sqft	2.18	95,110.00	0
Unrefrigerated Warehouse-Rail	7.56	1000sqft	0.17	7,560.00	0
Other Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Other Non-Asphalt Surfaces	13.20	Acre	13.20	574,992.00	0
Parking Lot	307.00	Space	2.76	122,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Preliminary Schedule

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Trips and VMT - 150 worker trips, 20 vendor deliveries, 30 haul loads daily.

Grading -

Vehicle Trips - 250 daily employees/visitors

Area Coating - SCAQMD Rule 1113

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - Metro GCP Compliance

Fleet Mix -

Off-road Equipment - Project Inventory

Architectural Coating - SCAQMD Rule 1113

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	370.00	450.00
tblConstructionPhase	NumDays	20.00	90.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	10.00	360.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Paving Parking & Access Roads
tblOffRoadEquipment	PhaseName		Building Construction & Track Laydown
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	910.00	5,400.00
tblTripsAndVMT	HaulingTripNumber	0.00	21,600.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	159.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	WorkerTripNumber	25.00	300.00
tblTripsAndVMT	WorkerTripNumber	25.00	300.00
tblTripsAndVMT	WorkerTripNumber	408.00	300.00
tblTripsAndVMT	WorkerTripNumber	20.00	200.00

tblTripsAndVMT	WorkerTripNumber	82.00	100.00
tblVehicleTrips	DV_TP	19.00	5.00
tblVehicleTrips	PB_TP	2.00	3.00
tblVehicleTrips	PR_TP	79.00	92.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.49	2.63
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	0.73	2.63
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	6.83	2.63
tblVehicleTrips	WD_TR	1.68	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.5005	69.6478	45.4753	0.1563	20.0481	2.1741	22.2221	8.3277	2.0020	10.3298	0.0000	15,862.9532	15,862.9532	2.6922	0.0000	15,930.2581
2023	5.7221	56.6584	42.8099	0.1529	20.2606	1.8174	22.0780	8.3799	1.6728	10.0527	0.0000	15,510.4328	15,510.4328	2.6493	0.0000	15,576.6663
2024	26.2279	20.7140	31.9632	0.0758	3.6094	0.7615	4.3709	0.9631	0.7137	1.6768	0.0000	7,423.6998	7,423.6998	0.9932	0.0000	7,448.5288
2025	26.0546	16.6959	30.6417	0.0712	3.6094	0.6714	4.2808	0.9631	0.6288	1.5919	0.0000	7,056.0825	7,056.0825	0.9715	0.0000	7,080.3711
Maximum	**26.2279**	**69.6478**	**45.4753**	**0.1563**	**20.2606**	**2.1741**	**22.2221**	**8.3799**	**2.0020**	**10.3298**	**0.0000**	**15,862.9532**	**15,862.9532**	**2.6922**	**0.0000**	**15,930.2581**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.8082	23.4037	51.7005	0.1563	11.0839	0.0942	11.1780	4.1146	0.0899	4.2045	0.0000	15,862.9532	15,862.9532	2.6922	0.0000	15,930.2581
2023	2.5321	17.2364	50.3626	0.1529	11.2964	0.0644	11.3608	4.1668	0.0615	4.2283	0.0000	15,510.4328	15,510.4328	2.6493	0.0000	15,576.6663
2024	24.9666	7.1524	34.1297	0.0758	3.6094	0.0369	3.6463	0.9631	0.0348	0.9978	0.0000	7,423.6998	7,423.6998	0.9932	0.0000	7,448.5288
2025	24.9074	5.1445	33.4771	0.0712	3.6094	0.0358	3.6452	0.9631	0.0337	0.9968	0.0000	7,056.0825	7,056.0825	0.9715	0.0000	7,080.3711
Maximum	**24.9666**	**23.4037**	**51.7005**	**0.1563**	**11.2964**	**0.0942**	**11.3608**	**4.1668**	**0.0899**	**4.2283**	**0.0000**	**15,862.9532**	**15,862.9532**	**2.6922**	**0.0000**	**15,930.2581**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**14.40**	**67.67**	**-12.45**	**0.00**	**37.72**	**95.74**	**43.66**	**45.22**	**95.62**	**55.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4870	4.3000e-004	0.0474	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1018	0.1018	2.6000e-004		0.1084
Energy	0.0505	0.4587	0.3853	2.7500e-003		0.0349	0.0349		0.0349	0.0349		550.4078	550.4078	0.0106	0.0101	553.6786
Mobile	0.3599	1.7601	5.1159	0.0232	2.3547	0.0163	2.3710	0.6299	0.0152	0.6451		2,375.1628	2,375.1628	0.1027		2,377.7306
Total	**3.8973**	**2.2192**	**5.5485**	**0.0260**	**2.3547**	**0.0514**	**2.4060**	**0.6299**	**0.0502**	**0.6801**		**2,925.6724**	**2,925.6724**	**0.1135**	**0.0101**	**2,931.5176**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4870	4.3000e-004	0.0474	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1018	0.1018	2.6000e-004		0.1084
Energy	0.0505	0.4587	0.3853	2.7500e-003		0.0349	0.0349		0.0349	0.0349		550.4078	550.4078	0.0106	0.0101	553.6786
Mobile	0.3599	1.7601	5.1159	0.0232	2.3547	0.0163	2.3710	0.6299	0.0152	0.6451		2,375.1628	2,375.1628	0.1027		2,377.7306
Total	**3.8973**	**2.2192**	**5.5485**	**0.0260**	**2.3547**	**0.0514**	**2.4060**	**0.6299**	**0.0502**	**0.6801**		**2,925.6724**	**2,925.6724**	**0.1135**	**0.0101**	**2,931.5176**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/7/2022	5/21/2022	6	90	
2	Site Preparation	Site Preparation	5/23/2022	7/15/2023	6	360	Site Preparation & Grading
3	Building Construction & Track Laydown	Building Construction	7/17/2023	12/21/2024	6	450	
4	Paving Parking & Access Roads	Paving	12/23/2024	3/1/2025	6	60	
5	Road Striping & Architectural Coating	Architectural Coating	12/23/2024	3/1/2025	6	60	

Acres of Grading (Site Preparation Phase): 900

Acres of Grading (Grading Phase): 0

Acres of Paving: 18.96

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 212,925; Non-Residential Outdoor: 70,975; Striped Parking Area: 49,708 (Architectural Coating – sqft)

OffRoad Equipment

LACMTA West Santa Ana Branch MSF - Paramount Option - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Excavators	2	8.00	158	0.38
Demolition	Rough Terrain Forklifts	2	8.00	100	0.40
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Site Preparation	Crawler Tractors	1	8.00	212	0.43
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Graders	2	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction & Track Laydown	Cranes	1	8.00	231	0.29
Building Construction & Track Laydown	Generator Sets	1	8.00	84	0.74
Building Construction & Track Laydown	Rough Terrain Forklifts	3	8.00	100	0.40
Building Construction & Track Laydown	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction & Track Laydown	Welders	2	8.00	46	0.45
Paving Parking & Access Roads	Forklifts	2	8.00	89	0.20
Paving Parking & Access Roads	Pavers	2	8.00	130	0.42
Paving Parking & Access Roads	Paving Equipment	2	8.00	132	0.36
Paving Parking & Access Roads	Rollers	2	8.00	80	0.38
Road Striping & Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	10	300.00	40.00	5,400.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	10	300.00	40.00	21,600.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction & Track Laydown	10	300.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Parking & Access Roads	8	200.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Road Striping & Architectural Coating	2	100.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1875	0.0000	2.1875	0.3312	0.0000	0.3312			0.0000			0.0000
Off-Road	3.6009	35.7542	28.6428	0.0593		1.6131	1.6131		1.5081	1.5081		5,718.2681	5,718.2681	1.5307		5,756.5357
Total	**3.6009**	**35.7542**	**28.6428**	**0.0593**	**2.1875**	**1.6131**	**3.8005**	**0.3312**	**1.5081**	**1.8393**		**5,718.2681**	**5,718.2681**	**1.5307**		**5,756.5357**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.0492	0.0436	1.0928	0.2876	0.0417	0.3293		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**4.6586**	**0.0770**	**4.7356**	**1.2506**	**0.0727**	**1.3234**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8531	0.0000	0.8531	0.1292	0.0000	0.1292			0.0000			0.0000
Off-Road	0.7007	3.0361	34.1122	0.0593		0.0140	0.0140		0.0140	0.0140	0.0000	5,718.2681	5,718.2681	1.5307		5,756.5357
Total	**0.7007**	**3.0361**	**34.1122**	**0.0593**	**0.8531**	**0.0140**	**0.8671**	**0.1292**	**0.0140**	**0.1432**	**0.0000**	**5,718.2681**	**5,718.2681**	**1.5307**		**5,756.5357**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.0492	0.0436	1.0928	0.2876	0.0417	0.3293		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**4.6586**	**0.0770**	**4.7356**	**1.2506**	**0.0727**	**1.3234**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.6954	0.0000	14.6954	6.9067	0.0000	6.9067			0.0000			0.0000
Off-Road	4.5496	49.9591	30.2843	0.0699		2.0971	2.0971		1.9293	1.9293		6,768.4633	6,768.4633	2.1891		6,823.1897
Total	**4.5496**	**49.9591**	**30.2843**	**0.0699**	**14.6954**	**2.0971**	**16.7925**	**6.9067**	**1.9293**	**8.8360**		**6,768.4633**	**6,768.4633**	**2.1891**		**6,823.1897**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.7433	0.0436	1.7869	0.4580	0.0417	0.4997		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**5.3527**	**0.0770**	**5.4297**	**1.4210**	**0.0727**	**1.4938**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7312	0.0000	5.7312	2.6936	0.0000	2.6936			0.0000			0.0000
Off-Road	0.8573	3.7149	36.5095	0.0699		0.0172	0.0172		0.0172	0.0172	0.0000	6,768.4633	6,768.4633	2.1891		6,823.1897
Total	**0.8573**	**3.7149**	**36.5095**	**0.0699**	**5.7312**	**0.0172**	**5.7484**	**2.6936**	**0.0172**	**2.7108**	**0.0000**	**6,768.4633**	**6,768.4633**	**2.1891**		**6,823.1897**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.7433	0.0436	1.7869	0.4580	0.0417	0.4997		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**5.3527**	**0.0770**	**5.4297**	**1.4210**	**0.0727**	**1.4938**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.6954	0.0000	14.6954	6.9067	0.0000	6.9067			0.0000			0.0000
Off-Road	4.0473	43.1370	28.9568	0.0699		1.7701	1.7701		1.6285	1.6285		6,767.4765	6,767.4765	2.1887		6,822.1950
Total	**4.0473**	**43.1370**	**28.9568**	**0.0699**	**14.6954**	**1.7701**	**16.4655**	**6.9067**	**1.6285**	**8.5352**		**6,767.4765**	**6,767.4765**	**2.1887**		**6,822.1950**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3201	9.9327	3.5555	0.0434	1.9558	0.0184	1.9742	0.5102	0.0176	0.5277		4,725.8293	4,725.8293	0.3250		4,733.9546
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.6749**	**13.5215**	**13.8531**	**0.0830**	**5.5652**	**0.0473**	**5.6125**	**1.4732**	**0.0443**	**1.5175**		**8,742.9562**	**8,742.9562**	**0.4606**		**8,754.4713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7312	0.0000	5.7312	2.6936	0.0000	2.6936			0.0000			0.0000
Off-Road	0.8573	3.7149	36.5095	0.0699		0.0172	0.0172		0.0172	0.0172	0.0000	6,767.4765	6,767.4765	2.1887		6,822.1950
Total	**0.8573**	**3.7149**	**36.5095**	**0.0699**	**5.7312**	**0.0172**	**5.7484**	**2.6936**	**0.0172**	**2.7108**	**0.0000**	**6,767.4765**	**6,767.4765**	**2.1887**		**6,822.1950**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3201	9.9327	3.5555	0.0434	1.9558	0.0184	1.9742	0.5102	0.0176	0.5277		4,725.8293	4,725.8293	0.3250		4,733.9546
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.6749**	**13.5215**	**13.8531**	**0.0830**	**5.5652**	**0.0473**	**5.6125**	**1.4732**	**0.0443**	**1.5175**		**8,742.9562**	**8,742.9562**	**0.4606**		**8,754.4713**

3.4 Building Construction & Track Laydown - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9376	18.1774	22.4155	0.0372		0.7602	0.7602		0.7184	0.7184		3,502.9491	3,502.9491	0.8699		3,524.6965
Total	**1.9376**	**18.1774**	**22.4155**	**0.0372**		**0.7602**	**0.7602**		**0.7184**	**0.7184**		**3,502.9491**	**3,502.9491**	**0.8699**		**3,524.6965**

3.4 Building Construction & Track Laydown - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.3548**	**3.5887**	**10.2977**	**0.0396**	**3.6094**	**0.0289**	**3.6383**	**0.9631**	**0.0267**	**0.9898**		**4,017.1270**	**4,017.1270**	**0.1356**		**4,020.5167**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4652	3.6442	24.5064	0.0372		8.4300e-003	8.4300e-003		8.4300e-003	8.4300e-003	0.0000	3,502.9491	3,502.9491	0.8699		3,524.6965
Total	**0.4652**	**3.6442**	**24.5064**	**0.0372**		**8.4300e-003**	**8.4300e-003**		**8.4300e-003**	**8.4300e-003**	**0.0000**	**3,502.9491**	**3,502.9491**	**0.8699**		**3,524.6965**

3.4 Building Construction & Track Laydown - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.3548**	**3.5887**	**10.2977**	**0.0396**	**3.6094**	**0.0289**	**3.6383**	**0.9631**	**0.0267**	**0.9898**		**4,017.1270**	**4,017.1270**	**0.1356**		**4,020.5167**

3.4 Building Construction & Track Laydown - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8274	17.2058	22.3400	0.0372		0.6742	0.6742		0.6367	0.6367		3,503.3062	3,503.3062	0.8649		3,524.9287
Total	**1.8274**	**17.2058**	**22.3400**	**0.0372**		**0.6742**	**0.6742**		**0.6367**	**0.6367**		**3,503.3062**	**3,503.3062**	**0.8649**		**3,524.9287**

3.4 Building Construction & Track Laydown - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	1.2011	0.7286	8.7073	0.0291	3.3533	0.0251	3.3784	0.8893	0.0231	0.9125		2,897.4113	2,897.4113	0.0705		2,899.1740
Total	**1.2879**	**3.5082**	**9.6233**	**0.0386**	**3.6094**	**0.0285**	**3.6379**	**0.9631**	**0.0263**	**0.9894**		**3,920.3936**	**3,920.3936**	**0.1283**		**3,923.6001**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4652	3.6442	24.5064	0.0372		8.4300e-003	8.4300e-003		8.4300e-003	8.4300e-003	0.0000	3,503.3062	3,503.3062	0.8649		3,524.9287
Total	**0.4652**	**3.6442**	**24.5064**	**0.0372**		**8.4300e-003**	**8.4300e-003**		**8.4300e-003**	**8.4300e-003**	**0.0000**	**3,503.3062**	**3,503.3062**	**0.8649**		**3,524.9287**

3.4 Building Construction & Track Laydown - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	1.2011	0.7286	8.7073	0.0291	3.3533	0.0251	3.3784	0.8893	0.0231	0.9125		2,897.4113	2,897.4113	0.0705		2,899.1740
Total	**1.2879**	**3.5082**	**9.6233**	**0.0386**	**3.6094**	**0.0285**	**3.6379**	**0.9631**	**0.0263**	**0.9894**		**3,920.3936**	**3,920.3936**	**0.1283**		**3,923.6001**

3.5 Paving Parking & Access Roads - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1766	11.2916	16.9044	0.0259		0.5706	0.5706		0.5249	0.5249		2,503.6089	2,503.6089	0.8097		2,523.8518
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4281**	**11.2916**	**16.9044**	**0.0259**		**0.5706**	**0.5706**		**0.5249**	**0.5249**		**2,503.6089**	**2,503.6089**	**0.8097**		**2,523.8518**

3.5 Paving Parking & Access Roads - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	0.8007	0.4858	5.8049	0.0194	2.2355	0.0168	2.2523	0.5929	0.0154	0.6083		1,931.6076	1,931.6076	0.0470		1,932.7827
Total	**0.8876**	**3.2653**	**6.7209**	**0.0289**	**2.4916**	**0.0201**	**2.5117**	**0.6666**	**0.0186**	**0.6852**		**2,954.5898**	**2,954.5898**	**0.1048**		**2,957.2088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3181	1.3786	19.6188	0.0259		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.0000	2,503.6089	2,503.6089	0.8097		2,523.8518
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5697**	**1.3786**	**19.6188**	**0.0259**		**6.3600e-003**	**6.3600e-003**		**6.3600e-003**	**6.3600e-003**	**0.0000**	**2,503.6089**	**2,503.6089**	**0.8097**		**2,523.8518**

3.5 Paving Parking & Access Roads - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	0.8007	0.4858	5.8049	0.0194	2.2355	0.0168	2.2523	0.5929	0.0154	0.6083		1,931.6076	1,931.6076	0.0470		1,932.7827
Total	**0.8876**	**3.2653**	**6.7209**	**0.0289**	**2.4916**	**0.0201**	**2.5117**	**0.6666**	**0.0186**	**0.6852**		**2,954.5898**	**2,954.5898**	**0.1048**		**2,957.2088**

3.5 Paving Parking & Access Roads - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0889	10.2187	16.8455	0.0259		0.5062	0.5062		0.4657	0.4657		2,502.8068	2,502.8068	0.8095		2,523.0433
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3405**	**10.2187**	**16.8455**	**0.0259**		**0.5062**	**0.5062**		**0.4657**	**0.4657**		**2,502.8068**	**2,502.8068**	**0.8095**		**2,523.0433**

3.5 Paving Parking & Access Roads - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0846	2.7560	0.8926	9.4900e-003	0.2561	3.2800e-003	0.2594	0.0737	3.1400e-003	0.0769		1,017.4970	1,017.4970	0.0569		1,018.9191
Worker	0.7627	0.4444	5.3862	0.0186	2.2355	0.0164	2.2519	0.5929	0.0151	0.6080		1,856.8337	1,856.8337	0.0428		1,857.9048
Total	**0.8473**	**3.2004**	**6.2788**	**0.0281**	**2.4916**	**0.0197**	**2.5113**	**0.6666**	**0.0182**	**0.6849**		**2,874.3307**	**2,874.3307**	**0.0997**		**2,876.8238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3181	1.3786	19.6188	0.0259		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.0000	2,502.8068	2,502.8068	0.8095		2,523.0433
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5697**	**1.3786**	**19.6188**	**0.0259**		**6.3600e-003**	**6.3600e-003**		**6.3600e-003**	**6.3600e-003**	**0.0000**	**2,502.8068**	**2,502.8068**	**0.8095**		**2,523.0433**

3.5 Paving Parking & Access Roads - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0846	2.7560	0.8926	9.4900e-003	0.2561	3.2800e-003	0.2594	0.0737	3.1400e-003	0.0769		1,017.4970	1,017.4970	0.0569		1,018.9191
Worker	0.7627	0.4444	5.3862	0.0186	2.2355	0.0164	2.2519	0.5929	0.0151	0.6080		1,856.8337	1,856.8337	0.0428		1,857.9048
Total	**0.8473**	**3.2004**	**6.2788**	**0.0281**	**2.4916**	**0.0197**	**2.5113**	**0.6666**	**0.0182**	**0.6849**		**2,874.3307**	**2,874.3307**	**0.0997**		**2,876.8238**

3.6 Road Striping & Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.0298					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4820	3.2501	4.8270	7.9200e-003		0.1624	0.1624		0.1624	0.1624		750.5281	750.5281	0.0423		751.5847
Total	**23.5119**	**3.2501**	**4.8270**	**7.9200e-003**		**0.1624**	**0.1624**		**0.1624**	**0.1624**		**750.5281**	**750.5281**	**0.0423**		**751.5847**

3.6 Road Striping & Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4004	0.2429	2.9024	9.6900e-003	1.1178	8.3800e-003	1.1261	0.2964	7.7100e-003	0.3042		965.8038	965.8038	0.0235		966.3914
Total	**0.4004**	**0.2429**	**2.9024**	**9.6900e-003**	**1.1178**	**8.3800e-003**	**1.1261**	**0.2964**	**7.7100e-003**	**0.3042**		**965.8038**	**965.8038**	**0.0235**		**966.3914**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.0298					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0792	0.3434	4.8864	7.9200e-003		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	750.5281	750.5281	0.0423		751.5847
Total	**23.1091**	**0.3434**	**4.8864**	**7.9200e-003**		**1.5800e-003**	**1.5800e-003**		**1.5800e-003**	**1.5800e-003**	**0.0000**	**750.5281**	**750.5281**	**0.0423**		**751.5847**

3.6 Road Striping & Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4004	0.2429	2.9024	9.6900e-003	1.1178	8.3800e-003	1.1261	0.2964	7.7100e-003	0.3042		965.8038	965.8038	0.0235		966.3914
Total	**0.4004**	**0.2429**	**2.9024**	**9.6900e-003**	**1.1178**	**8.3800e-003**	**1.1261**	**0.2964**	**7.7100e-003**	**0.3042**		**965.8038**	**965.8038**	**0.0235**		**966.3914**

3.6 Road Striping & Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.0298					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4556	3.0547	4.8244	7.9200e-003		0.1374	0.1374		0.1374	0.1374		750.5281	750.5281	0.0409		751.5516
Total	**23.4854**	**3.0547**	**4.8244**	**7.9200e-003**		**0.1374**	**0.1374**		**0.1374**	**0.1374**		**750.5281**	**750.5281**	**0.0409**		**751.5516**

3.6 Road Striping & Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3814	0.2222	2.6931	9.3100e-003	1.1178	8.2000e-003	1.1260	0.2964	7.5500e-003	0.3040		928.4168	928.4168	0.0214		928.9524
Total	**0.3814**	**0.2222**	**2.6931**	**9.3100e-003**	**1.1178**	**8.2000e-003**	**1.1260**	**0.2964**	**7.5500e-003**	**0.3040**		**928.4168**	**928.4168**	**0.0214**		**928.9524**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.0298					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0792	0.3434	4.8864	7.9200e-003		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	750.5281	750.5281	0.0409		751.5516
Total	**23.1091**	**0.3434**	**4.8864**	**7.9200e-003**		**1.5800e-003**	**1.5800e-003**		**1.5800e-003**	**1.5800e-003**	**0.0000**	**750.5281**	**750.5281**	**0.0409**		**751.5516**

3.6 Road Striping & Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3814	0.2222	2.6931	9.3100e-003	1.1178	8.2000e-003	1.1260	0.2964	7.5500e-003	0.3040		928.4168	928.4168	0.0214		928.9524
Total	**0.3814**	**0.2222**	**2.6931**	**9.3100e-003**	**1.1178**	**8.2000e-003**	**1.1260**	**0.2964**	**7.5500e-003**	**0.3040**		**928.4168**	**928.4168**	**0.0214**		**928.9524**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3599	1.7601	5.1159	0.0232	2.3547	0.0163	2.3710	0.6299	0.0152	0.6451		2,375.1628	2,375.1628	0.1027		2,377.7306
Unmitigated	0.3599	1.7601	5.1159	0.0232	2.3547	0.0163	2.3710	0.6299	0.0152	0.6451		2,375.1628	2,375.1628	0.1027		2,377.7306

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
Industrial Park	250.14	250.14	250.14	1,107,686	1,107,686
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	250.14	250.14	250.14	1,107,686	1,107,686

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Industrial Park	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Other Asphalt Surfaces	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Other Non-Asphalt Surfaces	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Parking Lot	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Unrefrigerated Warehouse-Rail	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

LACMTA West Santa Ana Branch MSF - Paramount Option - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0505	0.4587	0.3853	2.7500e-003		0.0349	0.0349		0.0349	0.0349		550.4078	550.4078	0.0106	0.0101	553.6786
NaturalGas Unmitigated	0.0505	0.4587	0.3853	2.7500e-003		0.0349	0.0349		0.0349	0.0349		550.4078	550.4078	0.0106	0.0101	553.6786

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	1213.44	0.0131	0.1190	0.0999	7.1000e-004		9.0400e-003	9.0400e-003		9.0400e-003	9.0400e-003		142.7581	142.7581	2.7400e-003	2.6200e-003	143.6064
General Light Industry	334.23	3.6000e-003	0.0328	0.0275	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003		39.3212	39.3212	7.5000e-004	7.2000e-004	39.5549
General Light Industry	400.184	4.3200e-003	0.0392	0.0330	2.4000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003		47.0804	47.0804	9.0000e-004	8.6000e-004	47.3602
Industrial Park	2712.59	0.0293	0.2659	0.2234	1.6000e-003		0.0202	0.0202		0.0202	0.0202		319.1282	319.1282	6.1200e-003	5.8500e-003	321.0246
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	18.0197	1.9000e-004	1.7700e-003	1.4800e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		2.1200	2.1200	4.0000e-005	4.0000e-005	2.1326
Total		**0.0505**	**0.4587**	**0.3853**	**2.7600e-003**		**0.0349**	**0.0349**		**0.0349**	**0.0349**		**550.4078**	**550.4078**	**0.0106**	**0.0101**	**553.6786**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	1.21344	0.0131	0.1190	0.0999	7.1000e-004		9.0400e-003	9.0400e-003		9.0400e-003	9.0400e-003		142.7581	142.7581	2.7400e-003	2.6200e-003	143.6064
General Light Industry	0.33423	3.6000e-003	0.0328	0.0275	2.0000e-004		2.4900e-003	2.4900e-003		2.4900e-003	2.4900e-003		39.3212	39.3212	7.5000e-004	7.2000e-004	39.5549
General Light Industry	0.400184	4.3200e-003	0.0392	0.0330	2.4000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003		47.0804	47.0804	9.0000e-004	8.6000e-004	47.3602
Industrial Park	2.71259	0.0293	0.2659	0.2234	1.6000e-003		0.0202	0.0202		0.0202	0.0202		319.1282	319.1282	6.1200e-003	5.8500e-003	321.0246
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	0.0180197	1.9000e-004	1.7700e-003	1.4800e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		2.1200	2.1200	4.0000e-005	4.0000e-005	2.1326
Total		**0.0505**	**0.4587**	**0.3853**	**2.7600e-003**		**0.0349**	**0.0349**		**0.0349**	**0.0349**		**550.4078**	**550.4078**	**0.0106**	**0.0101**	**553.6786**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.4870	4.3000e-004	0.0474	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1018	0.1018	2.6000e-004		0.1084
Unmitigated	3.4870	4.3000e-004	0.0474	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1018	0.1018	2.6000e-004		0.1084

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1041					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.3600e-003	4.3000e-004	0.0474	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1018	0.1018	2.6000e-004		0.1084
Total	**3.4870**	**4.3000e-004**	**0.0474**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.1018**	**0.1018**	**2.6000e-004**		**0.1084**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.1041					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.3600e-003	4.3000e-004	0.0474	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.1018	0.1018	2.6000e-004		0.1084
Total	**3.4870**	**4.3000e-004**	**0.0474**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.1018**	**0.1018**	**2.6000e-004**		**0.1084**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Construction Emissions

Light Rail Corridor Construction
Maximum Daily Activity Emissions

LACMTA West Santa Ana Branch - Maximum Daily Construction Activity

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	10.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

LACMTA West Santa Ana Branch - Maximum Daily Construction Activity - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Lot acreage approximated as 5x 2-acre sites.

Construction Phase - Maximum Single-Day Construction Activity (Concurrent)

Off-road Equipment - Maximum Daily Activity Intensity

Off-road Equipment - Maximum Daily Activity Intensity

Off-road Equipment - Maximum Daily Activity

Off-road Equipment - Maximum Daily Activity Intensity

Off-road Equipment - Maximum Daily Activity Intensity

Off-road Equipment - Maximum Daily Activity

Trips and VMT - Maximum Daily Activity Intensity: 750 workers; 80 vendor deliveries; 120 truck loads

MSF (separate file): 150 workers, 20 vendor deliveries, 30 truck loads.

Demolition -

Grading - 10 CY Trucks.

Construction Off-road Equipment Mitigation - LACMTA Green Construction Policy

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	1.00
tblConstructionPhase	NumDays	230.00	1.00
tblConstructionPhase	NumDays	20.00	1.00

LACMTA West Santa Ana Branch - Maximum Daily Construction Activity - Los Angeles-South Coast County, Winter

tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	NumDays	10.00	1.00
tblGrading	AcresOfGrading	1.00	2.00
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LotAcreage	0.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		At-Grade LRT Construction
tblOffRoadEquipment	PhaseName		Aerial LRT Construction
tblOffRoadEquipment	PhaseName		Systems Installation

tblOffRoadEquipment	PhaseName		At-Grade LRT Construction
tblOffRoadEquipment	PhaseName		Underground LRT - Excavation & Grading
tblOffRoadEquipment	PhaseName		Systems Installation
tblOffRoadEquipment	PhaseName		At-Grade LRT Construction
tblOffRoadEquipment	PhaseName		Aerial LRT Construction
tblOffRoadEquipment	PhaseName		At-Grade LRT Construction
tblOffRoadEquipment	PhaseName		Demolition & Relocation
tblOffRoadEquipment	PhaseName		Underground LRT - Excavation & Grading
tblOffRoadEquipment	PhaseName		Aerial LRT Construction
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	45.00	120.00
tblTripsAndVMT	HaulingTripNumber	188.00	120.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	VendorTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripNumber	20.00	300.00
tblTripsAndVMT	WorkerTripNumber	25.00	300.00
tblTripsAndVMT	WorkerTripNumber	30.00	300.00
tblTripsAndVMT	WorkerTripNumber	0.00	300.00
tblTripsAndVMT	WorkerTripNumber	0.00	300.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	25.9945	257.2760	197.5116	0.6614	64.2321	8.1953	72.4274	24.1881	7.5592	31.7474	0.0000	67,017.3072	67,017.3072	10.8443	0.0000	67,288.4135
Maximum	**25.9945**	**257.2760**	**197.5116**	**0.6614**	**64.2321**	**8.1953**	**72.4274**	**24.1881**	**7.5592**	**31.7474**	**0.0000**	**67,017.3072**	**67,017.3072**	**10.8443**	**0.0000**	**67,288.4135**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	12.6304	94.7327	229.5483	0.6614	38.4629	0.4040	38.8669	13.0274	0.3848	13.4123	0.0000	67,017.3072	67,017.3072	10.8443	0.0000	67,288.4135
Maximum	**12.6304**	**94.7327**	**229.5483**	**0.6614**	**38.4629**	**0.4040**	**38.8669**	**13.0274**	**0.3848**	**13.4123**	**0.0000**	**67,017.3072**	**67,017.3072**	**10.8443**	**0.0000**	**67,288.4135**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**51.41**	**63.18**	**-16.22**	**0.00**	**40.12**	**95.07**	**46.34**	**46.14**	**94.91**	**57.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition & Relocation	Demolition	7/4/2022	7/4/2022	5	1	
2	Systems Installation	Site Preparation	7/4/2022	7/4/2022	5	1	
3	Underground LRT - Excavation & Grading	Grading	7/4/2022	7/4/2022	5	1	
4	At-Grade LRT Construction	Building Construction	7/4/2022	7/4/2022	5	1	
5	Aerial LRT Construction	Building Construction	7/4/2022	7/4/2022	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

LACMTA West Santa Ana Branch - Maximum Daily Construction Activity - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition & Relocation	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition & Relocation	Excavators	3	8.00	158	0.38
Demolition & Relocation	Rubber Tired Dozers	2	8.00	247	0.40
Demolition & Relocation	Rubber Tired Loaders	2	8.00	203	0.36
Systems Installation	Cranes	1	8.00	231	0.29
Systems Installation	Rough Terrain Forklifts	3	8.00	100	0.40
Systems Installation	Rubber Tired Dozers	3	8.00	247	0.40
Systems Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Underground LRT - Excavation & Grading	Excavators	2	8.00	158	0.38
Underground LRT - Excavation & Grading	Graders	2	8.00	187	0.41
Underground LRT - Excavation & Grading	Rollers	2	8.00	80	0.38
Underground LRT - Excavation & Grading	Rubber Tired Dozers	2	8.00	247	0.40
Underground LRT - Excavation & Grading	Rubber Tired Loaders	2	8.00	203	0.36
Underground LRT - Excavation & Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
At-Grade LRT Construction	Bore/Drill Rigs	2	8.00	221	0.50
At-Grade LRT Construction	Other Construction Equipment	2	8.00	172	0.42
At-Grade LRT Construction	Rough Terrain Forklifts	2	8.00	100	0.40
At-Grade LRT Construction	Rubber Tired Dozers	2	8.00	247	0.40
At-Grade LRT Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Aerial LRT Construction	Bore/Drill Rigs	2	8.00	221	0.50
Aerial LRT Construction	Cranes	2	8.00	231	0.29
Aerial LRT Construction	Rough Terrain Forklifts	2	8.00	100	0.40
Aerial LRT Construction	Rubber Tired Loaders	2	8.00	203	0.36
Aerial LRT Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition & Relocation	8	300.00	0.00	120.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Systems Installation	10	300.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Underground LRT - Excavation & Grading	12	300.00	0.00	120.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
At-Grade LRT Construction	10	300.00	60.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Aerial LRT Construction	10	300.00	60.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition & Relocation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.8435	0.0000	9.8435	1.4904	0.0000	1.4904			0.0000			0.0000
Off-Road	3.2219	31.7694	23.6565	0.0513		1.4456	1.4456		1.3420	1.3420		4,958.1098	4,958.1098	1.4442		4,994.2149
Total	**3.2219**	**31.7694**	**23.6565**	**0.0513**	**9.8435**	**1.4456**	**11.2891**	**1.4904**	**1.3420**	**2.8324**		**4,958.1098**	**4,958.1098**	**1.4442**		**4,994.2149**

3.2 Demolition & Relocation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9752	30.2439	7.9053	0.0908	2.0983	0.0872	2.1855	0.5752	0.0834	0.6586		9,861.8008	9,861.8008	0.7021		9,879.3543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**2.3187**	**31.1275**	**18.0806**	**0.1219**	**5.4516**	**0.1134**	**5.5651**	**1.4645**	**0.1076**	**1.5721**		**12,965.5092**	**12,965.5092**	**0.7876**		**12,985.1991**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.8390	0.0000	3.8390	0.5813	0.0000	0.5813			0.0000			0.0000
Off-Road	0.6170	2.6735	28.9511	0.0513		0.0123	0.0123		0.0123	0.0123	0.0000	4,958.1098	4,958.1098	1.4442		4,994.2149
Total	**0.6170**	**2.6735**	**28.9511**	**0.0513**	**3.8390**	**0.0123**	**3.8513**	**0.5813**	**0.0123**	**0.5936**	**0.0000**	**4,958.1098**	**4,958.1098**	**1.4442**		**4,994.2149**

3.2 Demolition & Relocation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9752	30.2439	7.9053	0.0908	2.0983	0.0872	2.1855	0.5752	0.0834	0.6586		9,861.8008	9,861.8008	0.7021		9,879.3543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**2.3187**	**31.1275**	**18.0806**	**0.1219**	**5.4516**	**0.1134**	**5.5651**	**1.4645**	**0.1076**	**1.5721**		**12,965.5092**	**12,965.5092**	**0.7876**		**12,985.1991**

3.3 Systems Installation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.7140	40.0331	26.2173	0.0511		1.8511	1.8511		1.7030	1.7030		4,944.9167	4,944.9167	1.5993		4,984.8988
Total	**3.7140**	**40.0331**	**26.2173**	**0.0511**	**18.0663**	**1.8511**	**19.9173**	**9.9307**	**1.7030**	**11.6337**		**4,944.9167**	**4,944.9167**	**1.5993**		**4,984.8988**

3.3 Systems Installation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.4633**	**4.5668**	**11.2384**	**0.0411**	**3.6094**	**0.0334**	**3.6428**	**0.9630**	**0.0310**	**0.9941**		**4,163.5895**	**4,163.5895**	**0.1521**		**4,167.3913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	0.6255	2.7104	28.9571	0.0511		0.0125	0.0125		0.0125	0.0125	0.0000	4,944.9167	4,944.9167	1.5993		4,984.8988
Total	**0.6255**	**2.7104**	**28.9571**	**0.0511**	**7.0458**	**0.0125**	**7.0584**	**3.8730**	**0.0125**	**3.8855**	**0.0000**	**4,944.9167**	**4,944.9167**	**1.5993**		**4,984.8988**

3.3 Systems Installation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.4633**	**4.5668**	**11.2384**	**0.0411**	**3.6094**	**0.0334**	**3.6428**	**0.9630**	**0.0310**	**0.9941**		**4,163.5895**	**4,163.5895**	**0.1521**		**4,167.3913**

3.4 Underground LRT - Excavation & Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.3348	0.0000	14.3348	6.8752	0.0000	6.8752			0.0000			0.0000
Off-Road	4.1538	44.5095	28.3768	0.0646		1.9231	1.9231		1.7692	1.7692		6,258.6733	6,258.6733	2.0242		6,309.2778
Total	**4.1538**	**44.5095**	**28.3768**	**0.0646**	**14.3348**	**1.9231**	**16.2579**	**6.8752**	**1.7692**	**8.6444**		**6,258.6733**	**6,258.6733**	**2.0242**		**6,309.2778**

3.4 Underground LRT - Excavation & Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9752	30.2439	7.9053	0.0908	2.0983	0.0872	2.1855	0.5752	0.0834	0.6586		9,861.8008	9,861.8008	0.7021		9,879.3543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**2.3187**	**31.1275**	**18.0806**	**0.1219**	**5.4516**	**0.1134**	**5.5651**	**1.4645**	**0.1076**	**1.5721**		**12,965.5092**	**12,965.5092**	**0.7876**		**12,985.1991**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5906	0.0000	5.5906	2.6813	0.0000	2.6813			0.0000			0.0000
Off-Road	0.7934	3.4381	35.7760	0.0646		0.0159	0.0159		0.0159	0.0159	0.0000	6,258.6733	6,258.6733	2.0242		6,309.2778
Total	**0.7934**	**3.4381**	**35.7760**	**0.0646**	**5.5906**	**0.0159**	**5.6064**	**2.6813**	**0.0159**	**2.6972**	**0.0000**	**6,258.6733**	**6,258.6733**	**2.0242**		**6,309.2778**

3.4 Underground LRT - Excavation & Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.9752	30.2439	7.9053	0.0908	2.0983	0.0872	2.1855	0.5752	0.0834	0.6586		9,861.8008	9,861.8008	0.7021		9,879.3543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**2.3187**	**31.1275**	**18.0806**	**0.1219**	**5.4516**	**0.1134**	**5.5651**	**1.4645**	**0.1076**	**1.5721**		**12,965.5092**	**12,965.5092**	**0.7876**		**12,985.1991**

3.5 At-Grade LRT Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4275	36.0623	28.3395	0.0614		1.6619	1.6619		1.5289	1.5289		5,947.8417	5,947.8417	1.9237		5,995.9330
Total	**3.4275**	**36.0623**	**28.3395**	**0.0614**		**1.6619**	**1.6619**		**1.5289**	**1.5289**		**5,947.8417**	**5,947.8417**	**1.9237**		**5,995.9330**

3.5 At-Grade LRT Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1797	5.5248	1.5946	0.0149	0.3841	0.0108	0.3949	0.1106	0.0103	0.1209		1,589.8217	1,589.8217	0.0999		1,592.3196
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.5233**	**6.4084**	**11.7699**	**0.0460**	**3.7374**	**0.0370**	**3.7744**	**0.9999**	**0.0345**	**1.0344**		**4,693.5300**	**4,693.5300**	**0.1854**		**4,698.1644**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7565	3.2781	35.5752	0.0614		0.0151	0.0151		0.0151	0.0151	0.0000	5,947.8417	5,947.8417	1.9237		5,995.9330
Total	**0.7565**	**3.2781**	**35.5752**	**0.0614**		**0.0151**	**0.0151**		**0.0151**	**0.0151**	**0.0000**	**5,947.8417**	**5,947.8417**	**1.9237**		**5,995.9330**

3.5 At-Grade LRT Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1797	5.5248	1.5946	0.0149	0.3841	0.0108	0.3949	0.1106	0.0103	0.1209		1,589.8217	1,589.8217	0.0999		1,592.3196
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.5233**	**6.4084**	**11.7699**	**0.0460**	**3.7374**	**0.0370**	**3.7744**	**0.9999**	**0.0345**	**1.0344**		**4,693.5300**	**4,693.5300**	**0.1854**		**4,698.1644**

3.6 Aerial LRT Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3301	25.2632	19.9821	0.0561		0.9794	0.9794		0.9010	0.9010		5,426.0978	5,426.0978	1.7549		5,469.9706
Total	**2.3301**	**25.2632**	**19.9821**	**0.0561**		**0.9794**	**0.9794**		**0.9010**	**0.9010**		**5,426.0978**	**5,426.0978**	**1.7549**		**5,469.9706**

3.6 Aerial LRT Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1797	5.5248	1.5946	0.0149	0.3841	0.0108	0.3949	0.1106	0.0103	0.1209		1,589.8217	1,589.8217	0.0999		1,592.3196
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.5233**	**6.4084**	**11.7699**	**0.0460**	**3.7374**	**0.0370**	**3.7744**	**0.9999**	**0.0345**	**1.0344**		**4,693.5300**	**4,693.5300**	**0.1854**		**4,698.1644**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6909	2.9940	29.3496	0.0561		0.0138	0.0138		0.0138	0.0138	0.0000	5,426.0978	5,426.0978	1.7549		5,469.9706
Total	**0.6909**	**2.9940**	**29.3496**	**0.0561**		**0.0138**	**0.0138**		**0.0138**	**0.0138**	**0.0000**	**5,426.0978**	**5,426.0978**	**1.7549**		**5,469.9706**

3.6 Aerial LRT Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1797	5.5248	1.5946	0.0149	0.3841	0.0108	0.3949	0.1106	0.0103	0.1209		1,589.8217	1,589.8217	0.0999		1,592.3196
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.5233**	**6.4084**	**11.7699**	**0.0460**	**3.7374**	**0.0370**	**3.7744**	**0.9999**	**0.0345**	**1.0344**		**4,693.5300**	**4,693.5300**	**0.1854**		**4,698.1644**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Construction Emissions

Maintenance and Storage Facility (MSF)
Daily CalEEMod Output File

LACMTA West Santa Ana Branch MSF - Bellflower Option

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.60	1000sqft	0.11	4,600.00	0
General Light Industry	12.10	1000sqft	0.28	12,100.00	0
Industrial Park	103.44	1000sqft	2.37	103,440.00	0
Unrefrigerated Warehouse-Rail	11.90	1000sqft	0.27	11,900.00	0
Other Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Other Non-Asphalt Surfaces	12.50	Acre	12.50	544,500.00	0
Parking Lot	307.00	Space	2.76	122,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

LACMTA West Santa Ana Branch MSF - Bellflower Option - Los Angeles-South Coast County, Winter

Project Characteristics -

Construction Phase - Preliminary Schedule

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Off-road Equipment - Project Inventory

Trips and VMT - Maximum Daily Workers = 150.
Daily Haul Trips = 30 x 90 = 2700 (Demo), 60 x 360 = 21600

Grading - Equip = 1 scraper (1 acre/day), 2 graders (1 acres/day), 1 crawler tractor (0.5 acres/day) = 2.5 acres/day x 360 days = 900

Vehicle Trips - 250 trips/day

Area Coating - SCAQMD Rule 1113 - Building Envelope = 50 g/L

Construction Off-road Equipment Mitigation - Metro GCP Compliance

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstructionPhase	NumDays	20.00	90.00
tblConstructionPhase	NumDays	10.00	360.00
tblConstructionPhase	NumDays	370.00	450.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	910.00	5,400.00
tblTripsAndVMT	HaulingTripNumber	0.00	21,600.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	VendorTripNumber	152.00	40.00
tblTripsAndVMT	VendorTripNumber	0.00	40.00
tblTripsAndVMT	WorkerTripNumber	25.00	300.00
tblTripsAndVMT	WorkerTripNumber	25.00	300.00
tblTripsAndVMT	WorkerTripNumber	391.00	300.00
tblTripsAndVMT	WorkerTripNumber	20.00	200.00
tblTripsAndVMT	WorkerTripNumber	78.00	100.00
tblVehicleTrips	DV_TP	19.00	5.00
tblVehicleTrips	PB_TP	2.00	3.00
tblVehicleTrips	PR_TP	79.00	92.00

tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.49	2.42
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	0.73	2.42
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	6.83	2.42
tblVehicleTrips	WD_TR	1.68	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.5005	69.6478	45.4753	0.1563	20.0481	2.1741	22.2221	8.3277	2.0020	10.3298	0.0000	15,862.9532	15,862.9532	2.6922	0.0000	15,930.2581
2023	5.7221	56.6584	42.8099	0.1529	20.2606	1.8174	22.0780	8.3799	1.6728	10.0527	0.0000	15,510.4328	15,510.4328	2.6493	0.0000	15,576.6663
2024	24.7469	20.7140	31.9632	0.0758	3.6094	0.7615	4.3709	0.9631	0.7137	1.6768	0.0000	7,423.6998	7,423.6998	0.9932	0.0000	7,448.5288
2025	24.5736	16.6959	30.6417	0.0712	3.6094	0.6714	4.2808	0.9631	0.6288	1.5919	0.0000	7,056.0825	7,056.0825	0.9715	0.0000	7,080.3711
Maximum	**24.7469**	**69.6478**	**45.4753**	**0.1563**	**20.2606**	**2.1741**	**22.2221**	**8.3799**	**2.0020**	**10.3298**	**0.0000**	**15,862.9532**	**15,862.9532**	**2.6922**	**0.0000**	**15,930.2581**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.8082	23.4037	51.7005	0.1563	11.0839	0.0942	11.1780	4.1146	0.0899	4.2045	0.0000	15,862.9532	15,862.9532	2.6922	0.0000	15,930.2581
2023	2.5321	17.2364	50.3626	0.1529	11.2964	0.0644	11.3608	4.1668	0.0615	4.2283	0.0000	15,510.4328	15,510.4328	2.6493	0.0000	15,576.6663
2024	23.4856	7.1524	34.1297	0.0758	3.6094	0.0369	3.6463	0.9631	0.0348	0.9978	0.0000	7,423.6998	7,423.6998	0.9932	0.0000	7,448.5288
2025	23.4264	5.1445	33.4771	0.0712	3.6094	0.0358	3.6452	0.9631	0.0337	0.9968	0.0000	7,056.0825	7,056.0825	0.9715	0.0000	7,080.3711
Maximum	**23.4856**	**23.4037**	**51.7005**	**0.1563**	**11.2964**	**0.0942**	**11.3608**	**4.1668**	**0.0899**	**4.2283**	**0.0000**	**15,862.9532**	**15,862.9532**	**2.6922**	**0.0000**	**15,930.2581**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.10**	**67.67**	**-12.45**	**0.00**	**37.72**	**95.74**	**43.66**	**45.22**	**95.62**	**55.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.2555	4.2000e-004	0.0463	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0995	0.0995	2.6000e-004		0.1060
Energy	0.0411	0.3732	0.3135	2.2400e-003		0.0284	0.0284		0.0284	0.0284		447.8432	447.8432	8.5800e-003	8.2100e-003	450.5045
Mobile	0.3601	1.7614	5.1197	0.0232	2.3564	0.0163	2.3728	0.6304	0.0152	0.6456		2,376.9241	2,376.9241	0.1028		2,379.4939
Total	**3.6567**	**2.1351**	**5.4794**	**0.0255**	**2.3564**	**0.0449**	**2.4013**	**0.6304**	**0.0437**	**0.6741**		**2,824.8668**	**2,824.8668**	**0.1116**	**8.2100e-003**	**2,830.1043**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.2555	4.2000e-004	0.0463	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0995	0.0995	2.6000e-004		0.1060
Energy	0.0411	0.3732	0.3135	2.2400e-003		0.0284	0.0284		0.0284	0.0284		447.8432	447.8432	8.5800e-003	8.2100e-003	450.5045
Mobile	0.3601	1.7614	5.1197	0.0232	2.3564	0.0163	2.3728	0.6304	0.0152	0.6456		2,376.9241	2,376.9241	0.1028		2,379.4939
Total	**3.6567**	**2.1351**	**5.4794**	**0.0255**	**2.3564**	**0.0449**	**2.4013**	**0.6304**	**0.0437**	**0.6741**		**2,824.8668**	**2,824.8668**	**0.1116**	**8.2100e-003**	**2,830.1043**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/7/2022	5/21/2022	6	90	
2	Site Preparation	Site Preparation	5/23/2022	7/15/2023	6	360	
3	Building Construction & Track Laydown	Building Construction	7/17/2023	12/21/2024	6	450	
4	Paving Parking & Access Roads	Paving	12/23/2024	3/1/2025	6	60	
5	Road Striping & Architectural Coating	Architectural Coating	12/23/2024	3/1/2025	6	60	

Acres of Grading (Site Preparation Phase): 900

Acres of Grading (Grading Phase): 0

Acres of Paving: 18.26

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 198,060; Non-Residential Outdoor: 66,020; Striped Parking Area: 47,879 (Architectural Coating – sqft)

OffRoad Equipment

LACMTA West Santa Ana Branch MSF - Bellflower Option - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Excavators	2	8.00	158	0.38
Demolition	Rough Terrain Forklifts	2	8.00	100	0.40
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Site Preparation	Crawler Tractors	1	8.00	212	0.43
Site Preparation	Excavators	2	8.00	158	0.38
Site Preparation	Graders	2	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction & Track Laydown	Cranes	1	8.00	231	0.29
Building Construction & Track Laydown	Generator Sets	1	8.00	84	0.74
Building Construction & Track Laydown	Rough Terrain Forklifts	3	8.00	100	0.40
Building Construction & Track Laydown	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction & Track Laydown	Welders	2	8.00	46	0.45
Paving Parking & Access Roads	Forklifts	2	8.00	89	0.20
Paving Parking & Access Roads	Pavers	2	8.00	130	0.42
Paving Parking & Access Roads	Paving Equipment	2	8.00	132	0.36
Paving Parking & Access Roads	Rollers	2	8.00	80	0.38
Road Striping & Architectural Coating	Air Compressors	2	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	10	300.00	40.00	5,400.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	10	300.00	40.00	21,600.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction & Track Laydown	10	300.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving Parking & Access Roads	8	200.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Road Striping & Architectural Coating	2	100.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1875	0.0000	2.1875	0.3312	0.0000	0.3312			0.0000			0.0000
Off-Road	3.6009	35.7542	28.6428	0.0593		1.6131	1.6131		1.5081	1.5081		5,718.2681	5,718.2681	1.5307		5,756.5357
Total	**3.6009**	**35.7542**	**28.6428**	**0.0593**	**2.1875**	**1.6131**	**3.8005**	**0.3312**	**1.5081**	**1.8393**		**5,718.2681**	**5,718.2681**	**1.5307**		**5,756.5357**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.0492	0.0436	1.0928	0.2876	0.0417	0.3293		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**4.6586**	**0.0770**	**4.7356**	**1.2506**	**0.0727**	**1.3234**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8531	0.0000	0.8531	0.1292	0.0000	0.1292			0.0000			0.0000
Off-Road	0.7007	3.0361	34.1122	0.0593		0.0140	0.0140		0.0140	0.0140	0.0000	5,718.2681	5,718.2681	1.5307		5,756.5357
Total	**0.7007**	**3.0361**	**34.1122**	**0.0593**	**0.8531**	**0.0140**	**0.8671**	**0.1292**	**0.0140**	**0.1432**	**0.0000**	**5,718.2681**	**5,718.2681**	**1.5307**		**5,756.5357**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.0492	0.0436	1.0928	0.2876	0.0417	0.3293		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**4.6586**	**0.0770**	**4.7356**	**1.2506**	**0.0727**	**1.3234**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.6954	0.0000	14.6954	6.9067	0.0000	6.9067			0.0000			0.0000
Off-Road	4.5496	49.9591	30.2843	0.0699		2.0971	2.0971		1.9293	1.9293		6,768.4633	6,768.4633	2.1891		6,823.1897
Total	**4.5496**	**49.9591**	**30.2843**	**0.0699**	**14.6954**	**2.0971**	**16.7925**	**6.9067**	**1.9293**	**8.8360**		**6,768.4633**	**6,768.4633**	**2.1891**		**6,823.1897**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.7433	0.0436	1.7869	0.4580	0.0417	0.4997		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**5.3527**	**0.0770**	**5.4297**	**1.4210**	**0.0727**	**1.4938**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7312	0.0000	5.7312	2.6936	0.0000	2.6936			0.0000			0.0000
Off-Road	0.8573	3.7149	36.5095	0.0699		0.0172	0.0172		0.0172	0.0172	0.0000	6,768.4633	6,768.4633	2.1891		6,823.1897
Total	**0.8573**	**3.7149**	**36.5095**	**0.0699**	**5.7312**	**0.0172**	**5.7484**	**2.6936**	**0.0172**	**2.7108**	**0.0000**	**6,768.4633**	**6,768.4633**	**2.1891**		**6,823.1897**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4876	15.1220	3.9527	0.0454	1.7433	0.0436	1.7869	0.4580	0.0417	0.4997		4,930.9004	4,930.9004	0.3511		4,939.6771
Vendor	0.1198	3.6832	1.0631	9.9100e-003	0.2561	7.1700e-003	0.2633	0.0737	6.8600e-003	0.0806		1,059.8811	1,059.8811	0.0666		1,061.5464
Worker	1.3435	0.8836	10.1753	0.0311	3.3533	0.0263	3.3795	0.8893	0.0242	0.9135		3,103.7084	3,103.7084	0.0855		3,105.8449
Total	**1.9509**	**19.6888**	**15.1910**	**0.0864**	**5.3527**	**0.0770**	**5.4297**	**1.4210**	**0.0727**	**1.4938**		**9,094.4899**	**9,094.4899**	**0.5031**		**9,107.0684**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.6954	0.0000	14.6954	6.9067	0.0000	6.9067			0.0000			0.0000
Off-Road	4.0473	43.1370	28.9568	0.0699		1.7701	1.7701		1.6285	1.6285		6,767.4765	6,767.4765	2.1887		6,822.1950
Total	**4.0473**	**43.1370**	**28.9568**	**0.0699**	**14.6954**	**1.7701**	**16.4655**	**6.9067**	**1.6285**	**8.5352**		**6,767.4765**	**6,767.4765**	**2.1887**		**6,822.1950**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3201	9.9327	3.5555	0.0434	1.9558	0.0184	1.9742	0.5102	0.0176	0.5277		4,725.8293	4,725.8293	0.3250		4,733.9546
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.6749**	**13.5215**	**13.8531**	**0.0830**	**5.5652**	**0.0473**	**5.6125**	**1.4732**	**0.0443**	**1.5175**		**8,742.9562**	**8,742.9562**	**0.4606**		**8,754.4713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7312	0.0000	5.7312	2.6936	0.0000	2.6936			0.0000			0.0000
Off-Road	0.8573	3.7149	36.5095	0.0699		0.0172	0.0172		0.0172	0.0172	0.0000	6,767.4765	6,767.4765	2.1887		6,822.1950
Total	**0.8573**	**3.7149**	**36.5095**	**0.0699**	**5.7312**	**0.0172**	**5.7484**	**2.6936**	**0.0172**	**2.7108**	**0.0000**	**6,767.4765**	**6,767.4765**	**2.1887**		**6,822.1950**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3201	9.9327	3.5555	0.0434	1.9558	0.0184	1.9742	0.5102	0.0176	0.5277		4,725.8293	4,725.8293	0.3250		4,733.9546
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.6749**	**13.5215**	**13.8531**	**0.0830**	**5.5652**	**0.0473**	**5.6125**	**1.4732**	**0.0443**	**1.5175**		**8,742.9562**	**8,742.9562**	**0.4606**		**8,754.4713**

3.4 Building Construction & Track Laydown - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9376	18.1774	22.4155	0.0372		0.7602	0.7602		0.7184	0.7184		3,502.9491	3,502.9491	0.8699		3,524.6965
Total	**1.9376**	**18.1774**	**22.4155**	**0.0372**		**0.7602**	**0.7602**		**0.7184**	**0.7184**		**3,502.9491**	**3,502.9491**	**0.8699**		**3,524.6965**

3.4 Building Construction & Track Laydown - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.3548**	**3.5887**	**10.2977**	**0.0396**	**3.6094**	**0.0289**	**3.6383**	**0.9631**	**0.0267**	**0.9898**		**4,017.1270**	**4,017.1270**	**0.1356**		**4,020.5167**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4652	3.6442	24.5064	0.0372		8.4300e-003	8.4300e-003		8.4300e-003	8.4300e-003	0.0000	3,502.9491	3,502.9491	0.8699		3,524.6965
Total	**0.4652**	**3.6442**	**24.5064**	**0.0372**		**8.4300e-003**	**8.4300e-003**		**8.4300e-003**	**8.4300e-003**	**0.0000**	**3,502.9491**	**3,502.9491**	**0.8699**		**3,524.6965**

3.4 Building Construction & Track Laydown - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0890	2.7896	0.9446	9.5900e-003	0.2561	3.4000e-003	0.2595	0.0737	3.2500e-003	0.0770		1,026.9652	1,026.9652	0.0586		1,028.4312
Worker	1.2657	0.7992	9.3530	0.0300	3.3533	0.0255	3.3788	0.8893	0.0235	0.9128		2,990.1617	2,990.1617	0.0770		2,992.0855
Total	**1.3548**	**3.5887**	**10.2977**	**0.0396**	**3.6094**	**0.0289**	**3.6383**	**0.9631**	**0.0267**	**0.9898**		**4,017.1270**	**4,017.1270**	**0.1356**		**4,020.5167**

3.4 Building Construction & Track Laydown - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8274	17.2058	22.3400	0.0372		0.6742	0.6742		0.6367	0.6367		3,503.3062	3,503.3062	0.8649		3,524.9287
Total	**1.8274**	**17.2058**	**22.3400**	**0.0372**		**0.6742**	**0.6742**		**0.6367**	**0.6367**		**3,503.3062**	**3,503.3062**	**0.8649**		**3,524.9287**

3.4 Building Construction & Track Laydown - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	1.2011	0.7286	8.7073	0.0291	3.3533	0.0251	3.3784	0.8893	0.0231	0.9125		2,897.4113	2,897.4113	0.0705		2,899.1740
Total	**1.2879**	**3.5082**	**9.6233**	**0.0386**	**3.6094**	**0.0285**	**3.6379**	**0.9631**	**0.0263**	**0.9894**		**3,920.3936**	**3,920.3936**	**0.1283**		**3,923.6001**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4652	3.6442	24.5064	0.0372		8.4300e-003	8.4300e-003		8.4300e-003	8.4300e-003	0.0000	3,503.3062	3,503.3062	0.8649		3,524.9287
Total	**0.4652**	**3.6442**	**24.5064**	**0.0372**		**8.4300e-003**	**8.4300e-003**		**8.4300e-003**	**8.4300e-003**	**0.0000**	**3,503.3062**	**3,503.3062**	**0.8649**		**3,524.9287**

3.4 Building Construction & Track Laydown - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	1.2011	0.7286	8.7073	0.0291	3.3533	0.0251	3.3784	0.8893	0.0231	0.9125		2,897.4113	2,897.4113	0.0705		2,899.1740
Total	**1.2879**	**3.5082**	**9.6233**	**0.0386**	**3.6094**	**0.0285**	**3.6379**	**0.9631**	**0.0263**	**0.9894**		**3,920.3936**	**3,920.3936**	**0.1283**		**3,923.6001**

3.5 Paving Parking & Access Roads - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1766	11.2916	16.9044	0.0259		0.5706	0.5706		0.5249	0.5249		2,503.6089	2,503.6089	0.8097		2,523.8518
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4281**	**11.2916**	**16.9044**	**0.0259**		**0.5706**	**0.5706**		**0.5249**	**0.5249**		**2,503.6089**	**2,503.6089**	**0.8097**		**2,523.8518**

3.5 Paving Parking & Access Roads - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	0.8007	0.4858	5.8049	0.0194	2.2355	0.0168	2.2523	0.5929	0.0154	0.6083		1,931.6076	1,931.6076	0.0470		1,932.7827
Total	**0.8876**	**3.2653**	**6.7209**	**0.0289**	**2.4916**	**0.0201**	**2.5117**	**0.6666**	**0.0186**	**0.6852**		**2,954.5898**	**2,954.5898**	**0.1048**		**2,957.2088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3181	1.3786	19.6188	0.0259		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.0000	2,503.6089	2,503.6089	0.8097		2,523.8518
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5697**	**1.3786**	**19.6188**	**0.0259**		**6.3600e-003**	**6.3600e-003**		**6.3600e-003**	**6.3600e-003**	**0.0000**	**2,503.6089**	**2,503.6089**	**0.8097**		**2,523.8518**

3.5 Paving Parking & Access Roads - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0868	2.7795	0.9160	9.5500e-003	0.2561	3.3500e-003	0.2595	0.0737	3.2000e-003	0.0769		1,022.9823	1,022.9823	0.0578		1,024.4261
Worker	0.8007	0.4858	5.8049	0.0194	2.2355	0.0168	2.2523	0.5929	0.0154	0.6083		1,931.6076	1,931.6076	0.0470		1,932.7827
Total	**0.8876**	**3.2653**	**6.7209**	**0.0289**	**2.4916**	**0.0201**	**2.5117**	**0.6666**	**0.0186**	**0.6852**		**2,954.5898**	**2,954.5898**	**0.1048**		**2,957.2088**

3.5 Paving Parking & Access Roads - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0889	10.2187	16.8455	0.0259		0.5062	0.5062		0.4657	0.4657		2,502.8068	2,502.8068	0.8095		2,523.0433
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3405**	**10.2187**	**16.8455**	**0.0259**		**0.5062**	**0.5062**		**0.4657**	**0.4657**		**2,502.8068**	**2,502.8068**	**0.8095**		**2,523.0433**

3.5 Paving Parking & Access Roads - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0846	2.7560	0.8926	9.4900e-003	0.2561	3.2800e-003	0.2594	0.0737	3.1400e-003	0.0769		1,017.4970	1,017.4970	0.0569		1,018.9191
Worker	0.7627	0.4444	5.3862	0.0186	2.2355	0.0164	2.2519	0.5929	0.0151	0.6080		1,856.8337	1,856.8337	0.0428		1,857.9048
Total	**0.8473**	**3.2004**	**6.2788**	**0.0281**	**2.4916**	**0.0197**	**2.5113**	**0.6666**	**0.0182**	**0.6849**		**2,874.3307**	**2,874.3307**	**0.0997**		**2,876.8238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3181	1.3786	19.6188	0.0259		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.0000	2,502.8068	2,502.8068	0.8095		2,523.0433
Paving	0.2515					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5697**	**1.3786**	**19.6188**	**0.0259**		**6.3600e-003**	**6.3600e-003**		**6.3600e-003**	**6.3600e-003**	**0.0000**	**2,502.8068**	**2,502.8068**	**0.8095**		**2,523.0433**

3.5 Paving Parking & Access Roads - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0846	2.7560	0.8926	9.4900e-003	0.2561	3.2800e-003	0.2594	0.0737	3.1400e-003	0.0769		1,017.4970	1,017.4970	0.0569		1,018.9191
Worker	0.7627	0.4444	5.3862	0.0186	2.2355	0.0164	2.2519	0.5929	0.0151	0.6080		1,856.8337	1,856.8337	0.0428		1,857.9048
Total	**0.8473**	**3.2004**	**6.2788**	**0.0281**	**2.4916**	**0.0197**	**2.5113**	**0.6666**	**0.0182**	**0.6849**		**2,874.3307**	**2,874.3307**	**0.0997**		**2,876.8238**

3.6 Road Striping & Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.5488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4820	3.2501	4.8270	7.9200e-003		0.1624	0.1624		0.1624	0.1624		750.5281	750.5281	0.0423		751.5847
Total	**22.0309**	**3.2501**	**4.8270**	**7.9200e-003**		**0.1624**	**0.1624**		**0.1624**	**0.1624**		**750.5281**	**750.5281**	**0.0423**		**751.5847**

3.6 Road Striping & Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4004	0.2429	2.9024	9.6900e-003	1.1178	8.3800e-003	1.1261	0.2964	7.7100e-003	0.3042		965.8038	965.8038	0.0235		966.3914
Total	**0.4004**	**0.2429**	**2.9024**	**9.6900e-003**	**1.1178**	**8.3800e-003**	**1.1261**	**0.2964**	**7.7100e-003**	**0.3042**		**965.8038**	**965.8038**	**0.0235**		**966.3914**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.5488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0792	0.3434	4.8864	7.9200e-003		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	750.5281	750.5281	0.0423		751.5847
Total	**21.6281**	**0.3434**	**4.8864**	**7.9200e-003**		**1.5800e-003**	**1.5800e-003**		**1.5800e-003**	**1.5800e-003**	**0.0000**	**750.5281**	**750.5281**	**0.0423**		**751.5847**

3.6 Road Striping & Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4004	0.2429	2.9024	9.6900e-003	1.1178	8.3800e-003	1.1261	0.2964	7.7100e-003	0.3042		965.8038	965.8038	0.0235		966.3914
Total	**0.4004**	**0.2429**	**2.9024**	**9.6900e-003**	**1.1178**	**8.3800e-003**	**1.1261**	**0.2964**	**7.7100e-003**	**0.3042**		**965.8038**	**965.8038**	**0.0235**		**966.3914**

3.6 Road Striping & Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.5488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4556	3.0547	4.8244	7.9200e-003		0.1374	0.1374		0.1374	0.1374		750.5281	750.5281	0.0409		751.5516
Total	**22.0044**	**3.0547**	**4.8244**	**7.9200e-003**		**0.1374**	**0.1374**		**0.1374**	**0.1374**		**750.5281**	**750.5281**	**0.0409**		**751.5516**

3.6 Road Striping & Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3814	0.2222	2.6931	9.3100e-003	1.1178	8.2000e-003	1.1260	0.2964	7.5500e-003	0.3040		928.4168	928.4168	0.0214		928.9524
Total	**0.3814**	**0.2222**	**2.6931**	**9.3100e-003**	**1.1178**	**8.2000e-003**	**1.1260**	**0.2964**	**7.5500e-003**	**0.3040**		**928.4168**	**928.4168**	**0.0214**		**928.9524**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	21.5488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0792	0.3434	4.8864	7.9200e-003		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	750.5281	750.5281	0.0409		751.5516
Total	**21.6281**	**0.3434**	**4.8864**	**7.9200e-003**		**1.5800e-003**	**1.5800e-003**		**1.5800e-003**	**1.5800e-003**	**0.0000**	**750.5281**	**750.5281**	**0.0409**		**751.5516**

3.6 Road Striping & Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3814	0.2222	2.6931	9.3100e-003	1.1178	8.2000e-003	1.1260	0.2964	7.5500e-003	0.3040		928.4168	928.4168	0.0214		928.9524
Total	**0.3814**	**0.2222**	**2.6931**	**9.3100e-003**	**1.1178**	**8.2000e-003**	**1.1260**	**0.2964**	**7.5500e-003**	**0.3040**		**928.4168**	**928.4168**	**0.0214**		**928.9524**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3601	1.7614	5.1197	0.0232	2.3564	0.0163	2.3728	0.6304	0.0152	0.6456		2,376.9241	2,376.9241	0.1028		2,379.4939
Unmitigated	0.3601	1.7614	5.1197	0.0232	2.3564	0.0163	2.3728	0.6304	0.0152	0.6456		2,376.9241	2,376.9241	0.1028		2,379.4939

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
Industrial Park	250.32	250.32	250.32	1,108,508	1,108,508
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-Rail	0.00	0.00	0.00		
Total	250.32	250.32	250.32	1,108,508	1,108,508

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Industrial Park	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Industrial Park	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Other Asphalt Surfaces	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Other Non-Asphalt Surfaces	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Parking Lot	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Unrefrigerated Warehouse-Rail	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

LACMTA West Santa Ana Branch MSF - Bellflower Option - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0411	0.3732	0.3135	2.2400e-003		0.0284	0.0284		0.0284	0.0284		447.8432	447.8432	8.5800e-003	8.2100e-003	450.5045
NaturalGas Unmitigated	0.0411	0.3732	0.3135	2.2400e-003		0.0284	0.0284		0.0284	0.0284		447.8432	447.8432	8.5800e-003	8.2100e-003	450.5045

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	228.11	2.4600e-003	0.0224	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003		26.8364	26.8364	5.1000e-004	4.9000e-004	26.9959
General Light Industry	600.027	6.4700e-003	0.0588	0.0494	3.5000e-004		4.4700e-003	4.4700e-003		4.4700e-003	4.4700e-003		70.5915	70.5915	1.3500e-003	1.2900e-003	71.0110
Industrial Park	2950.17	0.0318	0.2892	0.2430	1.7400e-003		0.0220	0.0220		0.0220	0.0220		347.0783	347.0783	6.6500e-003	6.3600e-003	349.1408
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	28.3644	3.1000e-004	2.7800e-003	2.3400e-003	2.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		3.3370	3.3370	6.0000e-005	6.0000e-005	3.3568
Total		**0.0411**	**0.3732**	**0.3135**	**2.2400e-003**		**0.0284**	**0.0284**		**0.0284**	**0.0284**		**447.8432**	**447.8432**	**8.5700e-003**	**8.2000e-003**	**450.5045**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.22811	2.4600e-003	0.0224	0.0188	1.3000e-004		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003		26.8364	26.8364	5.1000e-004	4.9000e-004	26.9959
General Light Industry	0.600027	6.4700e-003	0.0588	0.0494	3.5000e-004		4.4700e-003	4.4700e-003		4.4700e-003	4.4700e-003		70.5915	70.5915	1.3500e-003	1.2900e-003	71.0110
Industrial Park	2.95017	0.0318	0.2892	0.2430	1.7400e-003		0.0220	0.0220		0.0220	0.0220		347.0783	347.0783	6.6500e-003	6.3600e-003	349.1408
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-Rail	0.0283644	3.1000e-004	2.7800e-003	2.3400e-003	2.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		3.3370	3.3370	6.0000e-005	6.0000e-005	3.3568
Total		**0.0411**	**0.3732**	**0.3135**	**2.2400e-003**		**0.0284**	**0.0284**		**0.0284**	**0.0284**		**447.8432**	**447.8432**	**8.5700e-003**	**8.2000e-003**	**450.5045**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.2555	4.2000e-004	0.0463	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0995	0.0995	2.6000e-004		0.1060
Unmitigated	3.2555	4.2000e-004	0.0463	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0995	0.0995	2.6000e-004		0.1060

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3542					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.2600e-003	4.2000e-004	0.0463	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0995	0.0995	2.6000e-004		0.1060
Total	**3.2555**	**4.2000e-004**	**0.0463**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**0.0995**	**0.0995**	**2.6000e-004**		**0.1060**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3542					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.2600e-003	4.2000e-004	0.0463	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0995	0.0995	2.6000e-004		0.1060
Total	**3.2555**	**4.2000e-004**	**0.0463**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**0.0995**	**0.0995**	**2.6000e-004**		**0.1060**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation